

RESEACH ARTICLE

PREVALENCE AND CONTRIBUTING FACTORS OF PEPTIC ULCER DISEASE AMONG RESIDENTS OF TSOHON KAMFANI WUNTIN DADA, BAUCHI METROPOLIS

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Abstract

Background This study investigated the prevalence of Peptic Ulcer Disease (PUD) among residents of Tsohon Kamfani in Wuntin Dada, Bauchi Metropolis, and examined the factors contributing to its occurrence. The research aimed to identify the age group most affected by PUD, assess gender differences in prevalence, and explore dietary patterns alongside other potential risk factors within the community. **Methods** A cross-sectional descriptive survey design was adopted, utilizing both primary and secondary data sources. Data were primarily collected through structured face-to-face interviews. **Results** The results indicated that individuals aged 40 years and above exhibited the highest prevalence of PUD, with females being more affected than males. Key contributing factors identified included poor dietary habits, stress, and environmental conditions, highlighting their significant role in the development of PUD in this population. **Conclusion:** Peptic Ulcer Disease is prevalent among residents of Tsohon Kamfani, particularly among individuals aged 40 years and above, with a higher occurrence in females. Poor dietary habits, stress, and environmental factors were identified as key contributors, highlighting the need for targeted preventive and health education interventions within the community.

Keywords: Prevalence, Factors, Peptic Ulcer Residents Tsohon Kamfani, Bauchi Metropolis Nigeria

Introduction

Peptic Ulcer Disease (PUD) refers to ulceration of the gastric or duodenal mucosa, mainly caused by *Helicobacter pylori* infection and non-steroidal anti-inflammatory drug (NSAID) use. Globally, PUD remains a significant cause of morbidity despite declining incidence in many high-income countries due to improved sanitation and *H. pylori* eradication. The Global Burden of Disease (GBD) study estimates millions of prevalent cases worldwide, with complications such as bleeding and perforation

contributing to substantial healthcare utilization and mortality, especially in older adults (GBD 2019; Lanan & Chan, 2017). In Africa, PUD remains relatively common, largely due to **high prevalence of *H. pylori***, limited access to healthcare, late presentation, and widespread unregulated NSAID use. Studies report *H. pylori* prevalence rates exceeding 70% in many African populations. Complications such as upper gastrointestinal bleeding are more frequently reported compared to high-income regions, reflecting delayed diagnosis and treatment (Agha & Graham, 2005; Hunt et al., 2011).

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Peptic ulcer disease (PUD) is a prevalent gastrointestinal disorder characterized by damage to the digestive tract lining, leading to a mucosal defect exceeding 3–5 mm in diameter and extending into the submucosal layer (Sverdén et al., 2019, Lanás & Chan, 2017). It primarily affects the stomach and the proximal portion of the duodenum. In Western countries, PUD has an estimated lifetime prevalence ranging from 6–15% and an annual incidence of approximately 0.1–0.3% in the general population (Rosenstock & Jørgensen, 1995). Although often associated with nonspecific clinical manifestations, the incidence of peptic ulcer disease has increased, necessitating careful clinical evaluation and management due to potentially serious complications, including hemorrhage, perforation, penetration into surrounding organs, and gastrointestinal obstruction, which may require urgent endoscopic or surgical intervention. (Lau et al., 2011, Gralnek et al., 2015). Epidemiological evidence collected over the past 150 years indicates that both the incidence and mortality related to PUD rose markedly during the nineteenth century, followed by a gradual decline attributed to advances in environmental sanitation and medical treatment approaches (Jennings, 1940). In the United States, during the first half of the twentieth century, approximately 10% of adults were affected by PUD (Sonnenberg & Everhart, 1996). Research conducted over the last two to three decades has demonstrated a pronounced decline in PUD prevalence, hospital admissions, and PUD-related mortality, largely due to the introduction of effective therapeutic strategies such as *Helicobacter pylori* (*H. pylori*) eradication and the widespread use of proton-pump inhibitors (PPIs) in the United States and other regions worldwide (Sonnenberg, 2013, Lanás et al., 2011). Peptic ulcer disease remains a global condition, affecting approximately 8–10% of individuals in Western populations. It represents a significant public health concern due to its frequency, potential complications, and substantial socioeconomic consequences, including work absenteeism and the high cost of diagnostic procedures and treatment. Studies conducted in Australia and Great Britain have reported prevalence rates ranging from 5.2% to 9.9% in the general population (Groenen et al., 2009). In sub-Saharan Africa, since the introduction of endoscopy in the 1980s, an increasing number of studies have highlighted the growing importance of PUD within the regional disease profile. Reported prevalence rates in

Mali, Togo, and Congo are 10.88%, 15.53%, and 30.42%, respectively (Lawson et al., 2015, Ibara et al., 1993). Gastroduodenal disease (GDD) was previously considered rare in Africa due to limited clinical documentation and the infrequent performance of peptic ulcer surgery (Agha & Graham, 2005). Additionally, skepticism toward conventional medical care has been common in certain African settings: (Holcombe et al., 1991) For example, a study conducted in rural northeastern Nigeria revealed that more than half of patients with dyspepsia primarily sought treatment from traditional healers. The introduction of potent gastric acid-suppressing agents and *H. pylori* eradication therapy has transformed the management of peptic ulcer disease (Sverdén et al., 2019). leading to a global reduction in disease frequency and related hospitalizations (Ahsberg et al., 2011). Nevertheless, despite these advances, effective management of PUD in many African countries remains challenging due to low socioeconomic conditions (Feinstein et al., 2010). In Nigeria, PUD is a common gastrointestinal disorder encountered in both urban and rural settings. Hospital-based studies show high rates of *H. pylori* infection among dyspeptic patients, often above 60–80%. Duodenal ulcers are reported more frequently than gastric ulcers. Risk factors include *H. pylori* infection, NSAID use, alcohol consumption, and smoking. Late presentation with complications such as bleeding and perforation remains a challenge in many Nigerian healthcare facilities (Akinboboye et al., 2013; Jemilohun et al., 2010).

Risk Factors for Peptic Ulcer

Environmental influences play a crucial role in shaping host responses to *Helicobacter pylori* infection. Dietary habits are particularly important, as high salt consumption and low intake of fruits have been associated with an increased risk of gastric cardia adenocarcinoma (GCA). In addition, alcohol intake and active cigarette smoking are well-established risk factors (IARC Working Group, 2012, World Cancer Research Fund/AICR, 2018). These observations imply that other prevalent infections in Africa may similarly modify the clinical outcomes of *H. pylori* infection. Variations in GCA incidence between African regions and other parts of the world may therefore be linked to differences in dietary patterns, the presence of concurrent infections, or variations in gut microbiota

composition. As observed with many infectious diseases, the natural progression of *H. pylori* infection is influenced by a complex interplay of microbial, host-related, and environmental determinants (Graham, 1997). Detection of peptic ulcer disease (PUD) in asymptomatic individuals remains challenging. In some cases, diagnosis occurs only after the development of severe complications, while in others it is identified incidentally during routine screening endoscopy. As access to and participation in regular medical examinations increase, the reported detection rates of asymptomatic PUD also appear to rise. Previous studies have demonstrated a strong association between PUD and several risk factors, including cigarette smoking, older age, prior alcohol consumption, obesity, and certain chronic medical conditions (Lau et al, 2011). Despite these associations, the clinical relevance and underlying pathogenic mechanisms of asymptomatic peptic ulcer disease remain poorly understood. A recent survey conducted among public health students at Galaxy College of Health Technology, Bauchi, indicated that PUD was significantly associated with dietary practices, lifestyle behaviors, psychological stress, socioeconomic status, and sociocultural influences. Collectively, these factors were found to contribute to the development and persistence of PUD within the community.

The study employed a descriptive cross-sectional research design. Data were collected from both primary and secondary sources to achieve comprehensive coverage of the research objectives. Primary data were obtained through face-to-face interviews with participants in the study area to assess the health consequences of peptic ulcer disease (PUD) and its impact on the overall health status of affected individuals. Secondary data were sourced from relevant literature, medical records, and existing reports to complement and support the primary data findings.

A total sample size of 100 respondents was used for the study, with participants selected through a random sampling technique to reduce selection bias and improve the representativeness of the sample. The choice of a sample size of 100 was influenced by practical constraints, including the limited duration of the study, which was conducted over a few months, the use of students as research assistants, and financial limitations.

Descriptive statistical techniques, such as frequencies, percentages, and summary tables, were used to analyze and present the data in a clear and systematic manner. Informed consent was obtained from the Mai Anguwan Tsohon Kanfeni, and ethical approval for the study was granted by the College.

Methods

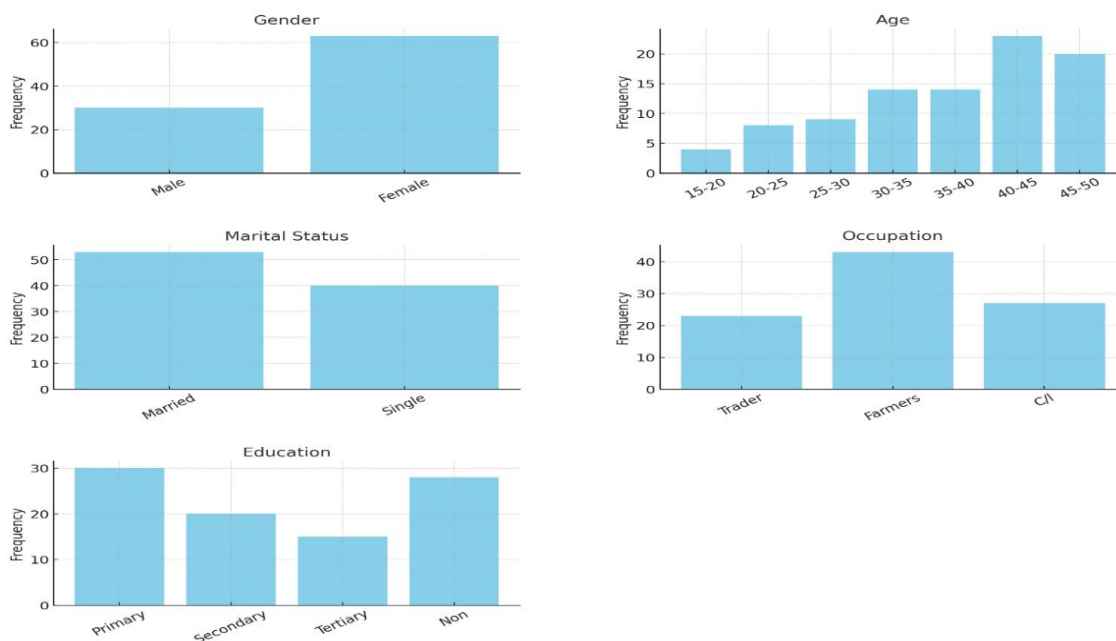


Figure 1: Graphs Showing evaluation of Peptic ulcers disease in Wuntin Dada Tsohon Kamfani

Demographic Information of the Participated.

1. Gender Distribution:

The graphical presentation of gender distribution from the study revealed a higher prevalence of peptic ulcer disease (PUD) among women than men. This finding represents a notable deviation from the commonly held assumption that PUD predominantly affects males (Kurata & Nogawa, 1985). The results indicate a shifting pattern in the burden of PUD, with female respondents (approximately 60) outnumbering male respondents (about 40). However, this difference may partly be explained by the higher rate of female participation in the survey. Additional factors that may account for this observation include the frequent use of nonsteroidal anti-inflammatory drugs (NSAIDs) among women, particularly for the management of pain associated with conditions such as migraines and menstrual cramps, as reported by (MedicalNewsToday, 2024). Prolonged or excessive NSAID use inhibits prostaglandin synthesis, leading to a reduction in the protective gastric mucus layer and increasing susceptibility to gastric mucosal injury and ulcer formation.

Furthermore, socio-geographical and lifestyle factors specific to the study population may also contribute to the increased prevalence observed among women. In many cases, women bear multiple responsibilities, including sole childcare and household duties, which can result in elevated stress levels, poor dietary choices, and irregular eating habits. These factors have been shown to aggravate ulcer symptoms and delay the healing process, thereby worsening disease outcomes (Prashanth Hospitals, 2024).

2. Age Group:

The graphical representation of age distribution from the study indicates a progressive increase in the prevalence of peptic ulcer disease (PUD) across successive 5-year age intervals between 10 and 50 years, with the highest prevalence observed in the 40–45 age group. The majority of respondents were within the 40–49 age range, with notable participation from individuals aged 30–39 years. In contrast, fewer

respondents were recorded in the younger age categories, particularly those between 13 and 29 years. This trend may be attributed to prolonged exposure among individuals in their forties to risk factors such as nonsteroidal anti-inflammatory drugs (NSAIDs), psychological stress, and *Helicobacter pylori* infection, all of which increase the likelihood of developing ulcerative conditions (Aro et al., 2006). Additionally, the occupational demands common within this age group may contribute to elevated gastric acid secretion and heightened ulcer risk, as many individuals are engaged in high-pressure professional activities (Lim et al., 2020). Furthermore, evidence suggests that chronic stress is associated with unhealthy dietary practices and irregular meal patterns (Adam & Epel, 2007). Studies also indicate that the physiological mechanisms responsible for protecting the gastrointestinal mucosa tend to weaken with advancing age (Newton, 2004). However, there remains limited evidence to conclusively establish whether age-related physiological changes alone are sufficient to directly cause peptic ulceration (Kateralis, P.H. et al., 1993).

3. Marital Status:

These findings provide insight into marital status as a sociodemographic factor and its relationship with the prevalence of peptic ulcer disease (PUD). The study revealed a slightly higher prevalence of PUD among married individuals compared to single respondents. Specifically, 50 married respondents and 40 single respondents were recorded, a difference that may be partly explained by the larger proportion of married participants included in the sample. Nevertheless, evidence reported by (Yim et al., 2021), suggests that the increased financial pressures and family-related responsibilities often associated with marriage may contribute to elevated gastric acid secretion, which could potentially explain this observation. Family obligations may also result in irregular eating patterns, with married individuals more likely to experience prolonged fasting periods. Such habits can increase gastric acid production and predispose individuals to a higher risk of ulcer development (Lim et al., 2020).

Although (Yim et al., 2021) noted that no studies have established a direct causal relationship between

marital status and PUD, investigations into sociodemographic characteristics have shown that married men, in particular, tend to have a higher prevalence of PUD compared to their single counterparts. Studies by (Lau et al, 2011). and. Makasa et al,2012 further suggest that married individuals especially men often prioritize family responsibilities over personal healthcare, which can lead to delayed medical consultation, late-stage diagnosis, and an increased risk of complications.

4. Occupation:

Analysis of samples obtained from various occupational groups in Wuntin Dada Tsohon Kamfani revealed that farmers constituted the largest occupational category, followed by traders, with a smaller group classified as “Cfi.” This distribution reflects the predominance of agriculture as the primary source of livelihood within the surveyed community. The higher prevalence observed among farmers may be attributed to certain unhealthy practices, including the consumption of contaminated food and water, which can increase exposure to *Helicobacter pylori* and thereby elevate susceptibility to ulcer-related complications (Zamani et al., 2017) In addition, residence in rural areas may contribute to delayed diagnosis and treatment of peptic ulcer disease due to limited access to adequate healthcare facilities. Furthermore, farming is a physically demanding occupation, and some of the farmers interviewed reported heavy reliance on nonsteroidal anti-inflammatory drugs (NSAIDs) for the management of pain and inflammation. According to (Tai & McAlindon, 2021) prolonged or frequent use of NSAIDs is associated with gastrointestinal complications, including peptic ulcer disease. However, evidence from (Spiegel et al., 2006) indicates that when long-term NSAID use is unavoidable, co-administration with proton pump inhibitors (PPIs) is recommended, as this approach can reduce NSAID-related gastrointestinal adverse effects by approximately two-thirds.

5. Educational Levels:

The results derived from examining the education level of the individuals showed a significant proportion of respondents have tertiary education, while primary and secondary education levels were also well represented.

A higher record of respondents was reported among the segment of individuals having no formal education or a maximum of primary education level. Research conducted by (Abukanna et al., 2021) revealed that the education level of individuals had no substantial influence on awareness about PUD. Although majority of individuals that participated in the research had reasonable awareness of PUD, a significant gap exists among participants based on their education level regarding self-awareness of the common symptoms and the effect of common activities such as smoking and alcohol consumption associated with PUD (Alali et al., 2025)

Possible Insights:

Comparing the findings of this study with related research conducted globally revealed both notable similarities and differences in overall PUD prevalence. Analysis of the collected data indicated a substantial prevalence of PUD within the surveyed population, highlighting the need to identify key research insights and guide future directions. The survey targeted rural and semi-rural populations, which explains the large proportion of farmers and the strong representation of women. The coexistence of high levels of tertiary education with farming may reflect either agricultural expertise or individuals with formal education who continue to rely on farming, while the age distribution indicates a predominance of middle-aged participants. Furthermore, the higher PUD prevalence among women underscores the need for further research into the underlying causes, which may include stress from household and agricultural responsibilities, hormonal influences, or overuse of NSAIDs. Public health interventions should be implemented to promote lifestyle modifications and early PUD detection, helping to prevent severe ulcer complications, particularly among individuals in their 30s and 40s. Providing comprehensive epidemiological insights into PUD is also essential, highlighting factors such as demographic characteristics, lifestyle habits, *H. pylori* infection, and current limitations in the research.

The study also revealed socioeconomic disparities in PUD prevalence, with individuals of lower income or education levels facing higher risks, likely due to limited health literacy and restricted access to healthcare. This finding emphasizes the need for policy

actions by government authorities to develop rural healthcare facilities, regulate NSAID sales, and promote ulcer awareness campaigns to reduce PUD incidence in the Wuntin Dada Tsohon Kamfani community. Such interventions are critical for public health initiatives, as they can guide healthcare providers in designing targeted strategies to address PUD effectively.

Conclusion

This study demonstrates that Peptic Ulcer Disease is a significant health concern among residents of Tsohon Kamfani in Wuntin Dada, Bauchi Metropolis. The findings reveal that older adults, particularly those aged 40 years and above, are the most affected, with a higher prevalence observed among females. Poor dietary practices, stress, and unfavorable environmental conditions emerged as major contributing factors to the occurrence of PUD within the community. These results underscore the need for targeted public health interventions focusing on health education, promotion of healthy dietary habits, stress management, and improvement of environmental conditions. Addressing these factors may help reduce the burden of Peptic Ulcer Disease and improve the overall well-being of the population.

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None

Conflict of Interest

None declared by the authors

Authors' contributions

HJA Conceptualized the topic most part of the manuscripts, FZA, developed part of the manuscript,

TOJ, help with some part of secondary data, AOB Proof read the manuscript, FSS Help in the build up of the manuscript, MOA, Proof read the manuscript for spelling error and HMA, Proof read the manuscript.

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