

Risk Factors Associated with Gastritis among Adult Patients Attending at Capital Hospital in Mogadishu- Somalia

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Abstract:-

➤ Background:

Gastritis, an inflammatory disorder affecting the lining of the stomach, is a prevalent health concern across the globe, particularly in developing regions like Somalia. This study aims to investigate the primary risk factors linked to gastritis among adults receiving care at Capital Hospital in Mogadishu.

➤ Methods:

An unmatched case-control study was executed from June 1 to July 30, 2024, involving 63 adult participants, with 21 patients diagnosed with gastritis through endoscopic procedures and 42 controls. A semi-structured questionnaire was employed to gather data on socio-demographic characteristics, dietary patterns, lifestyle habits, medical histories, and medication usage. Statistical analysis was performed using SPSS version 26.

➤ Results:

The investigation revealed a gastritis prevalence of 78.8%, with acute cases constituting 48.9% and chronic cases 29.9%. Female participants were identified as having a protective effect against gastritis (Adjusted Odds Ratio [AOR]=0.05, $p=0.023$), whereas the routine use of non-steroidal anti-inflammatory drugs (NSAIDs) significantly raised the risk (Crude Odds Ratio [COR]=5.03, $p=0.041$). Interestingly, the presence of *Helicobacter pylori* was associated with a reduced risk of developing gastritis (COR=0.11, $p=0.032$). Other lifestyle and dietary factors did not show significant correlations.

➤ Conclusions:

The results underscore the protective influence of gender and the associated risks of NSAID intake regarding gastritis among Somali adults. The unexpected finding of *H. pylori* infection linked to lower gastritis risk deserves further exploration. There is an urgent need for targeted public health strategies to address the effects of gastritis in Somalia.

I. INTRODUCTION

Gastritis is defined by inflammation of the gastric mucosa, which can lead to symptoms such as abdominal pain, nausea, vomiting, and a sensation of fullness. This condition can be classified into two main forms: acute gastritis, which appears suddenly and typically lasts for a month, and chronic gastritis, which persists for extended periods (Buchanan et al., 2020).

Globally, the prevalence of gastritis is alarmingly high, affecting more than 50% of individuals in developing nations, compared to 34.7% in developed countries (Khan et al., 2021). In Africa, the variation in prevalence is notable; studies indicate that 38% of women and 18% of men are affected (Khalil et al., 2020). Specifically, in Kenya, clinically diagnosed rates of gastritis reach 73.3% in children and 54.8% in adults (Mwaniki et al., 2021). Uganda shows a prevalence of 44.3% among adolescents (Nankinga et al., 2020), while in Nigeria, 40.7% of children aged six to ten are reported to be affected (Afolabi et al., 2019).

In the East African context, a study conducted in Tanzania revealed that 60% of adults presenting with abdominal pain are diagnosed with gastritis (Mhando et al., 2021). Moreover, research in Ethiopia indicated

a **35%** prevalence among patients with gastrointestinal complaints (Abate et al., 2022).

In Somalia, the situation is particularly concerning, as gastritis prevalence is notably high. Reports suggest that approximately **44.1%** of patients seeking care at health facilities are diagnosed with gastritis. A recent study in Mogadishu identified that **39.5%** of participants had acute gastritis, while **60.5%** were diagnosed with chronic gastritis, with females exhibiting a higher prevalence rate of **71.3%** (Mohamed et al., 2023). Contributing factors in Somalia include poor dietary practices, heightened levels of anxiety, and inadequate hygiene, compounded by socioeconomic challenges and limited access to healthcare services (Ali et al., 2023).

The broader East African region displays similar trends, where the prevalence of gastritis is influenced by lifestyle choices, dietary habits, and health-seeking behaviors. In Kenya, high rates in children can be linked to dietary factors, including the frequent consumption of spicy foods and a lack of nutritional education among caregivers (Mwaniki et al., 2021). Uganda's adolescent population also reflects significant rates of gastritis, emphasizing the necessity for targeted health education and intervention strategies (Nankina et al., 2020).

In Nigeria, the vulnerability of children to gastritis is exacerbated by dietary indiscretions and exposure to gastrointestinal infections, as evidenced by the **40.7%** prevalence rate among six to ten-year-olds (Afolabi et al., 2019). Tanzania's findings further highlight the public health challenge posed by gastritis, with a significant **60%** of adults affected (Mhando et al., 2021).

Ethiopian studies corroborate this issue, revealing a **35%** prevalence among patients reporting gastrointestinal complaints, which can be attributed to factors such as poor sanitation, dietary habits heavy in processed and spicy foods, and insufficient health education (Abate et al., 2022).

The prevalence of **Helicobacter pylori** infection, a critical risk factor for both acute and chronic gastritis, remains substantial across East Africa. In Somalia, studies indicate that **56.5%** of symptomatic adults are infected with *H. pylori* (Ali et al., 2023). This significant prevalence complicates the management of gastritis and underscores the need for comprehensive public health strategies aimed at improving sanitation, health education, and access to appropriate medical care.

Overall, the high rates of gastritis in Somalia and surrounding regions call for urgent action, including enhanced health education initiatives, improved healthcare access, and ongoing research to better understand the epidemiology of gastritis and its associated factors.

➤ *Objective of the Study*

The objective of this Article to assess the risk factors associated with gastritis among adult patients attending at Capital hospital Mogadishu Somalia.

Helicobacter pylori, Gastritis, Peptic ulcer disease, Epidemiology, Risk factors, Somalia, Antibiotic therapy, Family transmission, Nutritional aspects, Acid reflux, Diurnal raptors, Public health, Chronic inflammation, Pregnancy, Acute diarrhea, Autoimmune gastritis, Gastroesophageal reflux disease, Cross-sectional study, Outpatient care, Socioeconomic factors.

II. METHODOLOGY

This study, conducted at Capital Hospital in Mogadishu, Somalia, utilizes an unmatched case-control design to identify risk factors for gastritis among adult patients. A quantitative approach is employed, with a sample size of 63 participants (21 cases and 42 controls) determined using EPI-Info software, focusing on stress exposure as a primary risk factor. Participants are selected through consecutive sampling, and data is gathered using a semi-structured questionnaire that addresses socio-demographic, dietary, lifestyle, and medical history factors. The questionnaire is pre-tested for reliability and validity on 10 patients and is available in English, with verbal translation to Somali.

Data analysis is performed using SPSS (version 26), employing descriptive statistics, bivariate, and multivariate analyses. Chi-square tests and odds ratios, along with logistic regression, will be used to evaluate associations between identified risk factors and gastritis, with statistical significance set at $p \leq 0.05$.

III. RESULTS

➤ *Socio-Demographic Characteristics*

Binary logistic regression analysis revealed several socio-demographic patterns associated with gastritis. Age groups (18-27, 28-37, and ≥ 38 years) showed no significant associations with gastritis. Females had a significantly lower likelihood of developing gastritis compared to males (OR = 0.14, $p=0.01$). Marital status, education level, and occupation did not demonstrate significant correlations with gastritis risk.

Unemployment was associated with higher gastritis likelihood, but not statistically significant. Monthly income showed slightly higher odds for individuals earning between \$100-300 and $\geq \$300$ compared to those earning $\leq \$100$, but these were not significant ($p > 0.417$).

Table 1 Socio-Table One: Demographic Characteristics

<i>Socio-Demographic Characteristics</i> <i>Socio-Demographic Characteristics</i> <i>Socio-Demographic Characteristics</i> Demographic Variable	Cases (%)	Controls (%)	COR (95% CI)	P Value
Age 18-27	7 (11.1)			
Age 28-37	10 (15.9)	16 (25.4)	0.525 (0.11-2.42)	0.49
Age ≥ 38	4 (6.3)	6 (9.5)	0.93 (0.21-4.16)	0.932
Female	16 (25.4)	31 (49.2)	0.14 (0.42-0.46)	0.01
Married	9 (14.3)	20 (31.7)	1.50 (0.195-11.53)	0.697
Primary Education	8 (12.7)	6 (9.5)	1.77 (0.316-10.01)	0.514
Unemployed	6 (9.5)	21 (33.3)		

➤ Dietary Factors

Analysis of dietary factors revealed significant associations with gastritis. Regular consumption of spicy (COR = 0.246, p=0.013) and fried foods (COR = 0.300, p=0.037) was linked to a reduced risk of gastritis. However, fatty food consumption did not show a significant relationship (COR = 1.83, p=0.309). Other dietary habits, including high-salty food, coffee, fast food, and fruit and vegetable intake, did not significantly impact gastritis risk.

In summary, while some dietary factors like spicy and fried food consumption appeared protective, many others, including fatty foods and general eating habits, did not show significant associations with gastritis.

➤ Dietary Factors

Analysis of dietary factors revealed significant associations with gastritis.

- **Spicy Food:** Individuals who always consumed spicy food had lower odds of developing gastritis compared to those who consumed it sometimes (COR = 0.246, p=0.013).
- **Fried Food:** Regular consumers of fried foods also had reduced odds (COR = 0.300, p=0.037).
- **Fatty Food:** While those who always consumed fatty foods had higher odds, this was not statistically significant (COR = 1.83, p=0.309).
- **High-Salty Food, Coffee, Fast Food, and Fruits/Veggies:** These factors did not show significant associations (p-values ranging from 0.155 to 1.00).
- **Regular Meals and Skipping Meals:** Both habits were not significantly linked to gastritis risk.

Table 2: Dietary Factors

Dietary Factor	Cases (%)	Controls (%)	COR (95% CI)	P Value
Spicy Food (Some vs. Always)	8 (12.7)	30 (47.6)	0.246 (0.81-0.744)	0.013
Fried Food (Some vs. Always)	11 (17.5)	33 (52.4)	0.300 (0.97-0.92)	0.037
Fatty Food (Some vs. Always)	15 (23.8)	24 (38.1)	1.83 (0.57-5.90)	0.309
High Salty Food	16 (25.4)	38 (60.3)	0.75 (0.29-3.42)	1.00
Coffee or Hot Drinks	13 (20.6)	28 (44.4)	1.00 (0.34-2.94)	1.00
Fast Food (Yes vs. No)	9 (14.3)	26 (41.3)	0.46 (0.159-1.33)	0.155
Fruits/Veggies (Always vs. Some)	13 (20.6)	26 (41.3)	2.22 (0.24-20.174)	0.478
Regular Meals (Yes vs. No)	11 (17.5)	29 (46.0)	0.493 (0.168-1.44)	0.198
Skiping Meals (Always vs. Some)	11 (17.5)	26 (41.3)	0.33 (0.32-3.51)	0.36

➤ Lifestyle Factors

Examining lifestyle factors revealed the following insights:

- **Smoking:** No significant association with gastritis (COR = 1.25, p=0.698).
- **Stress:** Medium and high stress levels correlated with increased gastritis risk, but not significantly (COR = 3.0, p=0.12 for medium; COR = 2.28, p=0.24 for high).

- **Physical Activity:** No significant impact on gastritis risk, with CORs ranging from 0.50 to 4.80 across activity levels.
- **BMI:** Overweight and obese individuals showed a potential increased risk (COR = 2.70, p=0.151), but this was not statistically significant. Underweight individuals also had no significant association (COR = 1.23, p=0.757).

Table 3 Lifestyle Factors

Lifestyle Factor	Cases (%)	Controls (%)	COR (95% CI)	P Value
Smoking (Yes vs. No)	14 (22.2)	30 (47.6)	1.25 (0.40-3.86)	0.698
Stress (Low/Medium/High)				
Medium Stress	8 (12.7)	14 (22.2)	3.0 (0.74-12.11)	0.12
High Stress	4 (6.3)	16 (25.4)	2.28 (0.56-9.25)	0.24
Physical Activity				
Rarely	2 (3.2)	14 (22.2)	4.80 (0.38-59.89)	0.22
Overweight and Obese	5 (7.9)	15 (23.8)	2.70 (0.69-10.46)	0.151
Underweight	9 (14.3)	10 (15.9)	1.23 (0.32-4.72)	0.757

Overall, dietary factors such as spicy and fried food consumption showed protective associations, while lifestyle factors like smoking and stress did not significantly influence gastritis risk in this study.

- The analysis of medication use and medical history revealed key findings related to gastritis risk:

Table 4 Medication and Medical History

Factor	Cases (%)	Controls (%)	COR (95% CI)	P Value
Medication Use				
No	12 (19.0)	22 (34.9)		
Yes	9 (14.3)	20 (31.7)	0.82 (0.28-0.28)	0.721
Regular NSAID Use				
No	7 (11.1)	16 (25.4)		
Yes	8 (12.7)	9 (14.3)	5.03 (1.06-23.8)	0.041
Unsure	6 (9.5)	17 (27.0)	3.54 (0.82-15.24)	0.09
Medical History				
Other	7 (11.1)	15 (23.8)		
Peptic Ulcer Disease	2 (3.2)	7 (11.1)	0.18 (0.29-1.21)	0.078
Irritable Bowel Syndrome	3 (4.8)	4 (6.3)	0.11 (0.012-1.108)	0.061
GERD	4 (6.3)	14 (22.2)	0.30 (0.33-2.76)	0.288
H. pylori Infection	5 (7.9)	2 (3.2)	0.11 (0.016-0.828)	0.032
Family History				
No	8 (12.7)	19 (30.2)		
Yes	9 (14.3)	18 (28.6)	0.62 (0.13-2.92)	0.54
Unsure	4 (6.3)	5 (7.9)	0.52 (0.11-2.48)	0.418

- The study evaluated the influence of gender and dietary habits on gastritis risk through logistic regression:

Table 5 Multivariate Logistic Regression

Variable	Cases (%)	Controls (%)	COR (95% CI)	P Value	AOR (95% CI)	P Value
Gender						
Male	5 (7.9)	11 (17.5)	1			
Female	16 (25.4)	31 (49.2)	0.57 (0.05-0.66)	0.01	0.05 (0.005-0.06)	0.023
Spicy Food						
Some Times	8 (12.7)	30 (47.6)	1			
Always	13 (20.6)	12 (19.0)	3.00 (0.18-47.9)	0.013	3.00 (0.18-47.96)	0.437
Fried Food						
Some Times	11 (17.5)	33 (52.4)	1			
Always	10 (15.9)	9 (14.3)	0.90 (0.14-5.645)	0.037	0.90 (0.14-5.64)	0.910

IV. DISCUSSION

The overall prevalence of gastritis was 78.8%, with a notable higher incidence in women. This finding aligns with some studies but contrasts with others. Education level did not show a significant association with gastritis risk.

- **Spicy and Fried Foods:** While spicy food was initially linked to a lower risk, this relationship was not significant after adjustments. Fried food consumption also showed similar trends.
- **NSAID Use:** Regular NSAID use was a significant risk factor for gastritis, raising concerns about gastrointestinal complications.
- **H. pylori:** Significantly associated with a reduced risk of gastritis, supporting its protective effect.

V. CONCLUSION

This study identified key risk factors for gastritis, particularly regular NSAID use and *H. pylori* infection, with gender also playing a role. Dietary factors showed initial associations but not after adjustment. Other factors investigated did not demonstrate significant links to gastritis.

RECOMMENDATIONS

- **Increase Awareness:** Educate patients on gastritis risk factors.
- **NSAID Education:** Advise on the risks of long-term NSAID use and explore alternatives.
- **Promote Healthy Habits:** Encourage healthy dietary and lifestyle choices.
- **Further Research:** Collaborate for more studies on gastritis risk factors.

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