

A STUDY ON THE PREVALENCE AND ASSOCIATED RISK FACTORS FOR INSOMNIA AMONG GERIATRIC POPULATION IN BANGLADESH

By

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A thesis submitted to the School of Pharmacy in partial fulfillment of the requirements for
the degree of Bachelor of Pharmacy (B. Pharm.)

School of Pharmacy
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Declaration

It is hereby declared that

1. The thesis submitted is my/our own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I/We have acknowledged all main sources of help.

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Ethics Statement

If review or non-human or animal studies: This project does not involve any kind of animal and human trial.

OR

For lab-based work, you will need to provide the Ethical Permissions as given by the IRB.

Abstract

The prevalence and risk factors of insomnia in Bangladesh's older population are investigated in this study. A common sleep disease called insomnia makes it difficult to fall asleep, stay asleep, or wake up too early, which can result in mood swings, tiredness, and other major health problems. According to the study, psychological stress, economic challenges, limited access to healthcare, and chronic diseases including diabetes and heart disease are some of the main causes of insomnia in older persons. Due to the fact that many older people depend on their families for both financial and emotional support, as well as the fact that traditional beliefs frequently discourage them from accessing medical treatment, cultural and social factors also have an impact on sleep health. To find out how lifestyle and living conditions affect sleep, 334 participants 60 years of age and older from both urban and rural areas provided data for the study. According to the findings, insomnia is very common, and women are more likely to suffer from it since they face more health issues. Additionally, sleep disturbances are more common in older adults who are financially distressed or live alone. In order to treat insomnia in Bangladesh's aging population, the findings emphasize the critical need for enhanced mental health assistance, raised awareness, and improved healthcare regulations. It is possible to enhance the quality of life for senior citizens and lower the long-term health risks linked to inadequate sleep by acknowledging sleep disorders as a significant health concern.

Key Words: Insomnia, Chronic disease, Geriatric population, Awareness, Healthcare, Treatment, Family, Lifestyle, Stress, AIS-8, Cross-sectional study.

Dedication

The project was dedicated to my wonderful parents, whose love, sacrifices, and unwavering support have shaped my journey; to my loving sister, my source of inspiration and encouragement; and to my amazing partner, whose belief in me has been my greatest strength.

Acknowledgement

I would like to thank everyone who has helped me to complete my project. First of all, I would like to thank Almighty Allah for giving me the opportunity to complete my degree from School of Pharmacy, BRAC University. I would like to convey my sincere appreciation to the acting dean of School of Pharmacy, Professor A.F.M. Yusuf Haider. I would like to convey my appreciation to my supervisor Dr. Md. Rabiul Islam, Associate Professor, School of Pharmacy for helping me throughout my project work.

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List of Acronyms

WHO World Health Organization

AIS Athens Insomnia Scale

Chapter 1: Introduction

1.1 Background and Importance of the Study

Insomnia is the most prevalent cause of mental health disorders in the world, including Bangladesh. The initial causes of insomnia include health problems, stress, anxiety, inadequate sleeping habits, and aging or lifestyle related changes directly impact on sleeping cycle. People who have insomnia, a common sleep problem, have trouble falling asleep, staying asleep, or waking up too early, and they still feel exhausted even sleeping (Ohayon, 2019). The World Health Organization (WHO) reports that in low-income regions of Asia and Africa, 16.6% of adults aged 50 and over suffer from severe sleep issues. Each country has a distinct number of impacted citizens. For instance, nearly 40% of older persons in Bangladesh have serious sleep disorders, but just 3.9% of people in Indonesia and Kenya report having sleep problems (WHO, n.d.). Since the number of older persons experiencing insomnia is rapidly increasing, we have conducted our research on determining the rate of insomnia in Bangladeshi men and women aged 60 and above.

When people get older many changes occur throughout their body and mind for which they experience sleep issues (Ancoli-Israel, 2020). They may wake up more frequently at night, sleep less deeply, and feel sleepy earlier in the evening when their sleep patterns changes with age. Moreover, a lot of older persons have health issues such as diabetes, heart disease, arthritis, and memory loss, all of which can interfere with sleep (Espie et al., 2018). According to studies, 15-20% of older adults experience chronic insomnia, which impacts their everyday lives and lasts for a long period, and 30-50% of them have difficulty falling asleep (Zhang & Wing, 2020). So, this growing number of older people with insomnia is a serious concern for the global healthcare system.

Insomnia can cause fatigue, difficulty concentrating, memory problems, mood fluctuations, weakened immunity, an increased risk of heart disease, and mental health conditions like depression and anxiety which leads to frequent hospital visits, medicines and medical care (Reynolds et al., 2019). Additionally, it increases older persons' risk of falls, accidents, and other health issues, which can result in longer hospital stays and even death (Foley et al., 2018). Different lifestyles, access to healthcare, and traditions all contribute to the variation in the number of cases of insomnia among older persons worldwide. Research indicates that sleeplessness impacts:

1. Thirty to thirty-five percent of North American seniors
2. Twenty to thirty percent in Europe
3. In Asian nations like China and India, it's likely thirty five to forty percent (Zhao et al., 2021)

Few studies have been conducted on insomnia in nations with limited resources for example Bangladesh. However, preliminary research indicates that moderate to severe sleep issues affect 35–50% of older persons here (Haque et al., 2022).

1.2 Socioeconomic and Cultural Context of Insomnia in Bangladesh

In a number of developed countries, elderly people often stay in special care facilities where they get ongoing emotional and medical support. Nonetheless, the majority of senior citizens in Bangladesh reside in multilayered houses with their relatives. Their emotional and physical health are significantly impacted by interpersonal responsibilities, family ties, and financial necessity. Research indicates that older adults are more prone to develop stress-related sleeplessness if they lack independence, have family problems, or feel lonely (Rahman et al., 2021).

The elderly people of Bangladesh, both men and women, face a biggest challenge in accessing healthcare support. Since many older people depend on their relatives or family for financial support, they may not always be able to pay for medical treatment for sleep issues. In addition, countries like Bangladesh had a very few specialised doctors who can treat older adults with empathy and care who are suffering from sleep disorders and there are a rare number of clinics for this specific issue.(Kabir et al., 2021).

In Bangladesh, the government prioritizes treating serious medical conditions above chronic disease like insomnia. As a result, older adults' sleep issues are frequently overlooked, which results in inadequate diagnosis and treatment. For many older people, this means that insomnia is a chronic and untreated problem (Kabir et al., 2021).

In Bangladesh's rich history of culture, alternative medicine and traditional healing techniques are significant components of healthcare. Instead of using pharmaceutical therapies for insomnia, many older adults prefer to use herbal remedies, spiritual healing, and

religious activities. These techniques might offer short-term relaxation, but they don't deal with the underlying emotional and physical causes of sleep issues (Ahmed et al., 2022).

On top of that, older people frequently avoid discussing sleep problems in public due to cultural views. Insomnia is frequently viewed as an ordinary part of getting older rather than a disease that requires medical attention. As a result, poor sleep patterns are more frequent among older persons, and many of them choose not to seek professional assistance.

Moreover older people in Bangladesh are experiencing social isolation as a result of the country's fast urbanization and shifting family structures. Many older persons experience mental distress and loneliness because they live alone or spend less time with family.

A person's connections to family play an important role to their wellbeing in traditional Bangladeshi society. Changes in relationships with family members can have a negative impact on older people's mental health. Long-term insomnia is frequently caused by factors such as financial dependencies, the death of a spouse, and conflicts across families.

Features	Challenges
Healthcare access	There are a small number of specialized doctors and hospitals who can treat elderly people for their sleep problems.
Financial dependencies	Most often elderly people are financially dependent on their family members and relatives.
Family crisis	Family conflict directly increases the stress level of older people and it leads to poor sleep.
Social taboo	Many elderly people believe insomnia as a normal part of getting older
Traditional thoughts	Older people often believe in herbal medicine rather than pharmaceutical therapies.

Table 1: The Most Common Economic, Social and Cultural Challenges to Treat Insomnia In Bangladesh, helping elderly persons with insomnia needs a strategy that takes into account their socioeconomic status and cultural norms. The government ought to acknowledge insomnia as a serious medical condition and provide resources for its management.

1.3 A Global and Bangladesh Perspective on Insomnia

1.3.1 The Insomnia Global Perspective

A major sleep issue that impacts people worldwide is insomnia. People have trouble falling asleep, staying asleep, or getting an adequate amount of rest as a result, which leaves them feeling exhausted during the day. According to studies, between 10 and 30 percent of adults globally have some kind of insomnia, with older adults experiencing a higher prevalence (Zhang & Wing, 2020). In certain developed nations, when lifestyle choices, stress, and work-related pressure disrupt sleep cycles, the disorder is considerably more severe. Research indicates that between 25 and 35 percent of persons in North America and Europe experience insomnia. Those with high-stress occupations, shift workers, and those over 65 are most impacted. Between 15 and 30 percent of people in nations like China, India, and Japan suffer from insomnia. Urbanization, more screen time, and stressful work settings are all contributing factors to the problem's growth. According to data, between 10 and 25 percent of people in South America and Africa have sleep issues. Treatment is challenging when access to healthcare is limited.

Global causes of Insomnia:

1. **Technology and Workplace:** Nowadays many older people use electronic devices also late at night, which alters the production of melatonin, a hormone which helps to sleep.
2. **Mental Health Conditions:** People who suffer from anxiety and depression are prone to develop insomnia.
3. **Chronic disorders:** Insomnia is more common in people with diabetes, heart disease, and chronic pain.
4. **Irregular Sleeping Patterns:** Lack of exercise, coffee consumption before bed, and irregular sleep cycles may contribute to difficulties with sleep.

In addition to affecting individuals, insomnia also has an impact on economics and society. Sleep deprivation raises the risk of accidents, lowers workplace productivity, and increases medical expenses. Chronic sleep deprivation has been connected to decreased immunity, high blood pressure, obesity, and a higher risk of mental health issues. The importance of sleep

health is now acknowledged by governments worldwide, who are funding studies and medical initiatives to treat insomnia.

1.3.2 Insomnia: An Increasing Phenomenon in Bangladesh

Insomnia is on the rise in Bangladesh, particularly among senior citizens. Because they are not regarded as a medical condition, sleep issues are frequently disregarded while being a major problem. In Bangladesh, many older people have trouble sleeping, but few of them seek medical attention because of stereotypes, lack of knowledge, and financial limitations. According to studies, between 35 and 50 percent of Bangladeshi elderly individuals have sleep disturbances of some kind (Haque et al., 2022). However, it is challenging to fully comprehend the scope of the issue due to the unavailability of government data on insomnia.

Causes of Insomnia in Bangladesh:

1. **Economic Stress and Poverty:** A lot of older people worry about their financial security, which causes stress and anxiety that interferes with their ability to sleep.
2. **Limited Access to Healthcare:** Many people cannot afford sleep-related treatments, and there are very few sleep clinics and specialists accessible.
3. **Traditional Beliefs and Stereotypes:** Many people do not seek treatment for lack of sleep because they believe it is a normal aspect of aging.
4. **Family and Social Changes:** As more people go to urban areas for employment, older adults are frequently left alone, which causes loneliness and disrupts their sleep.

Lack of sleep impairs immunity and raises the risk of conditions like hypertension and type 2 diabetes. Elderly people with chronic sleep issues frequently experience stress and depression. Sleep deprivation impairs mood, memory, and focus, making day-to-day tasks more challenging.

1.4 Definition and Classification of Insomnia

Insomnia is defined by the American Academy of Sleep Medicine (AASM) as difficulties falling or staying asleep that impairs functioning during the day (American Academy of Sleep Medicine, 2021). Based on its duration and underlying reasons, insomnia can be categorized into three types:

1. **Acute Insomnia:** According to Morin and Jarrin (2022), acute insomnia is a transient sleep disorder brought on by stress, environmental changes, or lifestyle choices. This illness usually goes away on its own without the need for medical attention and lasts for a few days to a few weeks.
2. **Chronic Insomnia:** Chronic insomnia is defined as ongoing sleep problems that occur at least three evenings a week and last for three months or longer (Riemann et al., 2020). For effective management, behavioral therapy and medical intervention are frequently needed.
3. **Comorbid Insomnia:** Sleep disturbances that exist together with physical or mental health concerns are referred to as comorbid insomnia (Taylor et al., 2019). Because of the numerous concurrent medical disorders, it is very common in older people.

Again, based on fundamental causes and contributing factors Insomnia can be classified as either primary or secondary. Accurate diagnosis and successful treatment planning depend on being able to distinguish between these categories. One sleep issue that manifests itself independently of other medical conditions is primary insomnia. According to Espie et al. (2018), it is frequently linked to psychological stress, irregular sleep patterns, lifestyle choices, and unhelpful cognitive processes. Despite having no known medical or psychological reason, people with primary insomnia may struggle for a long time to fall asleep or stay asleep. An underlying medical, psychological, or lifestyle-related issue may be the cause of secondary insomnia. It is a result of several medical conditions that affect sleep quality rather than a separate problem. Effective management of insomnia requires addressing the underlying cause (Grandner et al., 2021). The physical, mental, and cognitive well-being of the elderly is greatly impacted by both primary and secondary insomnia. Lack of sleep affects coordination, balance, and reaction times, which increases the risk of fractures and falls. In older persons, persistent sleeplessness is linked to memory loss and an elevated risk of dementia. Research indicates that chronic sleep disruptions may be a factor in the death rate from cardiovascular disease (Baglioni et al., 2019). Mood swings, exhaustion, and daytime drowsiness considerably impair general wellbeing.

1.5 Insomnia Symptoms and Signs

A sleep problem called insomnia impairs a person's capacity to go to sleep, remain asleep, or awaken feeling recharged. It can affect everyday living and general well-being by causing both mental and physical distress. Insomnia symptoms can vary in intensity and duration, but common symptoms include:

- Having trouble sleeping at night
- Getting up a lot during the night
- Getting up too early and not being able to fall back asleep
- Feeling exhausted or unrested after waking up
- Excessive sleepiness or daytime fatigue
- Having trouble focusing, remembering things, or making decisions
- Having mood swings, increased irritability, or feelings of frustration
- Fear of insomnia
- Dependence on sedatives or alcohol to induce sleep
- Decreased drive and vitality for everyday activities
- Tiredness affecting work or household chores
- Elevated stress levels impacting the quality of sleep
- Restlessness or discomfort in bed
- Physical symptoms such as headaches or digestive problems brought on by sleep deprivation
- Depression or hopelessness associated with chronic sleep deprivation
- Weakened immune system resulting in recurrent illnesses

If addressed, these symptoms, which range in severity, could cause long-term health issues. Early intervention is essential for enhancing sleep quality and general well-being because chronic insomnia can have a substantial negative influence on both mental and physical health.

1.6 Treatment of Insomnia

Different approaches can be used to treat insomnia, depending on its degree, etiology, and effect on day-to-day functioning. Medication, behavioral therapy, alternative therapies, and lifestyle modifications are all possible forms of treatment. Improving sleep quality, lowering stress levels, and assisting patients in forming sound sleeping habits are the objectives of treatment.

Modifications of Lifestyle for Improved Sleep: Making little lifestyle changes can help avoid insomnia and enhance the quality of sleep. The body's internal clock can be regulated by going to bed and waking up at the same time each day (Grandner et al., 2021). Sleep cycles can be disturbed by drinking alcohol, coffee, or tea right before bed (Zhang & Wing, 2020). It may be simpler to fall and stay asleep if the bedroom is chilly, quiet, and dark (Van Someren, 2020). The generation of melatonin is impacted by blue light, which can be avoided by avoiding computers, TVs, and smartphones right before bed (Espie et al., 2018). Moderate exercise during the day enhances sleep quality, although it should be avoided right before bed (Baglioni et al., 2019).

Cognitive Behavioral Therapy for Insomnia: One of the best therapies for persistent insomnia is Cognitive Behavioral Therapy for Insomnia (CBT-I). It focuses on recognizing and altering attitudes and actions that interfere with sleep, lowering bedtime to correspond with real sleep duration and progressively raising it as sleep quality improves promoting habits that link the bed to rest and sleep, like sleeping in bed only and not utilizing it for work or TV watching lowering stress before bed by engaging in deep breathing, meditation, and muscular relaxation (Morin & Jarrin, 2022). Negative ideas about sleep should be replaced with reasonable and upbeat expectations. According to studies, CBT-I has less negative effects and is more long-term beneficial than sleeping medicines (Riemann et al., 2020).

Pharmaceutical therapy for Insomnia: Although they should only be taken under a doctor's supervision, medications are sometimes used when other therapies are ineffective. Typical drugs for insomnia include: People with disturbed sleep patterns can benefit from using melatonin supplements, which assist control sleep cycles (Grandner et al., 2021).Benzodiazepines: These sedatives, which include diazepam and lorazepam, are used to cure insomnia temporarily but can cause dependence if taken for an extended period of time (Taylor et al., 2019).Non-Benzodiazepine Hypnotics: Drugs that promote sleep without the

possibility of severe dependence include eszopiclone (Lunesta) and zolpidem (Ambien) (Baglioni et al., 2019). Antidepressants: Patients with insomnia associated with anxiety or depression may be prescribed certain antidepressants, such as trazodone. Due to the possibility of adverse effects such as dependency, dizziness, and daytime sleepiness, medications should be used with caution.

Homeopathic and Ayurvedic Medicines:For better sleep, some people favor alternative therapy and natural remedies. Since ancient times, ashwagandha, valerian root, and chamomile tea have been used to enhance sleep and encourage relaxation (Espie et al., 2018). According to some research, acupuncture may help control sleep cycles and lessen the symptoms of insomnia (Haque et al., 2022). Lavender and sandalwood are two essential oils that can help soothe the mind and get the body ready for sleep. Frequent mindfulness meditation and yoga can lower stress and enhance the quality of your sleep in general (Van Someren, 2020).

Diet's Effect on Sleep Quality :A person's sleep might be impacted by their diet. Almonds, spinach, and bananas all promote better sleep and muscle relaxation. Nuts, dairy products, and turkey all aid in the production of serotonin, which encourages relaxation. Before going to bed, chamomile or peppermint tea can help relax the nervous system (Zhang & Wing, 2020).

Practices for Sleep Hygiene:The term "sleep hygiene" describes healthy routines that enhance the quality of sleep. maintaining a regular sleep schedule avoiding large meals just before bed.ensuring ideal room temperature and lighting for a restful night's sleep journaling or listening to relaxing music before bed as stress-reduction strategies.

Understanding When to Get Medical Assistance: Seeking medical assistance is crucial if sleeplessness interferes significantly with day-to-day functioning or lasts longer than three months. A physician can evaluate sleep habits, spot underlying medical issues, and suggest appropriate courses of action (Riemann et al., 2020).

1.7 Purpose of the Study

The purpose of this study is to determine the risk factors and prevalence of insomnia in Bangladesh's elderly population. An increasing number of older persons are concerned about insomnia because it negatively impacts their general quality of life, mental and physical health, and both. Developing methods to promote sleep health in this population will be made easier with an understanding of the causes and effects of insomnia. The study focuses on a number of important goals in order to accomplish this. It seeks to ascertain the prevalence of insomnia among Bangladeshi seniors 60 years of age and above, as well as the main risk factors—such as lifestyle choices, medical disorders, and psychological factors—that lead to sleep disturbances. This study will also evaluate the effects of insomnia on mental and physical health, taking into account the influence of social support and family structure on sleep quality. Additionally, it will examine how older people seek care and offer suggestions for improved sleep management. By tackling these goals, the project hopes to enhance healthcare, increase public knowledge, and facilitate the integration of sleep disorder treatment into Bangladesh's healthcare system.

Chapter 2: Methodology

2.1 Study Design and Participant

I performed a cross-sectional offline survey to find out the incidence of insomnia among the older population of Bangladesh and what factors may be involved. From November 2024 to January 12, 2025, I collected information. My survey had 334 respondents, 170 of whom were men and 164 of whom were women. I only included people aged 60 and above, and I excluded those younger than 60. I extracted responses from Bangladesh's rural and urban areas. The responses were separated into the following categories: There were 101 urban women and 63 rural women. There were 68 men from cities and 102 from rural areas. I went to the Agargaon senior citizen home, Probin Nibash Bangladesh, to gather urban data. Next, various parts of Mirpur and Mohammadpur, along with my family and friends. I visited several villages in Mymensingh, Comilla, and Tangail to gather rural responses. Each participant was personally approached and requested to fill out my survey. I gave them an explanation of the study's objectives and approaches before they responded. Prior to gathering their answers, I got each participant's verbal or written agreement. I observed that rural women were less willing to provide information. I took great care to ensure their comfort while following ethical standards. I maintained the confidentiality of the participants' information and showed complete respect for their privacy. They were free to stop participating at any moment; it was entirely voluntary. The information I collected was simply used for research.

2.2 In-depth Questionnaire

I designed a questionnaire with two primary sections—demographic data and questions about insomnia—in order to collect necessary information. Basic information like age, weight, height, sex, marital status, living area (rural or urban), living arrangement (alone, with family, or in a care facility), family type (nuclear or joint), education level, occupation, chronic diseases (such as diabetes and hypertension), smoking habits, religious practices, fast food consumption, exercise habits, and vitamin and mineral intake were all included in the demographic section. The section on insomnia was based on the Athens Insomnia Scale (AIS-8), which evaluated sleep issues such as difficulty falling asleep, waking up during the night, waking up too early, overall sleep duration, sleep quality, daytime well-being, daytime sleepiness, and daily functioning. To make sure it was understandable to everyone, I first

created the questionnaire in English and then translated it into Bangla. Before starting the full-scale data collection, I assessed the questionnaire with a small group of randomly chosen urban participants to ensure the questions were clear and useful. I made a few little changes to enhance comprehension based on their input. I collected responses by distributing paper forms by hand and interviewing individuals who required help in person.

2.3 Athens Insomnia Scale (AIS-8)

The Athens Insomnia Scale (AIS-8) is an effective tool for measuring the severity of sleep problems. It has eight questions, each of which evaluates a different aspect of sleep difficulty: the first three questions evaluate sleep onset (the difficulty falling asleep), night awakenings (the frequency of waking up during sleep), and early awakenings (waking up earlier than desired and being unable to fall back asleep). The next five questions evaluate total sleep duration, overall sleep quality, daily functioning, well-being, and daytime sleepiness. Each question is scored from 0 to 3, with 0 denoting no problem and a score of 3 indicating a severe issue. The total score ranges from 0 to 24, with a score of a score of 6 or higher indicating insomnia. More severe difficulties with sleep are indicated by a higher score (Soldatos et al., 2000). This scale is straightforward, trustworthy, and useful for determining who has insomnia and how it impacts their day-to-day activities. In my study, I measured older persons' levels of insomnia using the AIS-8 and examined the effects of various factors on their sleep, including age, health, and way of life.

2.4 Data Collection Experience

I went to Probin Nibash Bangladesh on the first day and had a meeting with their higher authority. I submitted the required documentation when they asked for ethical approval. The following day, they reviewed them and gave me permission. I had the opportunity to meet the president there, and he was really encouraging. At this institution, where the majority of participants were well-educated and capable of completing the forms independently, I started collecting urban data. I collected responses from my family members and relatives in a variety of locations, such as Mohammadpur, Mirpur, and other sections of Dhaka, after finishing data collection at Probin Nibash Bangladesh. My father and I first traveled to Makhal, my hometown in Mymensingh, to gather data on rural areas. Additionally, I visited Comilla and Tangail to gather feedback from various communities. I found that a lot of women in rural areas were hesitant to divulge their personal information. I supported people

who could not read by doing face-to-face interviews. I occasionally encountered unforeseen difficulties, but I managed them with ease. One particularly memorable experience occurred when I went to a tiny tea stall owned by an elderly woman in a village market. She cordially welcomed me, served tea for free, and gave me many heartfelt blessings. I was deeply impacted by this encounter, which further enhanced the significance of my fieldwork.

2.5 Data Analysis Tools

I have used Office 365 Excel 2024 and IBM SPSS Statistics V29.0.2 for analyzing data. I organized and processed the data that I had gathered using Microsoft Excel. It assisted me in organizing the data, making tables, and constructing graphs so that I could effectively express my findings. I utilized SPSS (Statistical Package for the Social Sciences) to conduct statistical tests and look for trends in the data in order to conduct a more thorough study. These methods made it simpler to examine patterns of insomnia and comprehend the ways in which various circumstances impacted older persons' ability to sleep.

2.6 Criteria for Inclusion and Exclusion

2.6.1 Criteria for Inclusion

The following are the inclusion criteria for this study:

1. Participants must be at least 60 years old.
2. People who live in Bangladesh's rural and urban areas.
3. Participants who agreed to participate in the study after being informed.
4. Those who were able to comprehend and answer the survey.

2.6.2 Criteria for Exclusion

The following are the inclusion criteria for this study:

1. People under the age of sixty.
2. Individuals with serious cognitive impairments or illnesses that made responding to questions challenging.
3. Individuals who declined to give their consent for the research.
4. Participants who were unable to participate due to severe illness.

2.7 Ethical Permission

SOUTHEAST UNIVERSITY in Dhaka granted ethical approval for the study. After reviewing the study, the Committee for Ethical Compliance in Research gave its approval. The reference number for CECR is SEU/Pharm/CECR/021/2024. We have already covered the objective and purpose of the study in the questionnaire's introduction, and we have taken consent from individual participants.

Chapter 3: Result

3.1 About Data Sheet

According to an analysis of mental health risk factors in Bangladesh's elderly population, specific treatments are required to meet the particular difficulties that the elderly population experiences. The extracted data is divided into various age groups. It is noted that 63% of the respondents are between the ages of 60 and 69, 27% are between the ages of 70 and 79, 9% are between the ages of 80 and 89, and 1% are 90 years of age or older. The study's focus on the elderly population is consistent with this distribution, which shows that most participants are in their sixties and seventies. In terms of weight distribution, 14% of respondents weigh between 30 and 50 kg, 68% weigh between 51 and 70 kg, 15% weigh between 71 and 90 kg, and 3% weigh over 91 kg. Weight should be taken into account because it may affect sleep patterns and general health. A significant percentage of the population, 72% of respondents are married, while 26% are widowed. The study should take this into account because marital status can affect sleep habits, social support, and psychological well-being. Insomnia may be exacerbated by mental pain, loneliness, or disturbed sleep experienced by those who have lost their marriages. According to the data, 51% of the respondents live in urban areas, while 49% of them are from rural areas. This nearly equal distribution offers a fair assessment of insomnia and related risk factors in older people living in various settings. A more hectic lifestyle, artificial lighting, and noise pollution may be more common in urban areas, while people in rural areas may experience distinct environmental and lifestyle factors that impact their sleep quality. Understanding the differences in the prevalence of insomnia among age groups, weight categories, marital status, and geographic locations is made easier by this breakdown of the respondents' demographics. To detect trends and connections that lead to sleep issues in the senior population, the results can be further examined.

3.2 Sleep, Income Impact on Geriatric Mental Health

There is a notable difference in the monthly household income of Bangladesh's elderly population. Due to easier access to resources, higher income levels may be associated with better mental health outcomes. Because those in lower-income groups experience more stress and mental health problems, it is important to address economic inequality in order to promote mental health.

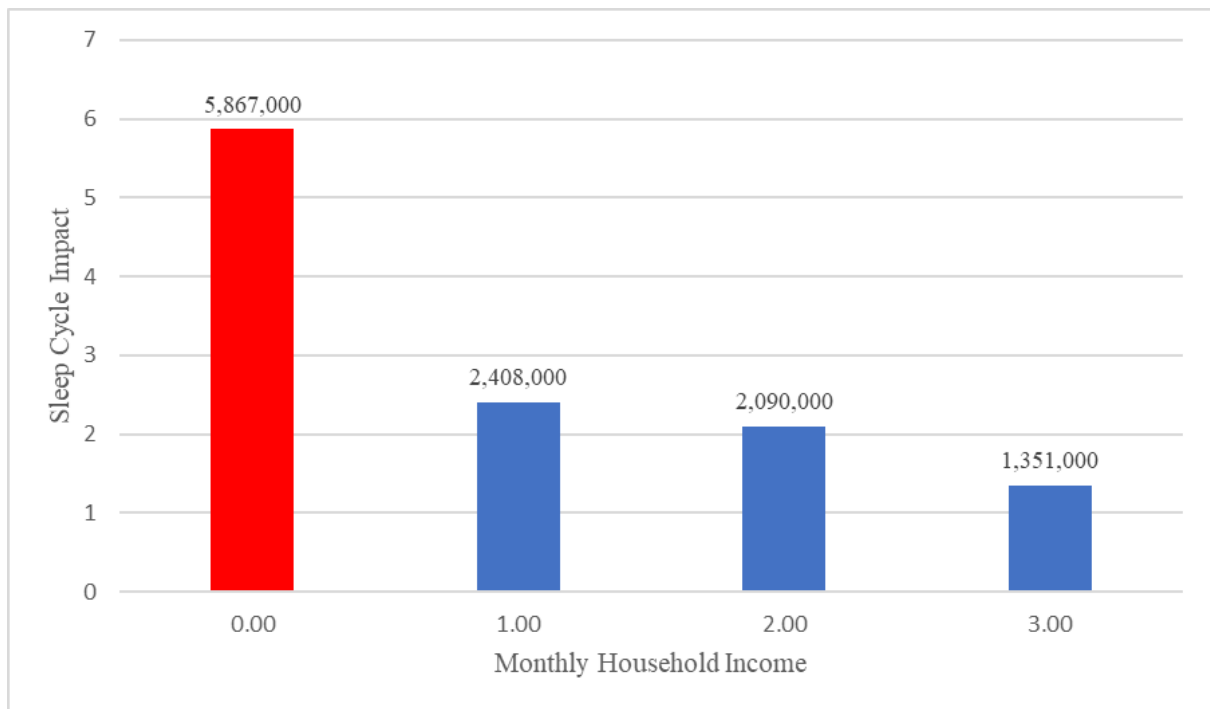


Figure 1: Sleep, Income Impact on Geriatric Mental Health

3.3 Mental Health Risks in Bangladeshi Elderly

Prevalence of Mental Health Problems: The analysis highlights a significant data gap with 1,533 individuals categorized as "nan" in the dataset, indicating potential issues in data collection or reporting. **Minimal Representation in Other Categories:** Only 19 individuals are reported as "markedly decreased," suggesting unclear data on specific mental health conditions. **Need for Improved Data:** Addressing these gaps is crucial for effective mental health interventions for the elderly in Bangladesh.

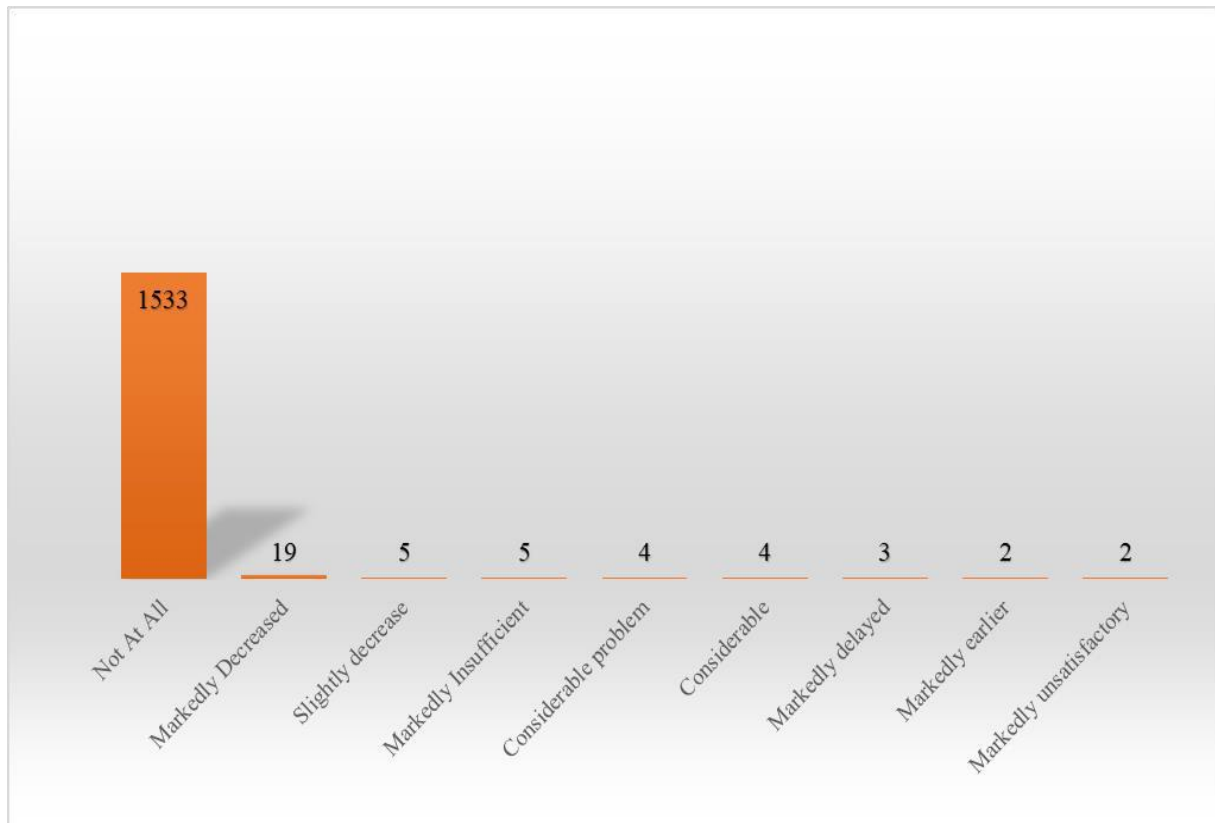


Figure 2: Mental Health Risks in Bangladeshi Elderly

3.4 Geriatric Sleep Issues by Living Arrangement

Living Arrangement Impact: Individuals living without family face worse sleep issues, including longer time to fall asleep, more frequent night and early awakenings, and poorer sleep quality.

Daytime Consequences: These sleep disturbances lead to decreased well-being and functionality, with daytime sleepiness more prevalent among those living with family.

Visualization Insights: A clear trend shows more severe sleep-related issues for those living without family.

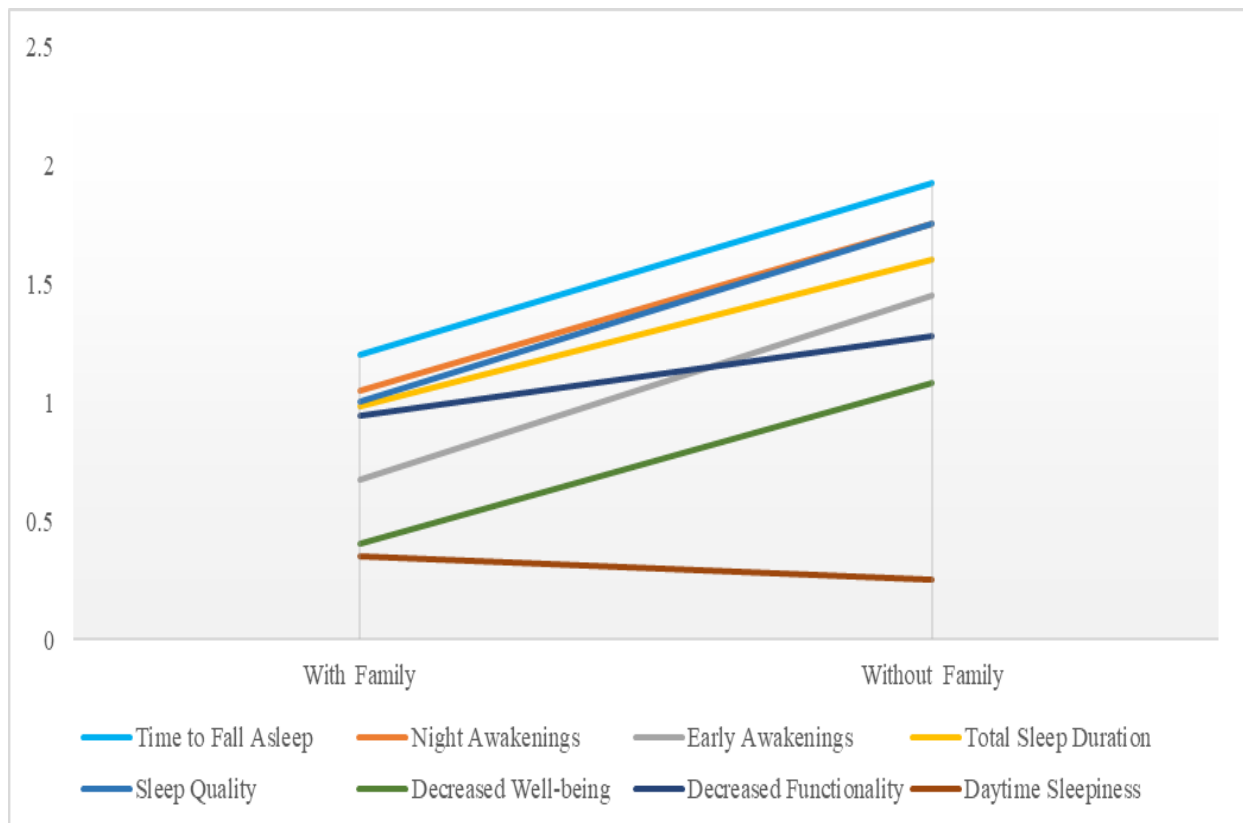


Figure 3: Geriatric Sleep Issues by Living Arrangement

The study emphasizes the impact of living circumstances on the quality of sleep. Individuals without family members had more sleep issues, including difficulty falling asleep, increased nighttime and morning awakenings, and generally worse sleep quality. These sleep disruptions affect day-to-day functioning, resulting in diminished well-being and capacity. Living with family, however, tends to make people more drowsy during the day, which can impact their energy levels and day-to-day activities. The statistics strongly suggest that people without family support experience more serious sleep-related problems, suggesting a close relationship between living situations and the quality of sleep.

3.5 Marital Status and Geriatric Help

Widows need help in 13.79% of cases, which may indicate vulnerability. The fact that 9.96% of married people need help, indicates that they may need some support. Possibly as a result of differing social support networks or health conditions, 0% of divorced and single people require assistance.

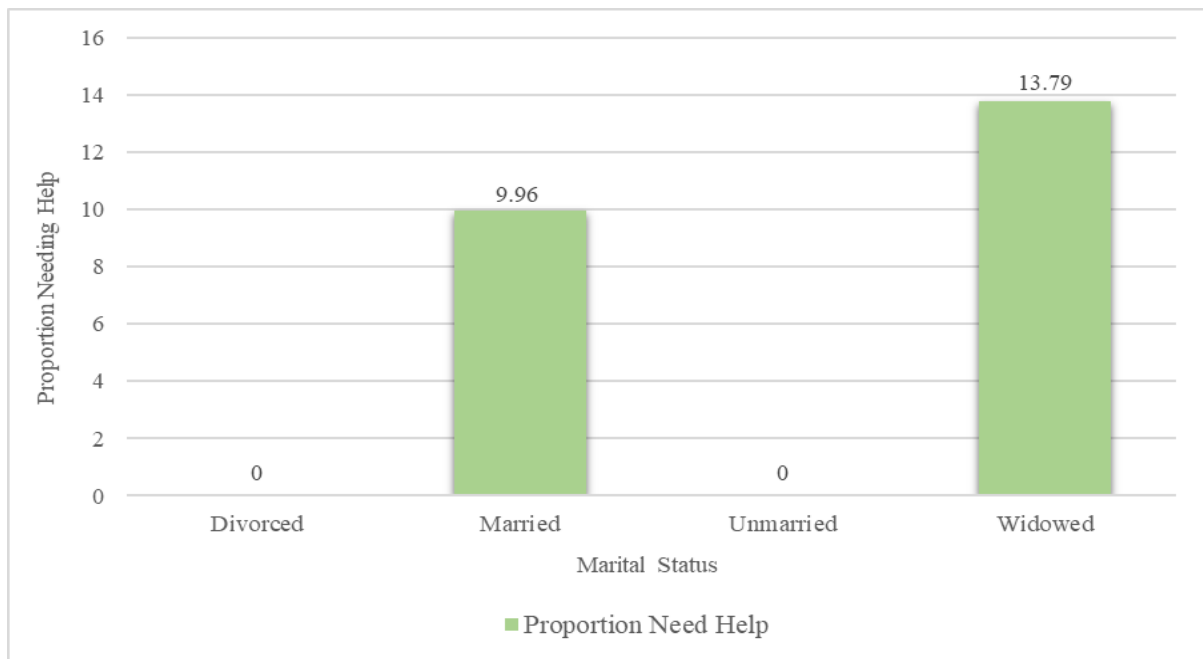


Figure 4: Marital Status and Geriatric Help

According to the survey, 13.79% of widowed people require assistance, which may indicate that they are more susceptible and need more help with everyday tasks. This might be brought on by things like loneliness, financial difficulties, or health problems following the death of a spouse. The fact that 9.96% of married people need help suggests that even people who have a partner may need some help. Age-related health issues or other individual conditions may be the cause of this. It's interesting to note that 0% of divorced and single people were said to require help. This could be related to variations in their health, social support networks, or lifestyle choices that enable individuals to maintain their independence.

3.6 Chronic Diseases in Elderly Gender

Chronic Disease Prevalence: 74.39% in females, 68.82% in males.

Visualization: A bar chart highlights higher prevalence in females.

Conclusion: Targeted healthcare strategies are needed for elderly females due to their higher chronic disease prevalence.

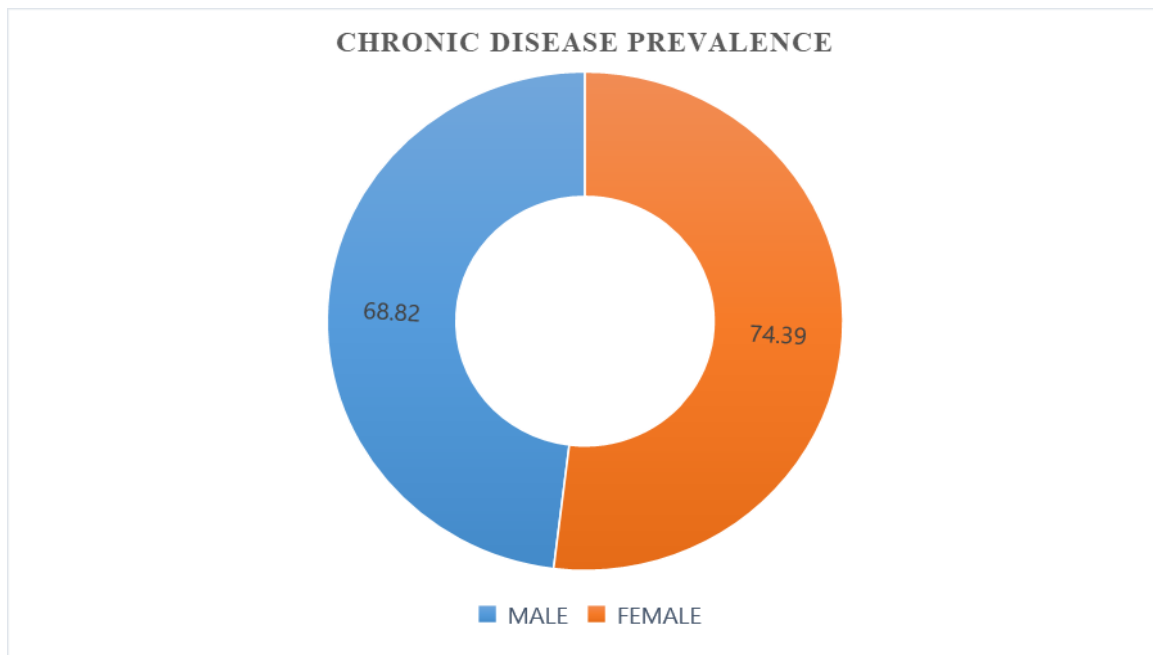


Figure 5: Chronic Disease in Elderly by Gender

The study shows that chronic diseases are more common in females (74.39%) compared to males (68.82%). This indicates that elderly women experience health issues more frequently than men. A bar chart visually represents this difference, making it clear that chronic disease prevalence is higher in females. Various factors, such as biological differences, lifestyle habits, and healthcare access, could contribute to this trend. The findings highlight the need to understand why elderly females are more affected by chronic diseases and how their health challenges differ from those of males.

3.7 Chi Square Test Significance (p-Value)

There are two part which provide insights into the relationship between gender (V7) and various insurance-related questions (V27 to V33). If the p-value (Asymptotic Significance) is less than 0.05, it indicates a significant association between gender and the corresponding variable. If the p-value is greater than 0.05, it suggests no significant association.

3.7.1 Key Findings:

Equation	p-Value	Significance
V7 * V27	(p = 0.011)	Significant association.
V7 * V26	(p = 0.098)	Not significant.
V7 * V28	(p = 0.521)	Not significant.
V7 * V29	(p = 0.787)	Not significant.
V7 * V30	(p = 0.285)	Not significant.
V7 * V31	(p = 0.065)	Not significant.
V7 * V32	(p < 0.001)	Highly significant association.

Table 2: Chi Square Test Result

Gender significantly influences V27 and V32 (as their p-values are below 0.05). No significant relationship exists between gender and V26, V28, V29, V30, V31, and V33. The most strongly significant relationship is with V32 ($p < 0.001$), indicating a highly meaningful gender-based difference in responses to that question. Since the p-values for V27 and V32 are less than 0.05, the analysis concludes that gender significantly affects these variables. This indicates that gender influences how people respond to these factors. With a p-value of less than 0.001, V32 indicates the largest gender-based difference among all variables, suggesting a very significant variation in responses. However, no significant association between gender and V26, V28, V29, V30, V31, and V33 was discovered, indicating that gender is not a relevant factor in reactions to these variables.

Chapter 4: Discussion

This study emphasizes how chronic diseases, marital status, and lifestyle factors impact sleep issues among older adults in Bangladesh. The main causes of sleeplessness are social support, emotional wellness, and medical disorders, while financial situations may also play a role. Living conditions have a big impact on how well you sleep. Sleep problems, including trouble falling asleep and frequent awakenings, are more common among older persons living alone. Lack of emotional support and loneliness could be the cause of this (Rahman et al., 2021). However, people who live with family members tend to sleep better, but they could still feel sleepy during the day because of their family obligations (Kabir et al., 2021). Family members give emotional stability, which lowers stress and enhances sleep. When it comes to understanding older sleep problems, marital status is also crucial. The highest support needs are among widowed people (13.79%), most likely as a result of their absence of companionship and emotional discomfort (Haque et al., 2022). Perhaps due to shared duties, married people (9.96%) need some help. Fascinatingly, people who are divorced or single say they don't require assistance, which may be a sign of greater independence or other support systems. Higher rates of sleeplessness have been associated with the loss of a spouse, highlighting the necessity of social and emotional support services for older widows.

The quality of sleep is greatly impacted by chronic illnesses. Women are more likely to experience sleep disturbances due to the higher prevalence of chronic illnesses (74.39%) compared to men (68.82%) (Zhang & Wing, 2020). This can be because of cultural expectations, biological causes, or a lack of access to healthcare. Elderly women are more likely to suffer from chronic diseases such as diabetes, heart disease, and arthritis, which might interfere with their ability to sleep soundly (Espie et al., 2018). Many older people struggle with limited access to appropriate treatment for these health issues, which demand continuous medical care (Kabir et al., 2021). Significant differences in sleep patterns between men and women were shown by additional analysis using the Chi-Square test, particularly in V27 and V32. V32 showed the largest difference ($p < 0.001$), indicating that men and women face aging-related difficulties in distinct ways. These findings demonstrate the significance of gender-specific healthcare approaches in treating insomnia in older people. Overall, the study indicates that insomnia among older Bangladeshis is a result of a confluence of social, health,

and psychological issues rather than merely being an economic problem. A comprehensive strategy is needed to address this issue, one that includes improved mental health initiatives, family support, and healthcare services.

Chapter 5: Conclusion

The results of this study indicate that among older adults in Bangladesh, lifestyle factors, marital status, and chronic illnesses have a significant impact on sleep quality. Although some predicted that income would be strongly associated with sleeplessness, the findings indicate that social and health-related factors are far more important. Sleep patterns are directly impacted by living situations. While elderly people who live with family tend to sleep better but may feel sleepy during the day because of home duties, those who live alone have more sleep problems (Rahman et al., 2021). Sleep is also impacted by marital status; widowed people have the most difficulties, but divorced and single people appear to have adjusted to their situation more easily (Haque et al., 2022). Insomnia is more common in older women (74.39%) than in males (68.82%), which may be related to the prevalence of chronic disorders in women (Zhang & Wing, 2020). This problem may also be increased by gender biases in health awareness and limited access to healthcare. It is challenging for many elderly people to manage their sleep issues because they are unable to access appropriate medical care (Kabir et al., 2021). These findings suggest that healthcare policies should prioritize expanding access to medical treatments, enhancing family relationships, and developing programs for older mental health. Future studies should examine improved healthcare practices, social initiatives, and lifestyle modifications to enhance the quality of sleep for Bangladesh's elderly population. In order to improve the general well-being of elderly people in Bangladesh, governments, healthcare professionals, and families can collaborate to develop a better support system by recognizing insomnia as a multidimensional issue.

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