SJ General Medicine Africa
Vol.1 No.9 (2024): September 2024 Issue
https://doi.org/10.51168/4vs41630
Original Article

INDIVIDUAL RISK FACTORS CONTRIBUTING TO PEPTIC ULCER DISEASE AMONG STUDENT NURSES OF KAMPALA UNIVERSITY MUTUNDWE CAMPUS, LUBAGA DIVISION, KAMPALA DISTRICT. A CROSS-SECTIONAL STUDY.

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ABSTRACT

Background:
Peptic ulcers are open sores that develop on the inside lining of your stomach and the upper portion of the small intestine. The study aims to assess the individual risk factors for peptic ulcer disease among student nurses of Kampala University Mutundwe campus, Lubaga division, Kampala district.

Methodology:
A descriptive cross-sectional study design employing quantitative methods of data collection. A sample size of 56 respondents was achieved through a convenient sampling of student nurses who were present for data collection. Data was manually analyzed and tallied, the results were processed using micro-Microsoft Word and Excel programs which were processed and presented in the form of frequency tables, figures, pie charts, graphs, and narratives.

Results:
Majority 45(80%) of the respondents were female while 11(20%) were male. 17(30%) of the respondents have ever been diagnosed with PUD while. 50 (100%), 11(20%) took alcohol whereas, 8(14%) took NSAID drugs 1(2%) smoked or chewed tobacco while 36(64%) neither took alcohol, smoked 40(71%) did not have their meals in time while 16(29%) had their meals in time. 25(44%) had at least two meals daily,16(29%) had three meals in a day 10(18%) had at least one meal daily and 5(9%) had four meals daily. 46(82%) of the respondents had psychological issues while 10(18%) had no psychological issues. 38(68%) of the respondents fed on spiced food while 18(32%) were not eating spiced food.

Conclusion:
Individual factors that contributed to a great number of PUD cases among students were NSAID use, H.pylori infection, skipping of meals, starvation, stress, poor meal timing, eating spiced food, fasting, and taking alcohol.

Recommendations:
Students should be encouraged to seek proper medical care in case they develop signs and symptoms of PUD.

Keywords: *Helicobacter pylori infection, Poor meal timing, Peptic ulcer disease, Kampala University Mutundwe campus*
Submitted: 2024-06-25 Accepted: 2024-08-07

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BACKGROUND

Peptic ulcer disease is a range of signs and symptoms a caused by break in the continuity of the mucosal lining of the stomach and portions of the small intestines. Globally from 2000 to 2019, the average hospitalization rates (AAPC = -3.9%; 95% CI -44 -33), and mortality rates (AAPC = 4.7%; 95% CI: -5.6, -3.8), of peptic ulcers decreased. Peptic ulcer disease is common with a lifetime prevalence in the general world population of 5-10% and an incidence of 0.1-0.3% per year, though there has been a sharp reduction in the incidence, hospital admission, and mortality rates over the past 30 years, complications are still encountered in 20-30% of these patients hence peptic ulcer remains a significant healthcare problem (Tarasconi, et al.,2020). A retrospective study at selected African air rescue (AAR) clinics in Kampala found the overall 5-year H. pylori prevalence at 35.7% (1298/3634), prevalence was higher in males (36.0% (736/2044)) than in females (35.4%

(562/1590)), although not statistically significant (OR = 0.97, p = 0.680, 95% CI: 0.84–1.11) (E Namyalo, 2021). Individual risk factors of PUD like stress, smoking, use of alcohol, coffee, and NSAID use are commonly associated with university students. It was also found that starvation, stress, NSAID use, alcohol consumption, and cigarette smoking were the major modifiable risk factors of PUD documented however, starvation and stress were most common (100%) among students (Zibima et al, 2020). Stress-induced ulcers may be an erosive and ulcerative lesion of the stomach and duodenum that occur in response to, stressful mental and physical situations in adults and youngsters which manifests itself in hematemesis, melena, blood within the stools and in perforation (Krishna et al, 2021). Rare causes of PUD have been identified like Zollinger-Elison syndrome, malignancy, viral infection, vascular insufficiency, radiation therapy, Crohn's disease and chemotherapy, first-degree relative with PUD, Emigrant from a developed nation African American/Hispanic ethnicity (Malik et al, 2023). The study aims to assess the individual risk factors for peptic ulcer disease among student nurses of Kampala University Mutundwe campus, Lubaga division, Kampala district.

METHODOLOGY

Study design

A descriptive cross-sectional study design employing quantitative methods of data collection which involved the use of numerical values to assess the information. This design was used to obtain data at one point in time.

Study setting

The study was conducted at Kampala University School of Nursing and Health Science Kampala District located in the central region of Uganda. This Campus was established in 2005 to close the country's gap in training its citizens in the areas of Nursing, Midwifery, and Health Sciences. The campus also houses KUs Graduate School and the Research Directorate. It is located in Kigagga Zone, Mutundwe parish, Lubaga division, Kampala District about 4 km from the city center and ½ a km off Kabuusu-Kitebi road at Muteesa II Memorial stadium (wankulukuku) junction.

Study population

The target population was student nurses of Kampala University because they were the most affected by peptic ulcer disease due to the prevailing conditions faced by students.

Sample size determination

A sample size of 56 respondents was used; the sample size was determined using the Krejcie and Morgan (1970) table as shown below which is a true representative of the study population.

Table 1: Table for determining sample size from a given population.

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: N is for the population size which is 65 and S is the sample size which is 56.

Sampling procedure

This was achieved through convenient sampling of student nurses who were present for data collection.

Definition of variables

The study comprised independent and dependent variables.

Independent variables

The independent variables were individual factors.

Dependent variable

The dependent variable was peptic ulcer disease.

Research instruments

A pre-testing questionnaire with both open and close-ended questions was designed and administered to the selected respondents who consented to participate in the study. The researcher conducted face-to-face interviews with the selected respondents who filled in responses by themselves since all students were literate. The researcher also opted for this method because it enabled easy acquisition of information within a short period.

Data collection procedure

An introductory letter from Kampala University School of Nursing and Health Sciences was presented to the respondents. The researcher introduced herself to the respondents and gave a brief explanation of the study. The respondents who accepted signed the informed consent form and the researcher interviewed them using the questionnaires. The researcher sampled four respondents per day in about 11 days.

Data management

Filled Questionnaires were cross-checked, coded, and edited before leaving the study area to minimize errors during data analysis. The filled questionnaires were put in an envelope and kept in safe custody under lock and key only accessible to the researcher. Analyzed data on the computer was protected from access by using a password known to the researcher only.

Data analysis and presentation

The collected data was manually analyzed and tallied, the results were processed using Microsoft Word and Excel programs which were processed and presented in the form of frequency tables, figures, pie charts, graphs, and narratives.

Ethical considerations

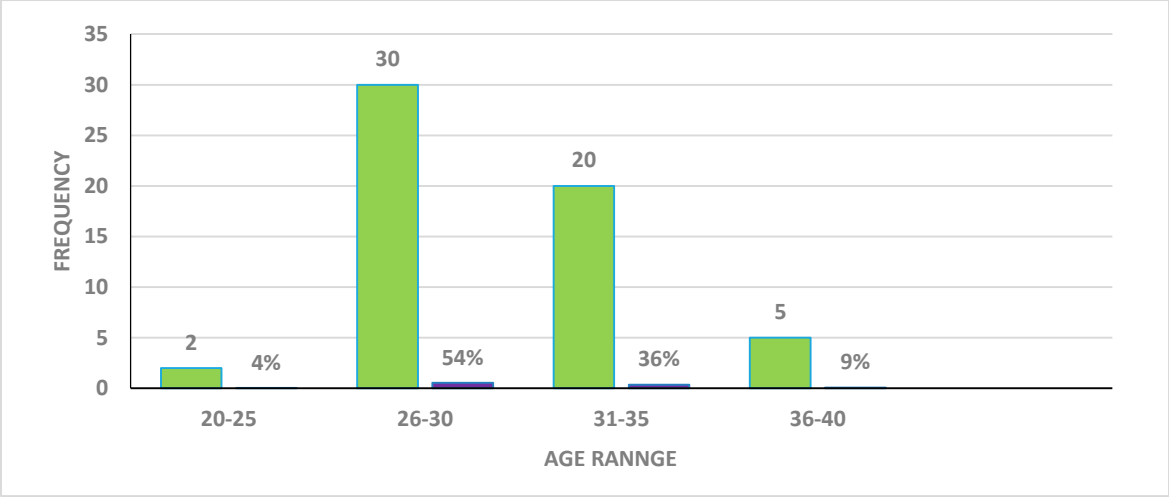
Approval was obtained from the research supervisor; permission was sought and granted from the principal of Kampala University School of Nursing and Health Sciences by obtaining an introductory letter. The study only commenced with the researcher introducing and explaining the topic and objectives to the respondents and they had to understand and voluntarily consent to participate in the study. The researcher also informed them that participation is voluntary with an informed consent form being signed and also affirmed to them that the information given was strictly confidential and serial numbers were going to be used instead of the respondent's name.

RESULTS

Demographic Data

https://doi.org/10.51168/4vs41630

Figure 1: A graph showing the distribution of respondents by age. n=56)



Source: Primary data, 2024.

Figure 1, most of the respondents were in the age range of between 26 to 30 years.30 (54%), 20(36%) were in the range of 31 to 35 years, 5(9%) were between 36 to 40 years, and 2(4%) were in the age range of 20 to 25 years.

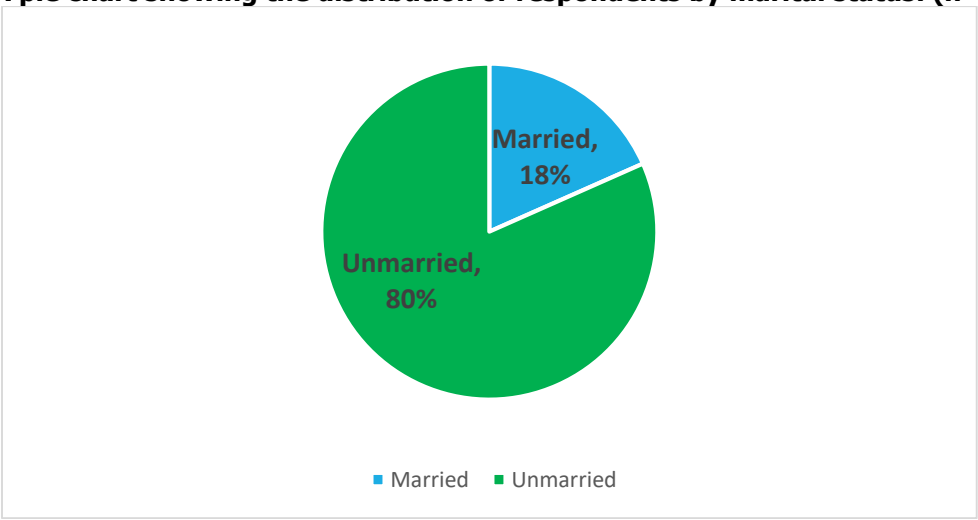
Table 1: Shows distribution of respondents by sex. (n=56)

Gender	Frequency (f)	Percentage (%)
Male	11	20
Female	45	80
Total	56	100

Source: Primary data, 2024.

Table 2, majority 45(80%) of the respondents were female while 11(20%) were male.

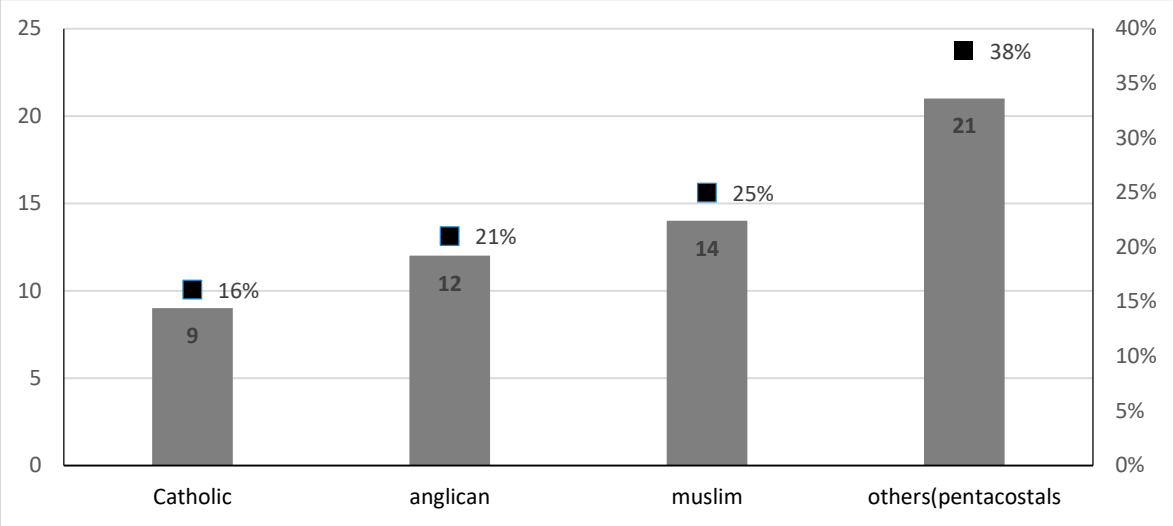
Figure 1: A pie chart showing the distribution of respondents by marital status. (n=56)



Source: Primary data, 2024

Figure 2, the majority 46(82%) of the respondents were not married while 10(18%) were married.

Figure 2: A graph showing the distribution of respondents by religion. (n=56)



Source: Primary data, 2024.

Figure 3, 21 (38%) of the respondents were for other religions (Pentecostals) followed by 14(25%) who were Muslims, 12 (21%) who were Anglicans, and 9(16%) who were Catholics.

Table 2: Shows distribution of respondents by profession. (n=56)

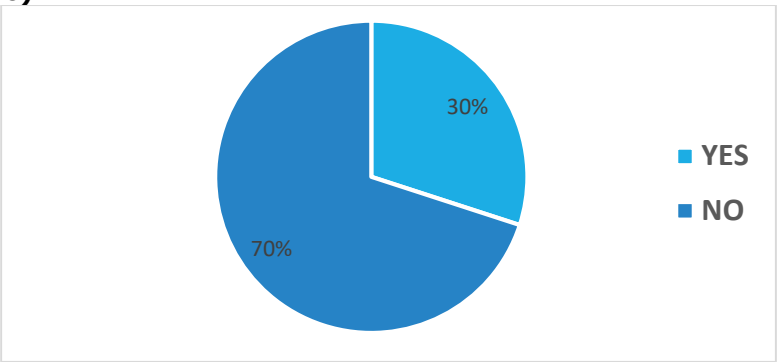
Course	Frequency (f)	Percentage (%)
Diploma in midwifery	12	21.0
Diploma in Nursing	44	79.0
Total	56	100

Source: Primary data, 2024.

Table 3, the majority of the respondents 44(79%) were diploma-in nursing students while 21(21%) were diploma-in midwifery students. At the time of the exercise, the certificate students were not readily available to participate in the interview.

Individual factors Contributing to peptic ulcer disease

Figure 4: A pie chart showing whether respondents had ever been diagnosed with peptic ulcer or not. (n=56)



Source: Primary data, 2024.

Figure, 4 17(30%) of the respondents have ever been diagnosed with PUD while 39(70%) of the respondents have never had.

Table 3: Shows whether the respondents had signs and symptoms of PUD.(n=56)

sign/symptom	Frequency (f)	Percentage (%)
Epigastric pain	14	25
Nausea and vomiting	10	18
Bloated abdomen	7	13
Heartburn	05	9
None of the above	20	36
Total	56	100%

Source: Primary data, 2024.

Table 4, 14(25%) of the respondents experienced epigastric pain before or after a meal, 10(18%) experienced nausea and vomiting, 7(13%) experienced a bloated abdomen, 5(9%) suffered from heartburn while 20(36%) did not experience any of the signs and symptoms.

Table 4: Shows whether respondents smoke or chew tobacco, take alcohol, take NSAID drugs or not. (n=56)

Factor	Frequency (f)	Percentage (%)
Drink alcohol	11	20
Smoke or chew tobacco	1	2
Take NSAID drugs	8	14
None of the above	36	64
Total	56	100

Source: Primary data, 2024.

Table 5, out of 50 (100%) of the respondents11 (20%) took alcohol whereas, 8(14%) took NSAID drugs 1(2%) smoked or chewed tobacco while 36(64%) neither took alcohol, smoked or chewed tobacco nor took NSAID drugs.

Table: 6 Shows whether the respondents had their meals on time. (n=56)

Response	Frequency (f)	Percentage (%)
Yes	16	29
No	40	71
Total	56	100

Source: Primary data, 2024.

Table 6, the majority of 40(71%) of the respondents did not have their meals on time while 16(29%) of the respondents had their meals on time.

Table 5: the number of daily meals the respondents had. (n=56)

Response	Frequency (f)	Percentage (%)
One	10	18
two	25	44
three	16	29
four	05	9
Total	56	100

Source: Primary data, 2024.

Table 7, 25(44%) of the respondents had at least two meals daily,16(29%) had three meals in a day 10(18%) had at least one meal daily and 5(9%) had four meals daily.

Table 6: Shows whether respondents had some psychological issues. (n=56)

Response	Frequency (f)	Percentage (%)
Yes	46	82
No	10	18
Total	56	100

Source: Primary data, 2024.

Table 8, 46(82%) of the respondents had psychological issues while 10(18%) had no psychological issues.

Table 7: Shows the type of blood groups the respondents had. (n=56)

Blood group	Frequency (f)	Percentage (%)
A	23	41
B	14	25
AB	11	20
O	08	14
Total	56	100

Source: Primary data, 2024

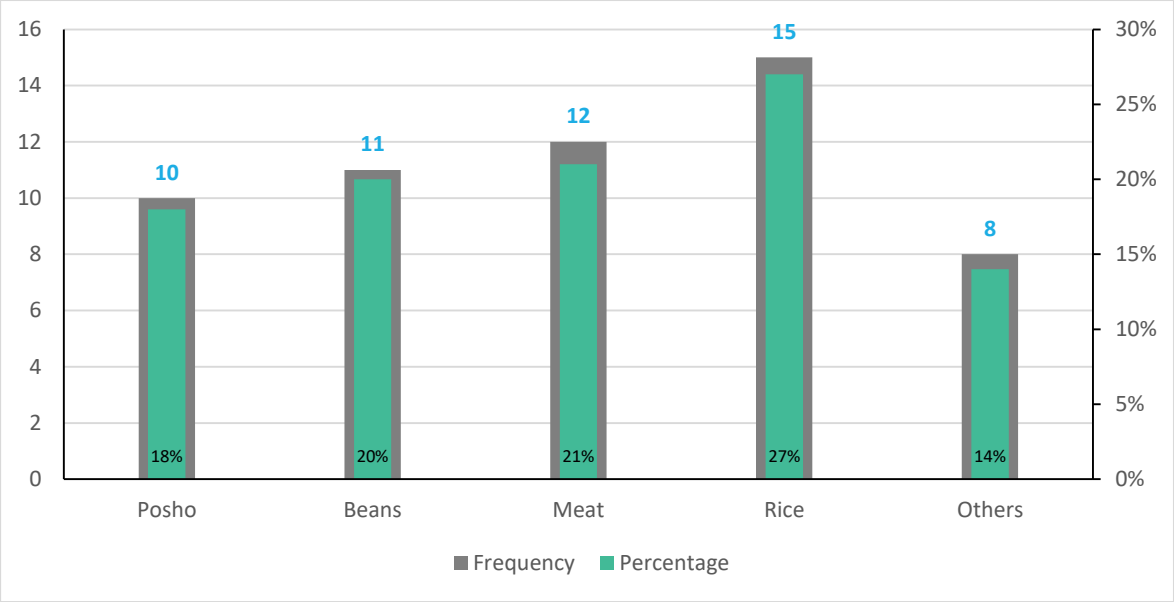
Table 9, 23(41%) of the respondents were of blood group A, 14(25%) were of blood group B, 11(20%) were of blood group AB, and 8(14%) were of blood group O.

Table 8: Shows the distribution of data according to what the respondents ate most time. (n=56)

Responses	Frequency (f)	Percentage (%)
posho	10	18.0
beans	11	20.0
meat	12	21.0
rice	15	27.0
Others	08	14.0
TOTAL	56	100

Source: Primary data, 2024

Figure 5 Which foods do you eat most times?



Source: Primary data, 2024

Figure 5, 15(27%) of the respondents fed on rice, 12(21%) fed on meat, 11(20%) fed on beans,10(18%) fed on posho while 8(14%) fed on other food. This implies that the majority of the students feed on rice.

Table 9: shows if the respondents ate spiced foods. (n=56)

Response	Frequency (f)	Percentage (%)
Yes	38	68
No	18	32
Total	56	100

Source: Primary data, 2024

Table 11, 38(68%) of the respondents were fed spiced food while 18(32%) were not eating spiced food.

DISCUSSION

Individual factors contributing to peptic ulcer disease

In Figure 4, 17(30%) of the respondents have ever been diagnosed with PUD while 39(70%) of the respondents have never had it. This has a relationship with the study done by Edity Namyalo. et, al., (2021) where the overall 5-year H. pylori prevalence was 35.7% (1298/3634) and the prevalence of H. pylori infection was significantly higher (39.4%) among patients who belonged to the age group of 19–35 years (OR = 1.49, 95% CI: 1.22–1.82) because most of the respondents were in the same age range.

In Table 3, 14(25%) of the respondents experienced epigastric pain before or after a meal, 10(18%) experienced nausea and vomiting, 7(13%) experienced a bloated abdomen, 5(9%) suffered from heartburn while 20(36%) did not experience any of the signs and symptoms. This could have been associated with NSAID use and helicobacter pylori infection as Robert T. Kavitt et. al., (2019) from the American Journal of Medicine reviewed a study that most cases of peptic ulcer disease are associated with helicobacter pylori infection with the use of nonsteroidal-anti-inflammatory-drugs (NSAIDs), or both.

In Table 4, out of 50 (100%) of the respondents11(20%) took alcohol whereas, 8(14%) took NSAID drugs 1(2%) smoked or chewed tobacco while 36(64%) neither took alcohol, smoked or chewed tobacco nor took NSAID drugs. soupriye bidokumo zibima et. al., (2020) conducted a study at a university in Southern Nigeria and found out that some

of the established risk factors of PUD like Starvation, stress, NSAID use, alcohol consumption, and cigarette smoking were the major modifiable risk factors of PUD documented.

In Table 5, the majority 40(71%) of the respondents did not have their meals on time while 16(29%) of the respondents had their meals on time. This corresponds to the study done by Phomphithak et. al., (2020) who found out that people having food at incorrect times are at a higher risk of developing peptic ulcers than those having food at the correct time.

In Table 6, 25(44%) of the respondents had at least two meals daily,16(29%) had three meals in a day 10(18%) had at least one meal daily and 5(9%) had four meals daily. This corresponds to the study done by Zibima et. al., (2020) who documented Starvation as one of the major modifiable risk factors of PUD therefore, those who did not have the recommended number of daily meals stood a high chance of getting PUD.

In Table 8, 46(82%) of the respondents had psychological issues while 10(18%) had no psychological issues. Simon Xin Min Dong., (2022) identified that psychosomatic factor makes the individual susceptible to current psychological stress leading to peptic ulcers.

In Table 9, 23(41%) of the respondents were of blood group A, 14(25%) were of blood group B, 11(20%) were of blood group AB, and 8(14%) were of blood group O. This is in line with a study done by Isaac Edyedu et al., (2023), who found perforated PUD to be more prevalent amongst male peasants of rural residence with the majority of the participants being of blood group O.

According to Figure 6, 15(27%) of the respondents fed on rice, 12(21) fed on meat, 11(20%) fed on beans, 10(18%) fed on posho while 8(14%) fed on other food. This has a relationship with Falguni Jaiswal et. al., (2021) that explains PUD to be caused by an imbalance between aggressive factors like hydrochloric acid (HCL), pepsin, refluxed bile, leukotrienes (LTs), reactive oxygen spices (ROS), and defensive factors like the mucus bicarbonate barrier, prostaglandins (PGs), mucosal blood flow, cell renewal and migration, nonenzymatic and enzymatic antioxidants. In addition, spicy food, and nutritional deficiency are implicated in the pathogenesis of gastric ulcers.

CONCLUSIONS

Individual factors that contributed to a great number of PUD cases among students were NSAID use, H.pylori infection skipping of meals, starvation, stress, poor meal timing, eating spiced food, fasting, and taking alcohol.

RECOMMENDATIONS

The students should be encouraged to always take their meals on time and avoid skipping meals.
The university administration should ensure that all meals are served at the right time without delay.
Students should be encouraged to seek proper medical care in case they develop signs and symptoms of PUD.
The university should provide a counseling section for students to avoid psychological stress hence reducing the risk of PUD.

ACKNOWLEDGMENT

I glorify God for granting me knowledge to accomplish this work and on a special note extend my gratitude to my supervisor Mrs. Nalwoga Elizabeth for the continuous guidance she provided through the whole process of report writing.
I thank my family members for their unconditional support during my research work and my friend Mutai Leonard for always encouraging in during my course.
Special appreciation to the teaching and non-teaching staff of Kampala University School of Nursing and Health Sciences and all my classmates for offering me a conducive learning environment.
Lastly, thanks go to the student nurses at Kampala University for accepting to participate with maximum cooperation and a positive attitude during data collection.

LIST OF ABBREVIATIONS/ACRONYMS

NSAIDS: None steroidal Ant inflammatory Drugs
PUD: Peptic ulcer disease
HCL: Hydrochloric acid
LTS: Leukotrienes
PGs: Prostaglandins
H. PYLORI: helicobacter pylori
OECD: Organization for Economic Cooperation and Development

Source of funding

The study was not funded

Conflict of interest

The author did not declare any conflict of interest

Author Biography

Babra Chekwemoi is a student of a diploma in Nursing extension at Kampala University School of Nursing and Health Sciences.

Elizabeth Nalwoga is a tutor at Kampala University School of Nursing and Health Sciences.

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SJ General Medicine Africa
Vol.1 No.9 (2024): September 2024 Issue
https://doi.org/10.51168/4vs41630
Original Article

Publisher details

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