

CHAPTER I

INTRODUCTION

A. Background

Dyspepsia is a collection of symptoms localized in the epigastric region, including epigastric pain, burning sensation, bloating, early satiety, and a feeling of fullness after meals. This condition reflects a disorder of the upper gastrointestinal tract, which can be caused by either organic abnormalities or functional factors without structural defects. In the general public, dyspepsia is commonly known as "maag" (gastritis), although this term is frequently used broadly to describe various gastric complaints (Zakiyah et al., 2021). The World Health Organization (WHO) reported in 2021 that there are 15–30%, or approximately 1.2 to 2.4 billion, cases of dyspepsia annually. The prevalence of dyspepsia varies across different countries, ranging from 7 to 45%, or approximately 560 million to 3.6 billion cases, depending on the definition and geographical region.

According to Sperber et al. (2021), the global prevalence of functional dyspepsia in 2020, based on the Rome IV criteria, was 7.2%, or approximately 590 million people. In Asia, the prevalence of dyspepsia in 2020 varied; for instance, it was 5.9% in both China and Singapore, accounting for approximately 83.5 million and 344,000 people, respectively. Meanwhile, South Korea recorded 4.9% or approximately 2.5 million cases, and Bangladesh reached 19.4% or approximately 34.1 million people.

The phenomenon of these high global and regional incidence rates is also clearly reflected in Indonesia. Based on a survey of 1,231 respondents in Indonesia, Sperber et al. (2021) noted a functional dyspepsia prevalence of 4.4% in 2020, representing approximately 12.6 million cases. However, when combined with other Functional Gastrointestinal Disorders (FGIDs), this figure surges to 19.0%, or approximately 54.4 million cases, indicating that this condition remains a significant national health burden.

A literature review by Sidik (2024) reported high prevalence rates in several major Indonesian cities. In Jakarta, the prevalence of dyspepsia is estimated to reach 50% of the total population, or approximately 5.6 million residents. In Denpasar, the prevalence rate reaches 46%, or approximately 490,000 residents, while in Bandung, the prevalence is 32.5%, or approximately 837,000 residents. These variations are thought to be related to differences in dietary patterns, stress levels, lifestyles, and environmental factors in each respective region (Sidik, 2024).

Data from the Bengkulu Provincial Central Statistics Agency (BPS, 2024) indicates that dyspepsia ranks as the 7th most common disease, with 24,878 visits recorded in a single year. This figure demonstrates that gastrointestinal disorders, particularly dyspepsia, contribute significantly to the burden of healthcare services in this province. This condition aligns with national and global trends, where most dyspepsia cases—approximately seven to eight out of every ten—are classified as functional dyspepsia (Ashari, 2022).

The high incidence of dyspepsia cannot be ignored because the resulting impact is quite serious. Dyspepsia is not merely a minor complaint but a health issue that affects Quality of Life. Sufferers often experience sleep disturbances, loss of appetite, and anxiety due to recurrent pain. In productive age populations such as students, the impact of dyspepsia can hinder academic productivity. Sudden symptoms of heartburn and nausea can lead to reduced learning concentration, increased class absenteeism, and impaired performance during clinical practice in hospitals. If left untreated, this condition can develop into a chronic state and trigger more serious physical and psychological complications (Ashari, 2022).

Several risk factors are known to be associated with the incidence of dyspepsia, including stress levels, dietary patterns, consumption of irritating foods and beverages, NSAID usage, and sleep quality. Based on the Rome IV consensus, functional dyspepsia is categorized within the Disorders of Gut-Brain Interaction (DGBI), indicating that the pathophysiology of dyspepsia involves interactions between the brain and the digestive tract (Rome Foundation, 2019).

The first risk factor is stress level. High psychological stress triggers the brain-gut axis mechanism, where stressors stimulate the hypothalamus to produce cortisol and adrenaline. The increase in these hormones stimulates receptors in the stomach to produce excessive gastric acid (HCl). Among nursing students, academic pressure, clinical practice assignments, and tight schedules make stress more prevalent, thereby increasing the risk of dyspepsia. A study by Hamidah et al. (2023) on 45 student respondents showed a significant relationship between stress levels and dyspepsia incidence, with a p-value of 0.033 ($p < 0.05$). These findings confirm that psychological factors heavily influence functional dyspepsia, where higher stress levels lead to a greater risk of gastric disorders (Hamidah et al., 2023).

Dietary patterns also influence the incidence of dyspepsia syndrome. Irregular eating habits can trigger excessive gastric acid (HCl) production on an empty stomach, causing friction and irritation of the gastric mucosa. This condition is highly prone to be experienced by nursing students due to their packed schedules and the demands of clinical practice rotations, which often force them to postpone or even skip meals. In line with this, a study by Dayanti et al. (2023) on 76 adolescent respondents in Sri Tanjung Village demonstrated a significant relationship between irregular dietary patterns and the incidence of dyspepsia syndrome ($p = 0.001 < 0.05$). These findings emphasize that dietary regularity is one of the dominant factors affecting the risk of dyspepsia, including within student populations.

Another influential factor is the consumption of irritating foods and beverages. Spicy foods and caffeinated beverages, such as coffee, can stimulate excessive gastric acid secretion and weaken mucosal defenses. This behavior is frequently found among nursing students who rely on coffee for stamina to stay awake while completing assignments or preparing for night shifts, as well as the habit of consuming spicy snacks on campus. This is supported by a study by Putra et al. (2025) at Universitas Muhammadiyah Mataram on 72 respondents, which showed a significant relationship between the consumption of irritating foods and beverages and functional dyspepsia ($p = 0.001 < 0.05$). These findings confirm that

the habit of consuming irritants is a dominant risk factor that can exacerbate gastric conditions, especially in groups with high academic activity (Putra et al., 2025).

A history of NSAID usage also plays an important role. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) work by inhibiting the cyclooxygenase (COX-1) enzyme, which reduces the production of prostaglandins—substances that protect the gastric mucosa from irritation. The use of these drugs is often found among nursing students as an instant solution to relieve headaches caused by fatigue or dysmenorrhea, ensuring that academic and practice activities remain uninterrupted. This is relevant to a study by Fithriyana (2018), cited by Ndun et al. (2024), which reported that the habit of consuming pain relievers is significantly associated with dyspepsia incidence. These results show that the use of NSAIDs without proper dosage guidelines has a close link to the thinning of the mucosal layer, thus significantly increasing the risk of dyspepsia syndrome ($p = 0.002 < 0.05$) (Ndun et al., 2024).

The final factor is sleep quality. Sleep disturbances can affect regulatory pathways via the gut-brain axis and increase immune activation and pro-inflammatory cytokines that trigger gastric symptoms. This sleep issue becomes a crucial problem for nursing students who frequently experience circadian rhythm disruptions due to the demands of late-night academic assignments or adaptation to shift schedules during clinical practice. This aligns with research conducted by Khairunisa and Nasution (2024) on final-year students at the Faculty of Medicine, Universitas Muhammadiyah Sumatera Utara, which showed that sleep quality is significantly related ($p = 0.01$) to the incidence of functional dyspepsia. A higher proportion of dyspepsia was found in the group with poor sleep quality. These findings confirm that poor sleep quality is an important risk factor contributing to the high incidence of functional dyspepsia, particularly in student populations with high academic and physical burdens (Khairunisa & Nasution, 2024).

Based on an initial survey conducted on 10 nursing students at Poltekkes Kemenkes Bengkulu, it was found that nursing students do experience dyspepsia complaints. Out of the 7 students experiencing these symptoms, the impact on learning activities was profound. Three students reported experiencing

difficulties in concentration during lectures as their focus was divided by enduring pain, despite having attempted to relieve symptoms with medication. Furthermore, two students were frequently forced to briefly leave the room due to an unbearable sensation of nausea. The remaining two students admitted that they forced themselves to attend laboratory practices, but their lethargic physical condition prevented them from performing nursing procedures to their full potential. This decline in performance during practice and the loss of learning focus serve as tangible evidence that dyspepsia syndrome reduces the academic productivity of students.

Based on the researcher's preliminary observations and the characteristics of the curriculum at Poltekkes Kemenkes Bengkulu, nursing students carry a more complex academic burden compared to other health majors. Students in nutrition, medical laboratory technology, and pharmacy generally undergo more structured learning with classes, practicals, and scheduled academic assignments, resulting in relatively lower occurrences of delayed meal times, poor sleep quality, and pain reliever usage. Environmental health and health promotion students largely focus on classroom learning and fieldwork without the pressure of sustained high-stress academic activities, so their eating patterns and rest times tend to be more stable. Unlike these majors, nursing students face a more complex academic burden from the start of their studies, combining theory, practice, nursing care assignments, and demands for physical and mental readiness that run simultaneously, leading to clinical practice with direct patient responsibilities. This condition makes nursing students more vulnerable to irregular eating patterns, increased stress levels, consumption of irritating foods and beverages, self-medication with NSAIDs, and sleep quality disturbances. Meanwhile, in the midwifery major, although there is a high academic and practice burden, the more specific focus of the service makes the academic pressure and lifestyle variations less complex than those of nursing students. Therefore, nursing students are considered to have a more dominant and comprehensive exposure to risk factors for dyspepsia syndrome than other health majors, hence being selected as the research subjects.

The selection of risk factors for dyspepsia syndrome in this study is based on the researcher's initial observations of the activities and habits of nursing students at Poltekkes Kemenkes Bengkulu before the research was conducted. Based on these observations, the dyspepsia complaints experienced by nursing students were most frequently associated with academic stress, irregular eating patterns, the habit of consuming coffee or spicy foods, independent use of pain relievers, and irregular sleep schedules. These factors were chosen because they are empirically the most commonly encountered in the daily lives of nursing students, directly related to the demands of coursework and practice, and observable without the need for advanced clinical examinations. Therefore, the risk factors studied are the most relevant ones for further investigation in the context of nursing students at Poltekkes Kemenkes Bengkulu.

Based on the description above, it can be concluded that dyspepsia syndrome is a serious health problem that can hinder the academic productivity of students. Factors such as stress levels, dietary patterns, consumption of irritating foods and beverages, NSAID usage, and sleep quality are proven to have a close relationship with the incidence of dyspepsia syndrome. However, research examining these factors simultaneously among students at Poltekkes Kemenkes Bengkulu has not yet been conducted. Therefore, the researcher is interested in conducting a study titled "Analysis of Risk Factors for Dyspepsia Syndrome among Nursing Students at Poltekkes Kemenkes Bengkulu, Bengkulu City, 2026." Furthermore, the selection of Poltekkes Kemenkes Bengkulu as the research site is supported by the characteristics of its vocational education curriculum, which is dense with academic and clinical practice activities that demand high stamina. This indicates that this environment possesses a population with high vulnerability to lifestyle changes, making it a relevant location to study risk factors for dyspepsia syndrome in nursing students.

B. Research Problem

Dyspepsia syndrome among nursing students can cause recurrent physical complaints that interfere with the learning process and clinical practice activities, thereby potentially reducing academic achievement and quality of life if

not managed properly. Modifiable lifestyle factors, such as stress levels, dietary patterns, consumption of irritating foods and beverages, use of pain relievers (NSAIDs), and sleep quality, are suspected to be strongly associated with the increased incidence of this syndrome in vocational educational environments. Based on these conditions, the problem formulation for this study is: "Is there a relationship between stress levels, dietary patterns, consumption of irritating foods/beverages, use of pain relievers (NSAIDs), and sleep quality with the incidence of dyspepsia syndrome among nursing students at Poltekkes Kemenkes Bengkulu, Bengkulu City, in 2026?"

C. Research Objectives

1. General Objective

The general objective of this study is to analyze the risk factors associated with the incidence of dyspepsia syndrome among nursing students at Poltekkes Kemenkes Bengkulu in 2026.

2. Specific Objectives

- a. To identify the characteristics of respondents, including age, gender, and academic level/semester among nursing students at Poltekkes Kemenkes Bengkulu.
- b. To describe the risk factors, including stress levels, dietary patterns, consumption of irritating foods/beverages, history of NSAID use, and sleep quality among nursing students at Poltekkes Kemenkes Bengkulu.
- c. To determine the relationship between risk factors namely stress levels, dietary patterns, consumption of irritating foods/beverages, history of NSAID use, and sleep quality and the incidence of dyspepsia syndrome among nursing students at Poltekkes Kemenkes Bengkulu.

D. Research Significance

1. For Poltekkes Kemenkes Bengkulu

The results of this study are expected to serve as a reference for the Medical-Surgical Nursing (KMB) course, particularly regarding gastrointestinal system disorders such as dyspepsia. This research can be used as supplementary literature for students and lecturers in academic activities, scientific

discussions, and further research focusing on factors related to the occurrence of dyspepsia. Furthermore, the findings have the potential to be published in scientific journals to enrich knowledge in the field of nursing.

2. For the Community

The results of this study are expected to increase public understanding, especially among the productive age population, regarding the triggering factors of dyspepsia, such as stress levels, irregular dietary patterns, consumption of irritating foods and beverages, NSAID usage, and sleep quality. With improved understanding, the community is expected to be capable of implementing preventive measures and self-management, thereby reducing the incidence of dyspepsia and maintaining a better quality of life.

3. For Healthcare Services

The results of this study can provide input for healthcare services in designing promotive and preventive strategies related to digestive disorders, specifically dyspepsia. The information obtained can serve as a basis for developing health education regarding healthy dietary patterns, stress management, and the identification of risk factors in nursing students, making disease control efforts more effective.

4. For Future Researchers

The results of this study can serve as a reference for future researchers investigating risk factors for dyspepsia syndrome, particularly among student populations. Additionally, this research can provide a foundation for developing studies with different designs, incorporating other variables, or expanding the sample size, thus further enriching the field of medical-surgical nursing.