International Journal of Health, Economics, and Social Sciences (IJHESS)
Vol. 8, No. 3, 2026, pp. 2052~2058
DOI: 10.56338/ijhess.v8i3.9931
Website: https://jurnal.unismuhpalu.ac.id/index.php/IJHESS

# The Relationship between Sleep Quality, Coffee Drinking Habits, Drug Use and the Incidence of Dyspepsia at the South City Health Center

**Najwa Miranti I Lashari[1], Sirajuddien Bialangi[2], Suardi[3]**
[1,2,3]Jurusan Kesehatan Masyarakat, Fakultas Olahraga dan Kesehatan Universitas Negeri Gorontalo
Email: najlashari@gmail.com

**Article Info**

***Article history:***

Received 17 Mar, 2026
Revised 19 May, 2026
Accepted 28 May, 2026

***Keywords:***

Sleep quality, Habits, Drug use, Dyspepsia

**ABSTRACT**

Dyspepsia is a disorder of the upper gastrointestinal tract that is still a global and national health problem. Globally, the prevalence of dyspepsia is estimated to reach 40–50% of the population. In Indonesia, dyspepsia is among the top 10 most common diseases in health care facilities with a fairly high number of cases and continues to increase every year. In Gorontalo Province, the number of dyspepsia cases in 2024 will be recorded at 6,812 cases. Meanwhile, at the South City Health Center, there will be 587 cases in 2025. In the work area of the South City Health Center, dyspepsia is still a health problem that needs attention. The incidence of this disease is influenced by various risk factors, such as sleep quality, coffee drinking habits, and drug use. This study aims to analyze the relationship between these factors and the incidence of dyspepsia.

This study uses a quantitative method with a Cross-sectional design. The research sample amounted to 73 respondents who were selected using the Accidental sampling technique on patients of productive age (15–59 years) at the South City Health Center. Data was collected using a questionnaire and analyzed with the Chi-Square statistical test to find out the relationship between variables.

The results showed that there was a significant relationship between sleep quality (p=0.001), coffee drinking habits (p=0.011), and drug use (p=0.023) with the incidence of dyspepsia.

There is a relationship between sleep quality, coffee drinking habits, and drug use with the incidence of dyspepsia at the South City Health Center. Improving sleep quality, limiting coffee consumption, and rational use of drugs are needed as an effort to prevent dyspepsia.

## INTRODUCTION

Dyspepsia is a collection of symptoms of upper gastrointestinal disorders such as pain or discomfort in the epigastrium, nausea, vomiting, bloating, rapid satiety, a feeling of fullness in the stomach, and belching that can affect the quality of life of the sufferer (Zakiyah, 2021). In clinical practice, dyspepsia is one of the most common health problems, where about 30% of cases are found in general services and 60% of cases in gastroenterology services (Nurjanah et al., 2024). This condition can be affected by various factors such as lifestyle, diet, history of illness, and psychological factors.

According to the World Health Organization (WHO), the prevalence of dyspepsia in the world ranges from 15–30% each year, depending on the definition and geographical location used (World Health Organization, 2024). In the United States, the prevalence of dyspepsia reaches 23–25.8%, New Zealand 34.2%, India 30.4%, the United Kingdom 38–41%, and Hong Kong 18.4%, while some countries in Asia have a dyspepsia incidence rate of around 43–79.5% (Syah et al., 2022). In Indonesia, dyspepsia is included in the top 10 causes of hospitalization and outpatient with a prevalence of around 40–50% (Ministry of Health of the Republic of Indonesia, 2025). In Gorontalo City, the number of dyspepsia cases has increased from 4,655 cases in 2023 to 6,812 cases in 2024 (Gorontalo City Health Office, 2024). Meanwhile, at the South City Health Center, there were 635 cases recorded

in 2024 and 587 cases in 2025. The data shows that dyspepsia is still a fairly high health problem in the community.

One of the factors suspected to be related to the incidence of dyspepsia is sleep quality. Poor sleep quality can affect gastrointestinal function through activation *Gut-Brain Axis* which leads to increased gastric acid secretion and disorders of gastric motility. Research (Nurjanah et al., 2024) showed a significant association between sleep quality and the incidence of dyspepsia (*p-value* = 0.000). In addition, (Wuestenberghs et al., 2022) states that most dyspepsia patients experience impaired sleep quality and insomnia.

Other factors that are also related to dyspepsia are coffee drinking habits and the use of medications. The caffeine content in coffee can increase stomach acid production, triggering gastric mucosa irritation and causing symptoms of dyspepsia. Research (Levani, 2023) shows a relationship between coffee drinking patterns and the incidence of dyspepsia. In addition, the use of certain medications such as nonsteroidal anti-inflammatory drugs (OAINS) is also known to interfere with the protection of the gastric mucosa and increase the risk of dyspepsia (Fadli et al., 2025).

Based on preliminary interviews with 10 respondents at the South City Health Center, most of the respondents had poor sleep quality, regularly consumed coffee, and used oral medicines accompanied by stomach complaints. Although several studies have examined these factors separately, studies that have analyzed the relationship between sleep quality, coffee habits, and medication use with the concomitant incidence of dyspepsia at the primary health care level are limited. Therefore, this study was conducted to determine the relationship between sleep quality, coffee drinking habits, and drug use with the incidence of dyspepsia at the South City Health Center.

## RESEARCH OBJECTIVES

This study aims to analyze the relationship between sleep quality, coffee drinking habits, and drug use with the incidence of dyspepsia at the South City Health Center

## RESEARCH METHODS

This study uses a quantitative method with an observational analytical design through *a cross-sectional approach*. The research was carried out at the South City Health Center on January 26–February 25, 2026. The study population was patients of productive age 15–59 years who visited the South City Health Center. The research sample amounted to 73 respondents who were selected using *accidental sampling techniques*.

The independent variables in this study included sleep quality, coffee drinking habits, and drug use, while the dependent variable was the incidence of dyspepsia. Data were collected using questionnaires and analyzed univariate and bivariate. Bivariate analysis was carried out using the Chi-Square test with a significance level of α = 0.05 to determine the relationship between the study variables.

## RESULTS

**Table 1 Characteristics of Respondents**

| **Incidence of Dyspepsia** | **n** | **(%)** |
|---|---|---|
| Dyspepsia | 45 | 61,6 |
| No Dyspepsia | 28 | 38,4 |
| Total | 73 | 100 |
| **Sleep Quality** | **n** | **(%)** |
| Not Good | 50 | 68,5 |
| Good | 23 | 31,5 |
| Total | 73 | 100 |
| **Coffee Drinking Habits** | **n** | **(%)** |
| Height | 41 | 56,2 |
| Low | 32 | 43,8 |
| Total | 73 | 100 |
| **Use of Drugs** | **n** | **(%)** |
| Height | 47 | 64,4 |
| Low | 26 | 35,6 |
| Total | 73 | 100 |

Based on Table 1, respondents were dominated by the group that experienced dyspepsia, which was as many as 45 respondents (61.6%), compared to respondents who did not experience dyspepsia as many as 28 respondents (38.4%). In terms of sleep quality, most of the respondents were in the category of poor sleep quality, namely 50 respondents (68.5%), while respondents with good sleep quality were 23 respondents (31.5%).

In coffee drinking habits, the majority of respondents were in the high category, namely 41 respondents (56.2%), while respondents with low coffee drinking habits were 32 respondents (43.8%). Judging from the use of drugs, most of the respondents were in the category of high drug use, namely 47 respondents (64.4%), while the use of drugs was low as many as 26 respondents (35.6%).

In general, the characteristics of the respondents showed dominance in the incidence of dyspepsia, poor sleep quality, high coffee drinking habits, and high use of drugs in respondents at the South City Health Center.

**Table 2 Relationship between Sleep Quality and the Incidence of Dyspepsia at the South City Health Center**

| **Sleep Quality** | **Incidence of Dyspepsia** | | | | | | ***p-value*** |
|---|---|---|---|---|---|---|---|
| | **Dyspepsia** | | **No Dyspepsia** | | **Total** | | |
| | **n** | **%** | **n** | **%** | **n** | **%** | |
| Not Good | 38 | 76,0 | 12 | 24,0 | 50 | 100 | **0,001** |
| Good | 7 | 30,4 | 16 | 69,6 | 23 | 100 | |
| **Total** | 45 | 61,6 | 28 | 38,4 | 73 | 100 | |

Based on Table 2, the proportion of respondents who experienced dyspepsia was higher in the category of poor sleep quality (76.0%) compared to good sleep quality (30.4%). The results of the statistical test show the value of *p-value* 0,001 ($p < 0.05$), so there is a relationship between sleep quality and the incidence of dyspepsia at the South City Health Center.

**Table 3 Relationship between Coffee Drinking Habits and Incidents at South City Health Centers.**

| **Coffee Drinking Habits** | **Incidence of Dyspepsia** | | | | | | ***p-value*** |
|---|---|---|---|---|---|---|---|
| | **Dyspepsia** | | **No Dyspepsia** | | **Total** | | |
| | **n** | **%** | **n** | **%** | **n** | **%** | |
| Height | 31 | 75,6 | 10 | 24,4 | 41 | 100 | **0,011** |
| Low | 14 | 43,8 | 18 | 56,3 | 32 | 100 | |
| **Total** | 45 | 61,6 | 28 | 38,4 | 73 | 100 | |

Based on Table 3, the proportion of respondents who experienced dyspepsia was higher in the category of high coffee drinking habits (75.6%) compared to low coffee drinking habits (43.8%). The results of the statistical test showed a *p-value* of 0.011 ($p < 0.05$), so there was a relationship between coffee drinking habits and the incidence of dyspepsia at the South City Health Center.

**Table 4. The Relationship between Drug Use and Incidents at South City Health Centers**

| Use of Drugs | Incidence of Dyspepsia | | | | | | *p-value* |
|---|---|---|---|---|---|---|---|
| | Dyspepsia | | No Dyspepsia | | Total | | |
| | n | % | n | % | n | % | |
| Height | 34 | 72,3 | 13 | 27,7 | 47 | 100 | **0,023** |
| Low | 11 | 42,3 | 15 | 57,7 | 26 | 100 | |
| **Total** | 45 | 61,6 | 28 | 38,4 | 73 | 100 | |

Based on Table 4, the proportion of respondents who experienced dyspepsia was higher in the category of high drug use (72.3%) compared to low drug use (42.3%). The results of the statistical test showed a *p-value* of 0.023 ($p < 0.05$), so there was a relationship between the use of drugs and the incidence of dyspepsia at the South City Health Center.

## DISCUSSION

### The Relationship between Sleep Quality and the Incidence of Dyspepsia

Based on the results of bivariate analysis using the Chi-Square test, a *p-value* of < 0.05 (p = 0.001) was obtained, which showed that there was a significant relationship between sleep quality and the incidence of dyspepsia at the South City Health Center. Respondents with poor sleep quality experienced more dyspepsia compared to respondents who had good sleep quality.

The results of this study are in line with the research (Nurjanah et al., 2024) which states that there is a significant relationship between the need for sleep rest and the incidence of dyspepsia. The relationship can be explained through the mechanism *Brain–gut axis*, that is, two-way communication between the central nervous system and the gastrointestinal tract. Sleep disorders can increase the activation of the sympathetic nervous system and the secretion of stress hormones such as cortisol. The increase in stress hormones can stimulate excessive stomach acid production and decrease the defense mechanism of the gastric mucosa, thus triggering the onset of symptoms of dyspepsia (Billey et al., 2024). In addition, poor sleep quality can also affect gastric motility and increase visceral sensitivity in the gastrointestinal tract (Nurjanah et al., 2024).

The results of the field study showed that most of the respondents who experienced poor sleep quality admitted that they often slept late at night, had a sleep duration of less than 7 hours per day, and irregular rest time. Work activities, household chores, and social demands are factors that make it difficult for respondents to get enough sleep. This condition causes the body to not get maximum recovery and causes drowsiness during the day. Persistent sleep disturbances can have an impact on decreased concentration, productivity, and increase the risk of physical and psychological fatigue (Nurjanah et al., 2024).

In respondents with good sleep quality but experience dyspepsia, this can be caused by a subjective assessment of sleep quality so that it does not necessarily fully describe the physiological condition during sleep. Even if respondents feel they have enough sleep, micro-disturbances can still occur (*micro-arousal*) or unconscious sleep cycle imperfections. In addition, the presence of differences in visceral sensitivity in each individual can cause a person to feel stomach pain or discomfort more easily. In contrast, respondents with poor sleep quality but not dyspepsia were likely to have better physiological adaptability, more stable regulation of the autonomic nervous system, and a more controlled stress response so that there was no significant increase in gastric acid secretion (Khairunisa & Nasution, 2024).

These findings are in line with research (Khairunisa & Nasution, 2024) which states that dyspepsia is affected by various factors, such as disorders of gastric motility, visceral hypersensitivity, infections *Helicobacter pylori*, psychological factors, as well as irregular diet. Research by (Su et al., 2021) It also shows that individuals with sleep disorders have a higher risk of developing dyspepsia than individuals without sleep disorders. Therefore, good sleep quality needs to be a concern in efforts to prevent and control dyspepsia. Education on the importance of adequate sleep duration, regular sleep habits, and stress management needs to be improved as part of promotive and preventive programs at the South City Health Center to reduce the risk of gastric disorders and improve the

quality of life of the community.

**The Relationship between Coffee Drinking Habits and the Incidence of Dyspepsia**

Based on the results of bivariate analysis using *the Chi-Square* test, a p-value *of < 0.05 (*p = 0.011) was obtained, which showed that there was a significant relationship between coffee drinking habits and the incidence of dyspepsia at the South City Health Center.

The results of this study are in line with the research conducted by (Levani, 2023) which states that there is a relationship between coffee consumption patterns and the incidence of dyspepsia. The higher the coffee consumption, the greater the risk of dyspepsia. This relationship can be explained by the caffeine content in coffee which can stimulate stomach acid secretion through the stimulation of the hormone gastrin. Excessive production of stomach acid can irritate the gastric mucosa and trigger symptoms of dyspepsia such as heartburn, nausea, and a feeling of fullness in the upper abdomen. This effect will be especially felt in individuals who have irregular diets, high stress, or staying up late (Yusuf et al., 2024).

Respondents with high coffee drinking habits showed a greater number of dyspepsia events compared to respondents with low coffee drinking habits. This condition is in line with findings in the field, where most respondents of productive age consume coffee to improve concentration and maintain stamina during work. Respondents also stated that they consumed coffee more than once a day, especially when working late at night or when feeling tired.

These findings are in line with research (Ndun, 2024) which shows a significant relationship between coffee consumption and the incidence of dyspepsia with the value of *p-value* < 0.05. The study confirms that individuals who consume coffee more than once a day have a higher risk of developing gastric disorder complaints compared to those who consume coffee infrequently. These results reinforce that coffee can be one of the risk factors for gastric disorders, especially when consumed regularly in the long term. In addition, research conducted by (Rizka, 2024) It was also stated that there was a significant relationship between the intensity of coffee consumption and the incidence of dyspepsia with a value of p = 0.041.

The high consumption is influenced by the activities of respondents who are of productive age, so coffee is consumed as an effort to maintain stamina and increase concentration when working or doing activities. However, there were respondents with low coffee drinking habits but dyspepsia, as well as respondents with high coffee drinking habits but not dyspepsia. These findings suggest that coffee consumption is not the only factor that influences the occurrence of dyspepsia. Respondents with low coffee drinking habits but dyspepsia, there were other risk factors that were more dominant. Such as irregular eating, the habit of skipping meals, as well as the consumption of spicy, acidic, and fatty foods. In addition, although the frequency of coffee consumption is relatively low, improper consumption times such as on an empty stomach can trigger increased stomach acid secretion and cause stomach complaints in sensitive individuals.

On the other hand, in respondents who have high coffee drinking habits but do not experience dyspepsia, this can be caused by protective factors. Respondents had a regular diet, had no history of stomach disease, and had a good body tolerance to caffeine. Some individuals have physiological adaptations to caffeine consumption so that they do not cause an increase in gastric symptoms.

Differences in individual responses to coffee consumption are also influenced by genetic factors, psychological conditions, and overall lifestyle. Low stress levels, good sleep quality, and adequate physical activity can help maintain a balance in the digestive system despite high exposure to caffeine.

Thus, the habit of drinking coffee can play a role in increasing the risk of dyspepsia, especially if consumed in excess and not balanced with a good diet. The results of this study provide an overview that regulating coffee consumption needs to be one of the concerns in efforts to prevent dyspepsia at the South City Health Center, through education about the safe limits of coffee consumption and the importance of maintaining a healthy lifestyle.

**The Relationship between Drug Use and the Incidence of Dyspepsia**

Based on the results of bivariate analysis using *the Chi-Square* test, a p-value *of < 0.05 (*p = 0.023) was obtained, which showed that there was a significant relationship between the use of oral drugs and the incidence of dyspepsia at the South City Health Center.

The results of this study are in line with the research conducted by (Fadli et al., 2025) which states that there is a relationship between the use of OAINS and dyspepsia, as well as the relationship between the use of OAINS and the severity of dyspepsia. Findings This shows that not only the frequency of use, but also the duration of the

drug use plays a role in aggravating the symptoms of dyspepsia. The longer the use of OAINS, the greater the risk of gastric mucosal disorders.

use of certain oral medications, especially *Non-Steroidal Anti-Inflammatory Drugs* (NSAIDs) such as ibuprofen, mefenamic acid, and aspirin, can increase the risk of gastric disorders. NSAIDs work by inhibiting the enzyme cyclooxygenase (COX-1) which plays a role in the formation of protective prostaglandins of the gastric mucosa. A decrease in prostaglandins leads to reduced mucus and bicarbonate production, so that the stomach protective layer becomes more susceptible to stomach acid irritation. This condition can trigger complaints of heartburn, nausea, bloating, and discomfort in the upper abdomen which are symptoms of dyspepsia. In addition to NSAIDs, the use of antibiotics, corticosteroids, and iron supplements can also cause gastrointestinal side effects (Wahidah et al., 2024).

In addition to modern medicine, the use of traditional medicine or herbal medicine also has the potential to affect the incidence of dyspepsia. Some types of herbal medicine such as herbal medicine that contain active ingredients such as turmeric, ginger, or even a mixture of medicinal chemicals (BKO) such as phenylbutazone or paracetamol that are not standardized, can increase the risk of stomach irritation if consumed in the long term or without clear rules. Certain ingredients in herbs can stimulate increased stomach acid production or cause mucosal irritation, especially if consumed on an empty stomach. In addition, herbal medicine that is acidic or spicy can also worsen the condition of the stomach in sensitive individuals.

Respondents with a high category of oral drug use showed a higher number of occurrences of dyspepsia compared to respondents with low oral drug use. Based on findings in the field, the use of oral drugs by respondents showed quite a variety of variations. Respondents routinely take OAINS such as ibuprofen and mefenamic acid to treat mild to moderate pain, both headaches, joint pain, and menstrual pain. In addition to OAINS, some respondents also use paracetamol as an alternative pain reliever. Some respondents also reported using antibiotics to treat mild infections although the frequency is less frequent, and taking traditional medicines or herbal medicine both as prevention and to improve digestive health.

In respondents who experienced dyspepsia with low use of oral medications, there were other factors that were more dominant in influencing the appearance of gastric complaints. Individual factors such as gastric hypersensitivity or a previous history of gastritis can cause symptoms of dyspepsia despite relatively low exposure to oral medications.

In contrast, in respondents who did not experience dyspepsia despite high use of oral medications, this can be explained through several physiological mechanisms. The type of medication taken likely has a lower risk of gastric irritation, such as paracetamol that does not significantly inhibit the COX-1 enzyme so that it does not interfere with the production of protective prostaglandins of the gastric mucosa. In addition, the use of medications that follow the rules, such as taken after meals, can reduce direct contact between the medication and the gastric mucosa so as to minimize irritation. Lower visceral sensitivity also causes individuals to not easily feel stimuli in the gastrointestinal tract as a complaint of dyspepsia, so even though the use of drugs is high, symptoms of dyspepsia do not appear.

The results of this study are in line with the research (Febrina & Miro, 2023) which stated that there was a significant relationship between the duration of use of OAINS and the incidence of dyspepsia in OA patients at the Andalas Health Center, Padang City with a value of p=0.001. Patients with long-term use of OAINS had more complaints of epigastric pain compared to patients who used for a shorter period of time. Research (Syah et al., 2022) also stated that there was a significant relationship between the consumption of OAINS and the incidence of dyspepsia syndrome because the value of p = 0.013 was obtained. This reinforces that the use of anti-inflammatory drugs is one of the main risk factors for gastric disorders in first-level health services.

Thus, the results of this study reinforce that the use of oral drugs, especially those that have the potential to irritate the stomach, is a contributing factor to the incidence of dyspepsia at the South City Health Center. Therefore, promotive and preventive efforts are needed through education about the rational use of drugs, compliance with the rules of use, and the importance of consultation with health workers before taking drugs regularly to reduce the risk of gastrointestinal disorders.

## CONCLUSIONS AND SUGGESTIONS

Based on the results of the study, it can be concluded that there is a relationship between sleep quality, coffee drinking habits, and drug use with the incidence of dyspepsia. Respondents with poor sleep quality, high coffee drinking habits, and high drug use were more likely to experience dyspepsia. In this regard, it is

recommended to the South City Health Center to increase promotive and preventive efforts through health education related to the importance of maintaining sleep quality, limiting coffee consumption, and using drugs rationally and in accordance with the recommendations of health workers.

People are also expected to implement a healthy lifestyle by maintaining adequate rest time, reducing excessive coffee consumption, and being more careful in the use of drugs to reduce the risk of dyspepsia. In addition, it is recommended for future researchers to use a different research design and add other variables such as diet, stress level, *Helicobacter pylori* infection, and physical activity to obtain a more comprehensive picture of the factors related to the incidence of dyspepsia.

## REFERENCES

Billey, A. . . Zergaw, M. F. (2024). The Bidirectional Relationship Between Sleep Disturbance And Functional Dyspepsia : A Systematic Review To Understand Mechanisms And Implications On Management. 16(8). https://doi.org/10.7759/cureus.66098

Fadli, M. ... Kadri, H. (2025). The Relationship between the Use of Nonsteroidal Anti-Inflammatory Drugs (OAINS) and the Severity of Dyspepsia in Osteoarthritis Patients in the Working Area of the Kuranji Health Center, Padang City. 46(4), 400–409.

Febrina, S., & Miro, S. (2023). Long-Term Relationship of Nonsteroidal Anti-Inflammatory Drugs Use with the Incidence of Dyspepsia in Osteoarthritis Patients at the Andalas Health Center, Padang City. 1–8.

Khairunisa, S., & Nasution, H. N. (2024). Research article on sleep quality related to functional dyspepsia in final year students of the Faculty of Medicine, University of Muhammadiyah North Sumatra. 5(3), 28–35.

Levin, Y. (2023). Coffee Consumption Patterns Relationship with Incidence of Dyspepsia Syndrome in Medical Faculty Students. 4(2), 98–104.

Ndun, E. A. (2024). Risk factors for the incidence of dyspepsia in people aged 15-64 years in Oesao Village, Oesao Health Center work area. 13(1), 37–49. https://doi.org/10.37048/kesehatan.v13i1.299

Nurjanah, R. G. ... Inriyana, R. (2024). The Relationship between the Incidence of Dyspepsia and the Need for Sleep Rest in S1 Nursing Students. 18(1), 95–102.

Rizka, I. D. (2024). The relationship between the intensity of coffee consumption and diet and the incidence of dyspepsia. Malaria Medicine, 8(1), 274–280.

Su, H. H. ... Chen, Y. S. (2021). Relative Risk Of Functional Dyspepsia In Patients With Sleep Disturbance : A Population - Based Cohort Study. Scientific Reports, 1–9. https://doi.org/10.1038/s41598-021-98169-4

Shah, M. S. F. ... The, F. (2022). Correlation of Risk Factors With The Incidence Of Functional Dyspepsia Syndrome In Medical Faculty Students , Khairun University. Consider using the Gospel of Jesus Christ of Latter-day Saints, 10, 9–17.

Wahidah, P. K. ... Lampung, U. (2024). Use of NSAIDs As A Risk Factor For Dyspepsia : Literature Review NSAIDs Use As A Risk Factor For Dyspepsia : Literature Review. 14, 1959–1962.

World Health Organization. (2024). Global Prevalence of Uninvestigated Dyspepsia (UD).

Wuestenberghs, F. ... Desprez, C. (2022). Sleep Quality And Insomnia Are Associated With Quality Of Life In Functional Dyspepsia. 16(February), 1–9. https://doi.org/10.3389/fnins.2022.829916

Yusuf, A. ... Suhaeni, E. (2024). Dyspepsia at the Pamengkang Health Center, Cirebon Regency in 2023. 8, 102–108.

Zakiyah, W. (2021). Definition, causes, classification, and therapy of dyspepsia syndrome. 2(7).