Dongola UniversityFaculty of Medicine &Health Science

Community Medicine Department

Prevalence of Heartburn Among Medical Students in Dongola University, Northern State, Sudan in September 2026 .

By :

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A- Introduction :

Background:

Heartburn is defined as burning sensation or discomfort located retrosternaly primary caused by the reflex of acidic gastric content into the esophagus,Leading to irritation of the esophageal mucosa .

The epidemiological aspects of GERD have been studied over the past decade due to the increasing prevalence and complications of the disease.

The global prevalence of gastroesophageal reflux symptoms shows significant geographic variation, with an estimated overall rate of 13.3%."

In the United States, GERD-related symptoms represent a considerable gastrointestinal health burden. A nationally representative survey of 71,812 Americans found that 30.9% of participants reported heartburn or reflux during the previous week .The study also found that gastrointestinal symptoms were more frequently reported among females (2) .

In China, study Among 3,345 Chinese college freshmen, the prevalence of GERD was 5.1%. Daily green-tea consumption and regular coffee consumption were

significantly associated with higher odds of GERD and heartburn (6) .

In Saudi Arabia the prevalence of GERD found was 23.1%. Significant associations were found between GERD and several factors, including physical activity, proton pump inhibitor use, number of meals per day, fatty and fiber-rich food consumption, eating dinner before bedtime, khat chewing, and family history of GERD (1) .

In Ethiopia, the prevalence of GERD symptoms was 32.1% , indicating that nearly one-third of the students were affected (3) .

Several factors have been associated with GERD, including high body mass index (BMI), unhealthy dietary habits, lack of physical activity, smoking, use of analgesics, alcohol consumption, and family history. The increasing prevalence of GERD-related symptoms and complications has made it an important health problem (2)

Problem Statement:

The exact prevalence of heartburn among Medical students at Dongola university ,Northern state,Sudan ,in 2026 Remains unknown .

Justification:

As far as we know no prior epidemiological studies has been done among medical students in Dongola University or with in Northern state of Sudan .

Hypothesis:

Null Hypothesis:

There is No association between heartburn and dietary habits ,sleeping habits and obesity among university of Dongola student

Research Hypothesis:

There is significant association between heartburn and dietary habits ,sleeping habits and obesity among University of Dongola student

Research Question:

What is the prevalence of heartburn among medical student in Dongola university

Research Objectives:

1. **General objective:**

To estimate the prevalence of Heartburn and Related Conditions among medical students in Dongola University, Northern State, Sudan .2026

2. Specific Objectives:

. To identify lifestyle and dietary risk factors associated with heartburn in Medical Students (e.g .late-night eating, caffeine consumption, fast food, smoking, physical inactivity).

.To evaluate the association of heartburn with students' quality of life, including stress level, , study performance and sleep disturbance.

.To assess the severity and frequency of heartburn symptoms (e.g., mild, moderate, severe; daily vs. weekly) among affected students.

B- Literature Review :

In Ethiopia, 2021:

A study among university students found that the prevalence of GERD symptoms was 32.1%, indicating that nearly one-third of the students were affected (3).

In Egypt,2022:

A study among 320 medical students found that the prevalence of GERD was 23.1%. GERD was significantly associated with female sex, smoking, frequent consumption of coffee, tea, and soft drinks, and higher perceived stress levels. GERD also negatively affected students' daily activities and quality of life.

In Saudi Arabia, 2022:

A study among students at Jazan University found that the prevalence of GERD was 23.1%. Significant associations were found with physical activity, proton pump inhibitor use, number of meals per day, fatty and fiber-rich food consumption, eating dinner before bedtime, khat chewing, and family history of GERD (1).

In China., 2022:

The study found that frequent consumption of sugar-sweetened, carbonated, caffeinated, and acidic beverages was associated with a higher risk of GERD symptoms among young adults (6).

In China among 3,345 college freshmen, the prevalence of GERD was 5.1%. Daily green-tea consumption and regular coffee consumption were significantly associated with higher odds of GERD and heartburn (6).

In Italy, 2018 :

A study among university students reported a 26.2% prevalence of typical GERD symptoms occurring at least once per week. Heartburn was reported by 47% and acid regurgitation by 53% of students. GERD symptoms were more common among females, smokers, and students with higher BMI. Students with GERD also reported a lower frequency of legume consumption.

C- Materials and Methods:

Study Design:

This is a descriptive, cross-sectional, institution-based study.

Study Area:

Northern State, Dongola Locality, Dongola city , Dongola University Faculty of Medicine .

Study Population and Settings:

Inclusion criteria: all undergraduate medical students enrolled at the Faculty of Medicine, University of Dongola, at all academic levels, who agree to participate.

Exclusion criteria: students with known heart disease, previous gastric surgery, or other chronic illness, and those who refuse to participate.

Study Period:

The study will be conducted between September, 2026 and September 2027 .

Sample Size (Slovin Equation):

n= e= 0.05

Where N is the total number of undergraduate medical students (finite population) = 1000, n is the sample size, and e is the margin of error.

$n = 1000 / (1 + 1000 \times 0.05^2) = 285.7$, rounded up to a sample size of 286 students (9).

Data Collection:

Data will be collected using a self-administered structured questionnaire covering: (1) sociodemographic characteristics (age, sex, academic level); (2) weight and height for calculating body mass index (BMI) and obesity status; (3) dietary habits (late-night eating, caffeine consumption, fast food), smoking, and physical activity; (4) sleeping habits and sleep disturbance; (5) stress level; and (6) heartburn

symptoms, including frequency and severity, assessed using a validated tool such as GerdQ. The questionnaire will be pre-tested on a small group of students who are not part of the sample and modified as needed.

Sampling Technique:

Participants will be selected by simple random sampling from the list of enrolled students (sampling frame) using computer-generated random numbers, to minimize selection bias and enhance the representativeness of the study population.

Study Variables:

Dependent: heartburn (presence, frequency, and severity).

Independent: age, sex, academic level, obesity status (BMI), dietary habits, smoking, physical activity, sleeping habits, and stress level.

Data Analysis:

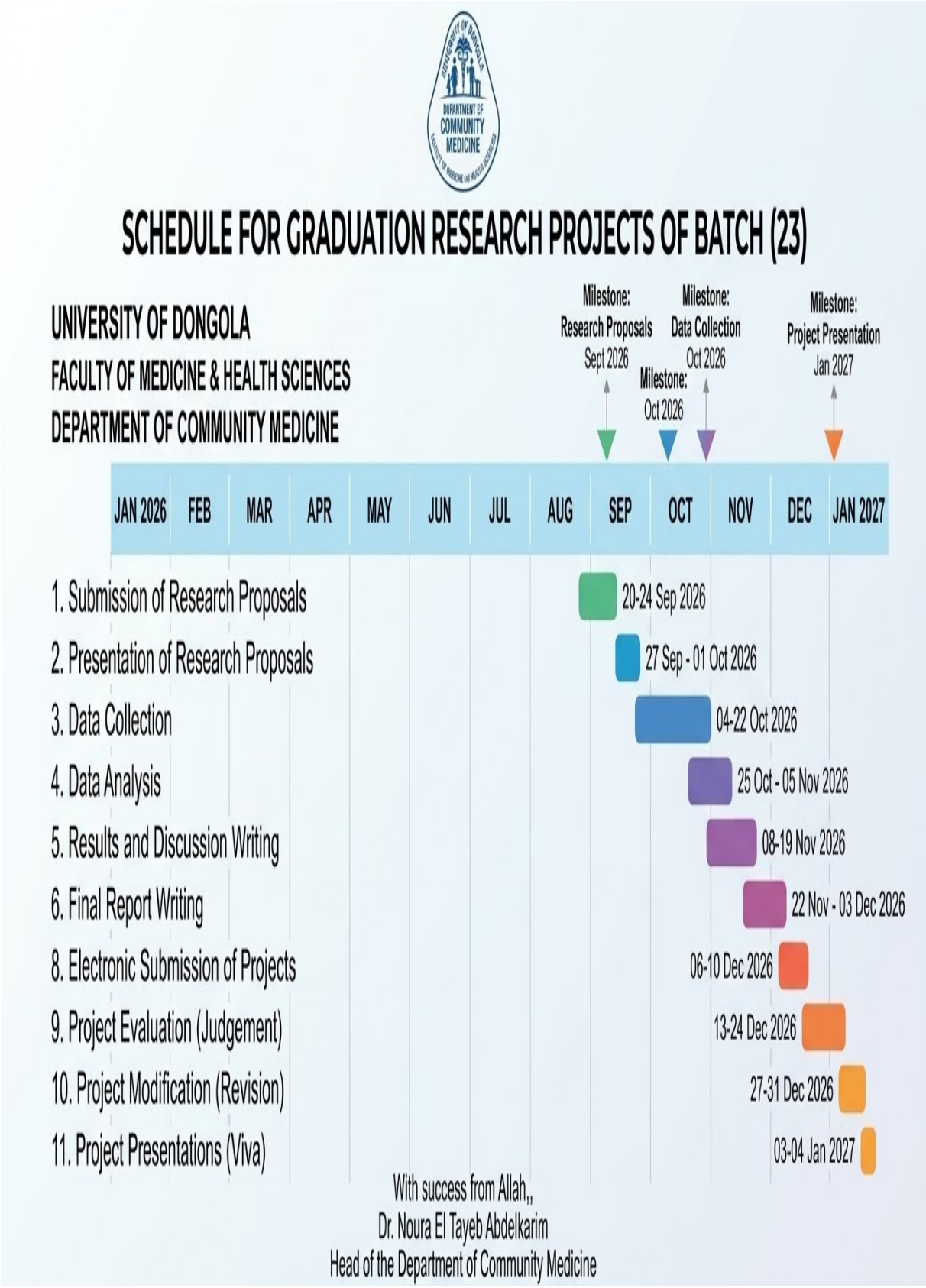
Data will be entered and analyzed using SPSS. Descriptive statistics will be used to summarize the data: frequencies and percentages for categorical variables, and mean ± standard deviation for continuous variables. The prevalence of heartburn will be reported with its 95% confidence interval.

The Chi-square test will be used to assess the association between heartburn and the independent variables (including dietary habits, sleeping habits, and obesity), and a p-value < 0.05 will be considered statistically significant. Variables that are significant in the bivariate analysis will be entered into a binary logistic regression model, and the results reported as adjusted odds ratios with 95% confidence intervals. Results will be presented in tables and figures.

Ethical Considerations:

Ethical clearance is in process and will be obtained before data collection begins. Permission will be requested from the Faculty of Medicine administration. Participation will be voluntary, informed consent will be obtained from each student, and the questionnaire will be anonymous. All data will be kept confidential and used for research purposes only.

D-Timeline:


DEPARTMENT OF COMMUNITY MEDICINE
SCHEDULE FOR GRADUATION RESEARCH PROJECTS OF BATCH (23)
UNIVERSITY OF DONGOLA
FACULTY OF MEDICINE & HEALTH SCIENCES
DEPARTMENT OF COMMUNITY MEDICINE
Milestone: Research Proposals Sept 2026
Milestone: Oct 2026
Milestone: Data Collection Oct 2026
Milestone: Project Presentation Jan 2027
JAN 2026 FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN 2027
1. Submission of Research Proposals 20-24 Sep 2026
2. Presentation of Research Proposals 27 Sep - 01 Oct 2026
3. Data Collection 04-22 Oct 2026
4. Data Analysis 25 Oct - 05 Nov 2026
5. Results and Discussion Writing 08-19 Nov 2026
6. Final Report Writing 22 Nov - 03 Dec 2026
8. Electronic Submission of Projects 06-10 Dec 2026
9. Project Evaluation (Judgement) 13-24 Dec 2026
10. Project Modification (Revision) 27-31 Dec 2026
11. Project Presentations (Viva) 03-04 Jan 2027
With success from Allah,,
Dr. Noura El Tayeb Abdelkarim
Head of the Department of Community Medicine

E-Budget:

Transport:100,000 SDG(20 USD)

Stationery/Materials:5,000 SDG(1 USD)

Printing:20,000 SDG(4 USD)

Internet:15,000 SDG(3 USD)

Data Analysis:200,000 SDG(40 USD)

Miscellaneous:135,000 SDG(27 USD)

TOTAL:475,000 SDG(95 USD)

F-References:

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Symptoms. Gastroenterology. 2020;158(4):?–?. doi:10.1053/j.gastro.2019.12.014. PMID: 31866243

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(9)Tejada, J. J., & Punzalan, J. R. B. (2012). On the Misuse of Slovin's Formula. The Philippine Statistician, 61(1), 129-136.