# A Study On The Prevalence And Associated Risk Factors For Loneliness Among Geriatric Population In Bangladesh

By

Tasin Fattah
21146014

A thesis submitted to the School of Pharmacy in partial fulfillment of the requirements for the degree of Bachelor of Pharmacy

School of Pharmacy
BRAC University
May 2025

# Declaration

It is hereby declared that

1. The thesis submitted is my 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 have acknowledged all main sources of help.

**Student's Full Name & Signature:**

**TASIN FATTAH**

21146014

# Approval

The thesis titled “A Study On The Prevalence And Associated Risk Factors For Loneliness Among Geriatric Population In Bangladesh” submitted by TASIN FATTAH (21146014), of Summer, 2025 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Pharmacy.

**Supervised By:**

Dr. Md. Rabiul Islam

Associate Professor

School of Pharmacy

BRAC University

**Approved By:**

Dr. Raushanara Akter

Acting chairperson

School of Pharmacy

BRAC University

**Approved By:**

A.F.M. Yusuf Haider, PhD

Acting Dean

School of Pharmacy

BRAC University

## Ethics Statement

The research protocol was approved by the Committee for Ethical Compliance in Research of the Southeast University, Dhaka, Bangladesh (Ref: SEU/Pharm/CECR/021/2024). The objectives of the study were mentioned to all participants, and their informed written consent was obtained before participation.

# Abstract

**Background:** Loneliness is a significant public health problem in the elderly population that affects mental and physical well-being. It is influenced by socio-demographic, economic, and health conditions. In Bangladesh, geriatric loneliness is less researched, and future studies are required to establish the prevalence and determinants of loneliness.

**Objective:** The study aims to identify the prevalence and risk factors of loneliness in older adults in Bangladesh.

**Methodology:** A cross-sectional survey of 475 older people was conducted using structured questionnaires. Socio-demographic profiles, lifestyle factors, and health status were collected, and statistical analysis was performed to evaluate the prevalence and key determinants of loneliness.

**Results:** Our study found that 22.32% of the subjects were high in loneliness, 58.95% were moderate in loneliness, and 18.74% were low in loneliness. Factors most strongly linked to loneliness were age, marital status, family income, educational level, and residential area. Urban residents, divorcees or widows, and lower educational levels were at risk, while physical activity and social interaction were protective factors.

**Conclusion:** The results indicate a high prevalence of loneliness among the elderly in Bangladesh, and socio-economic and demographic variables play an important contribution. Intervention programs, for example, social activity programs and schemes of allowances, are recommended to be adopted to reduce loneliness and enhance well-being among older persons.



**Keywords:** Loneliness, geriatric population, cross-sectional survey.

# Dedication

*The project was dedicated to my parents and teachers.*

## Acknowledgement

First and foremost, I want to express my gratitude to Allah the Almighty for providing me with the perseverance and strength to finish this project with the knowledge and wisdom that I hope my project will demonstrate. Working on my project having amazing experience and getting the help of many individuals, who are gratefully acknowledged here.

My sincere gratitude and immense appreciation go out to my esteemed supervisor, Dr. Md. Rabiul Islam (Associate Professor, School of Pharmacy, BRAC University), for his invaluable guidance through his extensive knowledge and unwavering cooperation in the study, which kept me going until the very last moment, and I would like to convey my sincere appreciation to the acting dean of School of Pharmacy, Professor A.F.M. Yusuf Haider.

# Table of contents

# List of Tables

# List of Figures



.

# List of Acronyms

| | |
|---|---|
| BMI | Body Mass Index |
| HICs | High-Income Countries |
| LMICs | Low- and Middle-Income Countries |
| SPSS | Statistical Package for the Social Sciences |
| UCLA | University of California, Los Angeles (UCLA Loneliness Scale) |
| WHO | World Health Organization |

# Chapter 1: Background

## 1.1 Conceptual Framework of Loneliness

Loneliness is a subjective feeling of social isolation or lack of significant connections, regardless of the number of social contacts (Hawkley, 2025). Loneliness exists in a different form than being alone because it can occur to any person even with numerous surrounding people. Recent research identifies loneliness as a major concern for public health particularly among elderly adults because it heavily affects their health condition both mentally and physically. Loneliness raises the chances that someone will die early. According to a peer review in 2018 by Rico-Uribe, the link between loneliness and mortality rate affects men more intensely than women (Rico-Uribe et al., 2018). Loneliness in the geriatric population is not just a concern for emotional well-being but also a significant contributor to the burden of disease, particularly in LMICs where the healthcare system is already under trouble (Meng et al., 2024). This makes it an extremely important problem for healthcare systems globally.

A systematic review and meta-analysis of longitudinal observational studies from BMJ journals establish through their research that loneliness creates a 29% greater possibility for developing coronary heart disease and a 32% elevated stroke risk comparable to risks from smoking and obesity problems (Valtorta et al., 2016). This research demonstrates that loneliness acts as an important predictor which leads to development of depression and anxiety particularly in older adult populations. The problem of feeling alone affects elderly people across the world on a large scale. In 2011, Cambridge University Press Published a study where they determined that 10-20% of elderly individuals in high-income countries suffer loneliness (Yang & Victor, 2011). The prevalence levels in low- and middle-income countries (LMICs) surpass those of high-income nations because of

inadequate social networks and fast urban development.

Studies show that loneliness creates multiple adverse health results which affect older adults such as depression together with cognitive decline and cardiovascular diseases and impaired immune function (Committee on the Health and Medical Dimensions of Social Isolation and Loneliness in Older Adults et al., 2020). The research conducted in America showed that loneliness afflicted 40% of senior adults specifically affecting women and individuals who lived by themselves (Perissinotto et al., 2019). Older adults face decreased life quality through these health consequences while healthcare systems need to handle the resulting substantial care needs. The proper assessment of loneliness requires analyzing how someone values life together with their desired needs and emotional state. Late life age-related problems and consequences create functional limitations while also affecting psychological disorder along with altering social status and causing loss of confidence as well as physical health decline which may result in feelings of loneliness. Research studies show that being single combined with advancing age, sex, education level, place of residence, hearing and vision impairment, widowhood, and depressive conditions or co-existing illnesses create a high chance of loneliness in senior adults (Kabir et al., 1998).

## 1.2 Prevalences and Consequences

United Nations (2019) reports that the worldwide elderly population of 60 years and above will increase to almost 2 billion through 2050 because of rapid population aging (WHO, 2019). A research study in Perspectives on Psychological Science (2015) found that loneliness exists in 10% to 40% of older adults depending on which area the data comes from and how researchers measure loneliness. Research indicates that widespread loneliness exists in LMICs but people rarely report it because of cultural taboos and insufficient awareness (Holt-Lunstad et al., 2015) indicates this phenomenon

impacts 20 -30% of older adults. The problem of loneliness reaches its peak in Bangladesh. In LMICs the growing aging population expands at a higher rate compared to high-income countries. Numerous factors such as weakened traditional family arrangements along with urban growth and younger family members' employment-based displacements are responsible for the elevated isolation among elderly people. The absence of social support networks and community programs intensifies elderly loneliness in Bangladesh until it becomes a major silent epidemic (Morgan, 1993; Trask, May 22).

The effects of social isolation on senior citizens produce multiple complications which damage their physical condition as well as their mental state and drive up social expenses. Scientists at PLoS Medicine published research showing that both loneliness and social isolation increase death risks at levels similar to those of smoking and obesity (2010) (Holt-Lunstad et al., 2010). Research by Holt-Lunstad (et. al. 2010) shows that loneliness increases the risk of suffering cardiovascular diseases (Holt-Lunstad et al., 2010). Studies conducted by Heart (2016) confirmed that persons who feel lonely face dual health risks of coronary heart disease elevation by 29% while the threat of stroke intensifies to 32% especially in cases of unfavorable social bonding. The immune system decreases in strength when people experience long term loneliness so older adults become more vulnerable to illnesses and infections. The health problems caused by isolation significantly affect the life quality of older individuals while placing substantial pressure on healthcare infrastructures throughout LMICs especially in Bangladesh (Valtorta et al., 2016).

The psychological effects which arise from feeling lonely create equal harm to mental health. Being alone contributes powerfully to depression and anxiety development in seniors who are aging. Research in the Journals of cross- cultural Gerontology demonstrated that persons facing loneliness experience increased risks for developing depression (Kabir et al., 1998). The medical evidence

shows that feelings of loneliness contribute to mental deterioration and the development of dementia (Lara et al., 2019). The Lancet Psychiatry (2020) study shows that elder adults experience a 40% increased chance of developing dementia due to feelings of loneliness(Sutin et al., 2020). Lonely individuals experience increased healthcare utilization because they tend to make frequent visits to healthcare providers to report non-specific health concerns while their mental health conditions further intensify their suffering. The healthcare systems maintain additional pressure because of this situation particularly in resource-limited conditions like Bangladesh.

The social effects alongside behavioral results of loneliness tend to exacerbate this issue. Research published in (Kim et al., 2020) reveals that feeling lonely relates directly to diminished life satisfaction combined with diminished social involvement. People who feel lonely among senior demographics tend to abstain from community events thereby creating an isolating environment that decreases their overall health state. The medical expenses increase when older adults experience loneliness because they need more hospital stays as well as extended hospitalizations. The financial impact of loneliness is believed to be substantial in LMICs despite limited data because these regions possess scant resources.

## 1.3 Sex-Specific Vulnerabilities Significantly Among Women

The health impact of elderly loneliness in Bangladesh increases due to rapid population aging and urbanization trends and family relational changes (WHO, 2019). Traditional sex factors influence how loneliness affects different groups of older adults although it impacts women and men with similar intensity. The cultural norms and socioeconomic status and urban versus rural population composition in Bangladesh function to intensify vulnerabilities among elderly adults. The relationship between loneliness presents distinctive manifestations between men and women in both

urban and rural settings where specific sex-related challenges affect elderly women uniquely.

Cultural and social norms of Bangladesh define how its older male and female population experiences loneliness later in life. Men play a dominant role in Bangladesh's patriarchal system because they maintain their position as primary wage earners while women exclusively fulfill caregiver and homemaker responsibilities (Carrim, 2017). Social positions assigned to older people create complex conditions that deepens the feeling of loneliness in women specifically. Single older women face increased risks of social isolation because they lack financial independence and receive societal disapproval in conjunction with having constrained social activities. In Bangladesh widows encounter severe social stigma that causes them to be separated from local activities resulting in social isolation (Sultana & Rahman, 2024). Older men commonly experience loneliness because of retirement when they lose their position as financial providers. Dreams of masculinity which depend on family financial responsibility bring feelings of worthlessness and isolation to men whose earning ability ends (Ron, 2004). Social ties outside the household keep men less lonely since they participate in religious events along with community-based groups (Ellison & George, 1994)

The economic situation of older women stands as a primary contributor to their feelings of loneliness. According to Amin (I. ,2017) most senior women in Bangladesh remain without financial autonomy because they need support from their spouses or children. The financial difficulties post-spousal death create participation limitations in social activities while raising a person's chances of experiencing loneliness (Amin, 2017). The financial situation differs between older male and female populations since men typically have retirement funds but loneliness still affects those without savings to support their families. Older women experience greater loneliness because their health problems together with restricted mobility act as additional risk factors. The combination of health

ailments and disabilities leads older women to face limitations in their social life and mobility activities (Giddings et al., 2007). The cultural standards which limit women from receiving healthcare services make them even more susceptible to experiencing loneliness. Older men typically get the same health challenges as women yet they seek medical help and stay connected with people outside their home environment thus minimizing their experience of loneliness.

The psychological condition of loneliness shows different patterns among elderly people between rural and urban regions while women endure specific isolation concerns in both areas. The population of rural Bangladesh maintains stronger traditional family and community bonds yet women experience notable loneliness according to (Rahman et al., 2024). Men and women in rural areas experience home confinement because of cultural expectations and physical circumstances. Widows encounter strong social isolation and count on their children to provide financial backing. Younger people who move from rural areas to urban workplaces for employment worsen the feeling of being disconnected from family and community. Older rural men commonly feel lonely after losing their family-providing role yet they actively participate in community-based religious meetings and council events to obtain social support systems (Ellison & George, 1994).

The fast pace of urban modernization together with changes in family structures determine the nature of loneliness that affects city dwellers. The process of urbanization has destroyed traditional social networks thus putting older adults at higher risk of facing social isolation. The trend shows that urban aging women reside individually or with their extended family members since many of their kinfolk seek employment opportunities in different cities or relocate overseas (Speck, 2017). Urban settings contain weakened social bonds which elevate the possibility of feelings of loneliness in their inhabitants. Women living in urban settings usually face more societal judgment regarding their

widowed status since cities have weaker traditional support networks. Urban senior men deal with loneliness because retirement leads to the breakdown of their social connections. Through religious institutions and social clubs as well as community centers older men living in cities tend to find ways to combat social isolation.

A successful plan to reduce loneliness for elderly Bangladeshis demands attention to both male and female age-related risks. Public services should offer special help for seniors with programs that support widows through money and social meetings (Silverman, 2004). Health systems should connect older female patients with their services even when living in rural areas. Groups made up of neighborhood women and community spaces give older women platforms to find emotional help plus income possibilities (Li, 2022). Family education programs teach families how to beat prejudice against senior adults and lead them to support their elders. Older adults bond better with young people when they take part in alternating-generation programs according to a group research report (Zhong et al., 2020).

## 1.4 Importance of Studying Loneliness Among Geriatric Population in Bangladesh

Due to its distinctive socio-cultural background Bangladesh requires thorough study of loneliness among elderly persons. World Bank in 2020 predicts a significant growth of Bangladesh's geriatric population from its current 7% total population level in 2020 to reach 22% by 2050 (World Bank, 2020). Bangladesh faces an accelerated population transformation because its citizens are living longer and having fewer children thereby resulting in more older adults (Kabir et al., 2003). The traditional support network for older adults that family units provided disappeared due to the combined effects of urbanization along with population movements and new social beliefs that

emerged in the society. Older adults now face higher exposure to loneliness together with social isolation. Socio-cultural aspects of Bangladesh influence how older individuals experience feelings of loneliness. The traditional practice in South Asian cultures together with Bangladesh demands that older adults depend on family members for financial aid and emotional embrace. Current economic problems together with family members who move away to cities and distant locations have effectively broken traditional support systems.

The health risks of loneliness become larger when older adults experience poverty and find it hard to get medical treatment. The analysis done by Hossain and colleagues in 2021 revealed that 35% of rural Bangladesh's elderly population feels lonely with women and single residents at higher risk (Kabir et al., 2003). The rural healthcare environment demands special programs that aid older adults since these areas offer weak access to medical treatment and social services.

The number of older people continues to rise throughout the world and Bangladesh faces the same trend. Researchers predict that aging will become a significant challenge for Bangladesh because this country will have 22% senior citizens among its population by 2050. Due to its regular nature it cannot be skipped by advanced age groups. Learning which factors make people feel lonely helps researchers better understand and address the difficulties faced by elderly citizens to form effective elderly care plans. A similar investigation about this subject had not been done in Bangladesh before. We conducted this research to find out what triggers loneliness in senior citizens of Bangladesh.

## 1.4. Knowledge Gap :

Scientists analyze loneliness mainly as a health concern in wealthy nations while investigating this subject at lower rates in developing countries. Studies within European and North American

geographical areas establish that elderly people encounter health complications through depression which leads to increased mortality from social isolation. Social systems and family traditions in South Asian countries with low and middle incomes experience isolation differently than more prosperous nations since these nations receive insufficient research study. A systematic review focused on loneliness in LMICs analyzed 24 qualitative studies which originated from 15 different countries yet Bangladesh lacked any research in this field (Akhter-Khan et al., 2024). Research reports confirmed both rejection alongside excessive worrying together with findings explaining the mutual impact of depression and loneliness and displaying regional variations. The research studies provided evidence of various distinctions across different geographic areas.

Research conducted in African nations showed that people experience social separation unlike other Asian nations where loneliness and being alone are connected. The resistance to form meaningful connections resulted from living poor conditions under social pressure. Research on loneliness in Bangladesh remains limited because this country's healthcare system plus its social and economic conditions differ distinctively from other Low-Middle-Income Countries. The lack of research data undermines the development of suitable programs to help older adults in Bangladesh deal with solitude.

Depending on their geographical location between urban areas and rural areas as well as the difference in sex between men and women, older individuals in Bangladesh experience loneliness differently Young people from urban areas are frequently leaving their elderly parents behind when they move for job or study, therefore resulting in great loneliness among the older adult population. Older people who live in rural areas have financial difficulties as they live alone and their community lacks beneficial medical facilities. The social stigma around widows and their economic background

combined with greater life expectancy make women more prone to experiencing loneliness than others. Current research doesn't investigate how these social aspects affect loneliness among different communities at their respective locations. To succeed with support programs experts need to analyze what makes urban and rural seniors and older women lonely to make solutions that target them specifically.

Research about loneliness in Bangladesh needs to become stronger to effectively solve the growing public health problem in the country. Studies done in other Low and Middle-Income Countries provide helpful information yet cannot be directly used in Bangladesh because its conditions vary from these countries. The important role of filial piety in Bangladeshi culture likely affects how people experience and show loneliness but no one has researched this factor at length. Longitudinal research should come first because it can show us how loneliness builds over time while outlining which important events change it for seniors in Bangladesh. Research on how Bangladesh specific cultural expectations affect loneliness in seniors should guide us in creating effective supportive programs for this community.

**Rationality and Objectives of the Study**

The research rationality for this study is to tackle a major public health problem that researchers have not fully investigated in Bangladesh. This study examines loneliness among older people in different settings between cities and rural areas to represent distinct social and economic situations in Bangladesh. The study matches important global health needs because it studies the special challenges older women in Bangladesh face including being widowed and having less money plus healthcare access. Our study objective to research the elements of loneliness faced by older adults in Bangladesh and develop suitable cultural-specific solutions for this problem. This research adds new

regional data from Bangladesh to world discussions about loneliness and fills knowledge gaps in Bangladesh.

# Chapter 2: Method

## 2.1 Study Design and Study Population

A cross-sectional offline survey design was used to measure loneliness rates together with their determining factors among the geriatric group residing in urban and rural areas of Bangladesh. Structured survey forms collected data between January 12th, 2025 and February 14th, 2025 across six weeks. Among the 475 participants surveyed 42.1% or 200 people came from Dhaka Mirpur and 57.9% or 275 participants lived in Purnamati village, Cumilla. The study featured 21.1% male participants (100 people) and female participants who made up 21.1% (101 people) from their urban location and 24.8% males (118 people) and 32.2% females (253 people) from their rural settlement. The study participants were exclusively individuals with ages 60 years or older.

In order to include diverse experiences I developed a sampling approach for urban and rural areas. I have selected urban participants from Dhaka Mirpur which has a dense population and socioeconomically blended mix. At the same time, I chose rural participants from Purnamati village in Cumilla featuring family values and sparse healthcare access. The study included an equal representation of both genders to analyze the distinctive risks of loneliness that affect older women because being widowed or economically dependent leaves them isolated or vulnerable from society. All participants received clarification about objectives followed by eligibility criteria and procedures before data collection began and after obtaining signed informed consent. I have completed offline questionnaires using structured forms that incorporated valid measurement scales for loneliness and associated psychosocial elements. The program relied on me to assist until respondents gave correct answers throughout the process. The research included participants who met these requirements aged 60 years or older as well as living in urban or rural areas. People with both severe cognitive

impairments and communication difficulties were excluded from research participation.

I chose a cross-sectional approach because I wanted to collect fast data on loneliness prevalence and related characteristics among participants. The variety of the participants allowed me to investigate further into how men and women see their vulnerabilities differently. This study has its primary advantages, like accurate representation and ethical strictness by me, however, its cross-sectional approach may limits causal association results and the possibility of flaws of information provided by the respective respondents. The analysis constraints should be addressed utilising mixed-methodologies approaches in conjunction with longitudinal study methods.

## 2.2 Detailed Questionnaire

The pre-structured questionnaire I developed provided information to evaluate the extent and vulnerability factors of loneliness experienced by aged individuals across urban and rural areas in Bangladesh. The first language version of the questionnaire used English before professional translators rendered it into Bangla to provide clear understandable materials to participants. Two versions of the questionnaire existed in English and Bangla form which enabled participants of different literacy backgrounds to understand the survey. The clarity and appropriateness of the questionnaire were confirmed through a preliminary test conducted with urban area participants from Dhaka Mirpur. The test data from this initial stage helped me to arrange the questionnaire which then served as the basis for collecting widespread data.

The questionnaire consisted of two main parts which gathered sociodemographic data and loneliness evaluation information. The questionnaire's sociodemographic portion required information about participants' age along with their urban or rural residence, marital status, living situation, smoking behavior, chronic diseases, financial status, vitamin and food consumption

patterns, practice of religion, work status, and availability of social support systems. Two validated scales based on cultural context adopted for Bangladesh appeared in the loneliness assessment segment. The scales contained emotional loneliness definitions that measured relationship loss as well as social loneliness questions regarding social interaction absence to give full participant understanding.

I have conducted personal data collection through face-to-face interactions where questions were posed directly to the participants before recording their responses. Research participants had the choice between self-responding to questionnaire forms or choosing interviews depending on their comfort level and literacy skills. The method allowed participants regardless of their literacy abilities to give answers that accurately expressed their thoughts. The research collected information from multiple locations to analyze any differences in loneliness prevalence and risk elements between urban and rural environments.

## 2.3 Scale of Questionnaire: UCLA Loneliness Scale (Version 3)

The study employed the UCLA Loneliness Scale (Version 3) as its measurement tool because this instrument maintains trusted credibility among researchers for evaluating subjective perceptions involving loneliness and social isolation within elderly populations. Reported by Russell and his colleagues in 1980, the UCLA Loneliness Scale received modifications resulting in Version 3 which represents a streamlined version of the tool. The current scale version asks three questions to determine how subjects feel about companionship needs and their social isolation and social connections status. The UCLA-3 shows excellent efficiency in research investigations that study older adults through its brief and dependable measure particularly when used in large-scale surveys.

The UCLA-3 uses a three-pointer Likert-type scale to measure responses at three rating points: “Hardly ever” for zero points and “Some of the time” for one point and “Often” for two points. The measurement scale starts at 0 and goes up to 6 so that elevated numbers show an increased sense of loneliness in individuals. The scale proves valuable in loneliness assessment because it shows strong reliability together with consistency across research settings involving different populations and cultural backgrounds. Studies using UCLA-3 have validated its ability to measure loneliness which strongly associates with mental health declines such as depression and anxiety and brain functions deterioration along with increased risks of heart diseases and death (Rico-Uribe et al., 2018). The modified UCLA-3 format provides a convenient experience for users by decreasing survey length which maximizes both understanding and response quality especially when tested among elderly groups with diminished cognitive abilities.

## 2.4 Recruitment and Data Collection Process

The data collection initiative started by gathering participants in the urban region of Dhaka Mirpur through personal networks that involved family members and their friends and known acquaintances. The community-based recruitment method delivered trust and familiar relationships that were essential to obtain genuine honest responses from senior participants. The collection of sensitive information about loneliness demanded that research participants feel secure before they would share their personal situations. Individual interactions made it possible to explain the study purpose to participants along with extensive dialogue which helped them grasp the study's intent and provided a safe environment for responses. The diverse study group was enriched because the research took place in urban areas where respondents who lived independently and with relatives and resided in elderly care facilities could participate.

Research data collection at urban sites led me to expand my work by studying Purnamati village in Cumilla as well as other rural areas. The collection of information from rural residents demonstrated specific obstacles because senior citizens lacked experience with formal surveys and showed reluctance to participate in academic research. Elderly participants became available to the study after community leaders together with religious figures and influential village elders vouched for the project's authenticity. Word-of-mouth referrals became essential for participant identification because villagers referred potential participants based on trusted networks to assure elderly respondents about survey legitimacy. Approaching participants through local leaders proved successful for reaching elderly women because traditional cultural practises maintain elderly women's hidden status.

The survey directed toward universal participation through applications of cultural sensitivity that included language choices as well as comfort and traditional practise considerations. The rural elderly participants wanted to conduct interviews in familiar locations such as residential houses and community meeting areas instead of structured research facilities. The survey process started with longer informal sessions by me to establish free communication with respondents who could share their opinions freely during this stage. The data collectors who received training provided verbal question clarifications to participants who displayed poor literacy levels to prevent confusion in rural areas. A combined strategy combining personal referrals in cities and community involvement in rural regions led to obtaining a broad and properly representative set of older adults.

## 2.5 Statistical Analysis

The research analysis utilised Microsoft Excel 2019 together with Statistics Package for the Social Sciences(SPSS) as the primary analysis tools. Data organisation and calculation and the construction

of tables together with graphs took place through Microsoft Excel software. The study team used SPSS for performing its complex statistical evaluations. The Chi-square test was used to analyse relationships among categorical variables while Cramer's V provided the measurement of their strength. The statistical tests generated the p-value with <0.05 indicating statistical significance.

The study centering on loneliness sought to evaluate the linkages between different demographic, lifestyle and health-related statistical factors and high, moderate and low loneliness levels. I have employed Chi-square to establish variance among loneliness levels between different variables including age, living area, marital status, and health behaviours. The analysis determined the relationship power between loneliness and different variables by using Cramer's V statistical measure.

# Chapter 3: Result

## 3.1 Description of Study Population

This study investigates the prevalence of loneliness among the geriatric population in both urban and rural areas of Bangladesh. This research surveyed 475 elderly adults who included 258 female participants that made up 54.3% and 217 male participants who composed 45.7% of the total group. The research population includes men and women between 60 and 92 years old whose majority belong to the 65-75 years age group.

A majority of participants are married but numerous fall into the categories of widowed or divorced thus marital status plays an important role in loneliness development. The research respondents exhibit different educational backgrounds where many participants finished primary and secondary education but a minority completed higher studies. Most elderly citizens reside with family but the population split shows a smaller minority lives on their own or in institutional care facilities. Participants from the study exhibit common chronic health conditions such as hypertension together with diabetes and cardiovascular diseases and arthritis. Among the evaluation factors were lifestyle aspects that included physical exercise and smoking behaviour and diet and social involvement.

## 3.2 Prevalence Rate of Loneliness

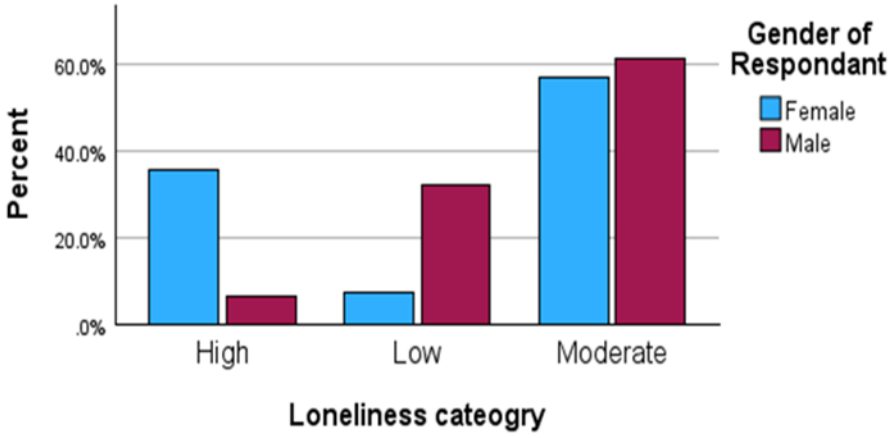


*Figure 1: Comparison of Loneliness Levels Between Males and Females*

From figure 1, we can determine, the high levels of loneliness is more familiar to the geriatric females compared to geriatric males. However, man also feels more about low to moderate level of loneliness compared to women. Where in both cases, most of them suffer from moderate levels of loneliness, which is really concerning.

**Prevalence of Loneliness Among Males**

In below, Table 1 indicates that loneliness affects elderly males significantly since a high number of participants rated their loneliness level as moderate to high. A total of 217 male participants showed 6.45% with high loneliness symptoms while 61.29% had moderate loneliness and 33.26% had low loneliness signs. The survey results show that male participants experience moderate or high levels of loneliness to the extent of exceeding 50%. This underscores the requirement to establish social and psychological treatment programmes for this demographic. The analysis showed highly lonely male participants had a distribution of 85.7% in urban areas while their rural area presence was at merely 14.3%. The data showed that urban males exhibited moderate loneliness at a rate of 50.4% rather than rural males who exhibited moderate loneliness at 49.6%. Rural regions show stronger

community connections because an overwhelming 70% of low lonely males reside there and benefit from robust social support networks found in such environments.

In term of marital status, widowed and divorced males demonstrated the strongest levels of loneliness according to the results. Among highly lonely male respondents 21.4% were widowed while 14.3% were divorced although only 5.3% of married males reported such severe loneliness issues. Spousal support functions as protection against loneliness while the loss of a partner results in heightened emotional suffering. The degree of education established an average correlation with feelings of isolation. High loneliness scores were present in 14.3% of uneducated males yet 7.1% of graduates showed low levels of loneliness. Males who pursued higher education levels demonstrated lower loneliness because they acquired better social networks together with improved ways of coping with life's challenges. Male loneliness rates directly depended on the level of physical activity they practised. Regular exercisers showed a low prevalence of high loneliness at 25.7% and recorded 72.9% experiencing low loneliness rates. In comparison, 53.3% of non-active guys experienced moderate to high feelings of loneliness. The practice of being socially active proved essential because males who engaged in hobbies or social activities demonstrated significantly reduced instances of loneliness. Research indicates that males who have chronic illnesses are more likely to experience loneliness since 64.3% of highly lonely men have these health conditions. Health challenges which restrict movement and require caregiver help and diminish independence seem to drive up feelings of loneliness in individuals.

*Table 1: Loneliness Categories (High, Medium, Low) for Males by Variables with p-values*

| Variable | Category | High Loneliness (n, %) | Medium Loneliness (n, %) | Low Loneliness (n, %) | p-value |
|---|---|---|---|---|---|
| **Age** | 60-above | 14 | 133 | 70 | 0.028 |
| **Living Area** | Urban | 12 (85.7%) | 67 (50.4%) | 21 (30.0%) | <0.001 |
| | Rural | 2 (14.3%) | 66 (49.6%) | 49 (70.0%) | |
| **Living Arrangement** | With Family | 10 (71.4%) | 117 (88.0%) | 62 (88.6%) | 0.194 |
| | Without Family | 4 (28.6%) | 16 (12.0%) | 8 (11.4%) | |
| **Family Type** | Nuclear Family | 13 (92.9%) | 82 (61.7%) | 39 (55.7%) | 0.033 |
| | Joint Family | 1 (7.1%) | 51 (38.3%) | 31 (44.3%) | |
| **Marital Status** | Married | 9 (64.3%) | 109 (82.0%) | 65 (92.9%) | 0.004 |
| | Widowed | 3 (21.4%) | 22 (16.5%) | 4 (5.7%) | |
| | Divorced | 2 (14.3%) | 2 (1.5%) | 1 (1.4%) | |
| **Education** | Graduate | 5 (35.7%) | 33 (24.8%) | 31 (44.3%) | 0.079 |
| | Secondary | 6 (42.9%) | 46 (34.6%) | 20 (28.6%) | |
| | Primary | 1 (7.1%) | 28 (21.1%) | 13 (18.6%) | |
| | No Formal Edu. | 2 (14.3%) | 26 (19.5%) | 6 (8.6%) | |
| **Profession** | Currently Working | 7 (50.0%) | 70 (52.6%) | 57 (81.4%) | <0.001 |
| | Not Working | 7 (50.0%) | 63 (47.4%) | 13 (18.6%) | |
| **Physical Exercise** | Yes | 9 (64.3%) | 70 (52.6%) | 51 (72.9%) | 0.029 |
| | No | 5 (35.7%) | 63 (47.4%) | 18 (25.7%) | |
| **Spending Time on Hobbies** | Yes | 7 (50.0%) | 79 (59.4%) | 45 (64.3%) | 0.671 |
| | No | 7 (50.0%) | 53 (39.8%) | 23 (32.9%) | |
| **Smoking Habit** | Smoker | 12 (85.7%) | 93 (69.9%) | 47 (67.1%) | 0.383 |
| | Non-Smoker | 2 (14.3%) | 40 (30.1%) | 23 (32.9%) | |
| **Fast Food Consumption** | >2x Month | 6 (42.9%) | 25 (18.8%) | 27 (38.6%) | 0.004 |
| | <2x Month | 8 (57.1%) | 108 (81.2%) | 43 (61.4%) | |
| **Chronic Disease** | Yes | 9 (64.3%) | 63 (47.4%) | 27 (38.6%) | 0.171 |
| | No | 5 (35.7%) | 70 (52.6%) | 43 (61.4%) | |
| **BMI Category** | Normal | 7 (50.0%) | 69 (51.9%) | 36 (51.4%) | 0.600 |
| | Overweight | 6 (42.9%) | 57 (42.9%) | 26 (37.1%) | |
| | Obese | 1 (7.1%) | 7 (5.3%) | 8 (11.4%) | |

## Prevalence of Loneliness Among Females

Among the 258 female respondents the prevalence of loneliness exceeded male participants significantly. The results from Table 2 show that 35.66% (n = 92) of female participants reported high loneliness whereas 56.98% (n = 147) experienced moderate loneliness and 7.36% (n = 19) had low loneliness. Research indicates elderly females showed increased tendencies to deal with intense loneliness despite the impact of widowhood and reduced independence and increased familial obligations. The characterization of loneliness varied noticeably according to where participants resided. A large percentage (64.1%) of females who experienced high loneliness chose urban

residence whereas rural residents who felt this way numbered at 35.9%. The percentage of females with moderate loneliness proved higher among urban residents than among their rural counterparts with 50.4% and 49.6% respectively. Rural females showed less tendency to experience severe loneliness because they maintain strong community relationships and cultural practises that uphold family assistance networks.

The marital status of females proved highly relevant to their feelings of loneliness since widowed and divorced women experienced the most loneliness. Highly lonely female participants consisted of 29.3% widowed individuals and 5.4% divorced individuals but the married female participants showed only 5.3% reported high loneliness levels. The loss of a spouse creates major social isolation and emotional susceptibility which stresses the need for social support systems in elderly women's lives. A significant relationship exists between education levels and loneliness for female subjects. The statistics show high loneliness affected 20.7% of uneducated individuals whereas only 5.4% of college graduates showed similar results. Graduates experienced better mental health resource knowledge and stronger connections in their local network which seemed to reduce their loneliness risk. The same as male respondents physical activity turned out to affect how many females experienced loneliness. Thirty-six point eight percent of women who exercised regularly reported low levels of loneliness but this reduced to fifty-three point three percent for inactive females. Social event participation together with hobby and community involvement led to decreased loneliness levels since social activities serve as protective elements against feelings of loneliness. The presence of chronic diseases substantially increased female loneliness as discovered through the assessment of 57.6% of highly lonely females affected by these conditions. Physiological limitations together with health conditions that require family dependence and long-term medical care both hinder social involvement and create emotional anguish which intensifies feelings of loneliness.

*Table 2: Loneliness Categories (High, Medium, Low) for females by Variables and p-values*

| Variable | Category | High Loneliness (n, %) | Medium Loneliness (n, %) | Low Loneliness (n, %) | p-value |
|---|---|---|---|---|---|
| **Age** | 60-above | 92 (35.66%) | 147 (56.98%) | 19 (7.36%) | 0.270 |
| **Living Area** | Rural | 33 (35.9%) | 110 (74.8%) | 12 (63.2%) | <0.001 |
| | Urban | 59 (64.1%) | 37 (25.2%) | 7 (36.8%) | |
| **Living Arrangement** | With Family | 76 (82.6%) | 127 (86.4%) | 18 (94.7%) | 0.361 |
| | Without Family | 16 (17.4%) | 20 (13.6%) | 1 (5.3%) | |
| **Family Type** | Joint Family | 25 (27.2%) | 65 (44.2%) | 13 (68.4%) | 0.003 |
| | Nuclear Family | 67 (72.8%) | 80 (54.4%) | 6 (31.6%) | |
| **Marital Status** | Married | 60 (65.2%) | 94 (63.9%) | 11 (57.9%) | 0.743 |
| | Widowed | 27 (29.3%) | 46 (31.3%) | 8 (42.1%) | |
| | Divorced | 5 (5.4%) | 7 (4.8%) | 0 (0%) | |
| **Education** | Graduate | 5 (5.4%) | 17 (11.6%) | 2 (10.5%) | 0.162 |
| | No Formal Edu. | 19 (20.7%) | 33 (22.4%) | 1 (5.3%) | |
| | Secondary | 21 (22.8%) | 33 (22.4%) | 3 (15.8%) | |
| | Primary | 42 (45.7%) | 63 (42.9%) | 13 (68.4%) | |
| **Profession** | Currently Working | 13(14.1%) | 24(16.3%) | 3(15.8%) | 0.901 |
| | Not working | 79(85.9%) | 123(83.7%) | 16(84.2%) | |
| **Physical Exercise** | No | 49 (53.3%) | 97 (66.0%) | 7 (36.8%) | 0.056 |
| | Yes | 43 (46.7%) | 49 (33.3%) | 12 (63.2%) | |
| **Spending Time on Hobbies** | No | 52 (56.5%) | 59 (40.1%) | 5 (26.3%) | 0.011 |
| | Yes | 40 (43.5%) | 88 (59.9%) | 14 (73.7%) | |
| **Smoking Habit** | Non-Smoker | 92 (100%) | 146 (99.3%) | 18 (94.7%) | 0.058 |
| | Smoker | 0 (0%) | 1 (0.7%) | 1 (5.3%) | |
| **Fast Food Consumption** | <2x Month | 89 (96.7%) | 136 (92.5%) | 16 (84.2%) | 0.108 |
| | >2x Month | 3 (3.3%) | 11 (7.5%) | 3 (15.8%) | |
| **Chronic Disease** | No | 39 (42.4%) | 75 (51.0%) | 10 (52.6%) | 0.395 |
| | Yes | 53 (57.6%) | 72 (49.0%) | 9 (47.4%) | |
| **BMI Category** | Normal | 21 (22.8%) | 57 (38.8%) | 11 (57.9%) | 0.023 |
| | Overweight | 51 (55.4%) | 72 (49.0%) | 7 (36.8%) | |
| | Obese | 20 (21.7%) | 17 (11.6%) | 1 (5.3%) | |

## 3.3 Determinants and Associations of Loneliness

### Associations Among Males

Table 3 establishes the correlation between loneliness levels in males when analysing different demographic, social, and lifestyle variables through Cramér's V statistical measurement. Cramér's V enables researchers to measure the categorical variable connection strength because it produces values between 0 and 1. The Cramér V scale shows no association with a value of 0 and identifies

perfect association by a value of 1. Statistical interpretation shows that very weak or negligible associations have values from 0 to 0.10 and weak associations fall between 0.10 and 0.20 while moderate associations range from 0.20 to 0.30 and 0.30 to 0.40 reflects relatively strong associations and values from 0.40 to 0.50 represent strong associations followed by very strong associations that exceed 0.50. The association between age and loneliness proved to be the most powerful relationship among variables (Cramer's V = 0.430) showing strong to very-strong strength. People experience increasingly heightened loneliness risks as they age because poor health conditions and reduced social engagement and heightened care needs accumulate during the ageing process.

Living area (CramerV = 0.281) and occupation (CramerV = 0.280) are relevant with moderate loneliness ($p<.01$) that shows urban are more likely to feel loneliness than rural and unemployed are more than employed. Family type (Cramer's V = 0.177), Education (Cramer's V = 0.161) and Marriage status (Cramer's V = 0.189) revealed weak relationship; those are less educated people, men become divorced/widowed and reside in nuclear family in greater extent are more likely to be lonely, less significantly when compared to characteristic such as residential location and age. Among lifestyle variables, physical activity (Cramer's V = 0.157) and consumption of food/nutrition supplements (Cramer's V = 0.204) were weak-to-moderate correlate, indicating that physical inactivity and poor diet are associatated with loneliness. Fast food consumption (Cramer's V = 0.227) had a moderate association with being light of, suggesting that what people eat could have the ability to impact loneliness in some way or another. Health measures such as chronic morbidities (Cramer's V = 0.128), and BMI category (Cramer's V = 0.080) produced weak or extremely weak associations, indicating that while health status is a determinant of general well-being, the direct contribution of health status on loneliness is very insignificant in relation to social and environmental determinants. Smoking status (Cramer's V = 0.094) had the smallest correlation, that is smoking was not the

significant predictor of loneliness in older men. In general the findings suggest that with age, place of residence and work situation being the most associated factors with loneliness, and with illness and some of the lifestyle factors having a smaller influence. Research points to the importance of social support networks, getting the community involved and working for the sake of reducing loneliness in older men.

***Table 3: Association Between Loneliness of male and Variables (Cramer's V Test)***

| *Variable* | *Cramer's V* |
|---|---|
| ***Age*** | 0.430 |
| ***Living Area*** | 0.281 |
| ***Living Arrangement*** | 0.123 |
| ***Family Type*** | 0.177 |
| ***Marital Status*** | 0.189 |
| ***Education*** | 0.161 |
| ***Profession*** | 0.280 |
| ***Physical Exercise*** | 0.157 |
| ***Smoking Habit*** | 0.094 |
| ***Fast Food Consumption*** | 0.227 |
| ***Food or Nutrition or Vitamin Suppliment*** | 0.204 |
| ***Chronic Disease*** | 0.128 |
| ***BMI Category*** | 0.080 |

**Associations Among Females**

The Cramér's V test confirmed the intensity of female loneliness associations with the described demographic and lifestyle characteristics shown in the table. Family income correlation with loneliness stands exceptionally high based on a Cramér's V value of 0.987 which categorises this relationship as very strong association. The way economic status affects women's loneliness can mostly be explained by the fact that financial security lets women maintain freedom in their social circle and access therapeutic care and maintain good health. The relationship between age and

loneliness shows strong variation demonstrated by the 0.482 correlation value. The variation emerges from natural growth processes alongside societal changes and life changes which people experience.

Statistics show that living area (0.373) links strongly to potential loneliness perceptions among female respondents. Family composition (0.247), education (0.235) and BMI category (0.238) exhibit moderate correlation levels because these variables contribute to loneliness yet their impact remains weaker than family income and age. The research findings show that physical exercise lifestyle variable (0.189) and spending time on hobbies or interests (0.187) contribute to loneliness to a small degree. The associations between smoking behaviour and fast food intake with female loneliness levels (0.149 and 0.131 respectively) prove to be minimal according to the research. This setting demonstrates minute connexion between loneliness and living situation (0.089) and marital status (0.087) and food/nutrition/vitamin supplementation (0.072) and chronic illness (0.085). These variables show no significant contribution to loneliness in this particular environment. The finding indicates that occupation shows no meaningful relation to loneliness in this study setting of female participants. The determinant factors of loneliness between men and women demonstrate different relations where occupation is moderate only for men according to study results.

*Table 4: Association Between Loneliness of Females and Variables (Cramer's V Test)*

| *Variable* | *Cramer's V* |
|---|---|
| ***Age*** | 0.482 |
| ***Living area*** | 0.373 |
| ***Living Arrangement*** | 0.089 |
| ***Family Type*** | 0.247 |
| ***Marital Status*** | 0.087 |
| ***Education*** | 0.235 |
| ***Profession*** | 0.029 |
| ***Physical exercise*** | 0.189 |
| ***Spending time in Hobby or Interest*** | 0.187 |
| ***Smoking Habit*** | 0.149 |
| ***Consumption of fast food*** | 0.131 |
| ***Food or Nutrition or Vitamin Suppliment*** | 0.072 |
| ***Family Income*** | 0.987 |
| ***Having Chronic Disease*** | 0.085 |
| ***BMI Category*** | 0.238 |

In general, the findings suggest that widowhood, increased urbanization, decreased physical activity have substantial effects on loneliness in both genders, with a saying in risk factors for the two genders. Appropriate social engagement programs, support programs based in the community, and encouragement of active lifestyles can all play a crucial part in the prevention of loneliness among older adults.

# Chapter 4: Discussion

The research explores the frequency of loneliness alongside determining factors that affect this state in Bangladesh's elderly residents while examining how demographic elements together with social and economic elements along with health elements create this relationship. The medical community now treats loneliness as a critical public health challenge which affects both mental and physical fitness of ageing adults (Holt-Lunstad et al., 2015). This study establishes that personal and environmental factors such as age and residential location as well as family structure influence the extent of loneliness in elderly individuals together with marital status, education level, employment status, physical activity levels and dietary habits and BMI and their existing chronic diseases. The study outcomes conform to existing literature and expand knowledge about the complex nature of older adults' feelings of loneliness (Yang & Victor, 2011).

Study results show that loneliness exists at different levels among male and female participants. A total of 5.3% of elderly men identified as highly lonely while 50.2% maintained moderate feelings and 44.5% described their loneliness as low. The prevalence rates of high and moderate loneliness among older women were higher than men as 14.1% experienced high loneliness and 28.7% experienced moderate loneliness while 57.2% reported low loneliness. A higher prevalence of loneliness emerges in elderly women than in men according to survey results which validate previous international studies about women being socially isolated after widowhood and lacking social engagement and financial independence (Srivastava et al., 2021). Women also form more emotionally deep interactions with the people they know, making the loss of these relationships more significant. The study also finds major differences in loneliness by where one lives.

The results indicated that urban population demonstrated more feelings of loneliness than the rural population. The study revealed that 85.7% of male extremely lonely participants and 64.1% of female extremely lonely individuals lived in urban areas yet only 14.3% of males lived in rural areas together with 35.9% of females. Multiple studies have confirmed that rural communities provide protection through stronger social connections and bigger family support systems and higher social engagement levels (Cattan et al., 2005). Malfunctions of urbanisation result in romantic isolation among senior citizens because family bonds break down along with community supports. Age demonstrates the strongest link to loneliness for men at V = 0.430 and women at V = 0.482.

According to the association older people experience greater risks of loneliness primarily because of friend death and health problems and decreased mobility (Moeyersons et al., 2022). The statistical data shows family income plays the most significant role for elderly women (Cramer's V = 0.987) because it affects their social involvement and emotional satisfaction (Chemaitelly et al., 2013). Marital status was discovered to create a meaningful connection with loneliness.

The majority of males who experienced extreme loneliness were widowed at 21.4% while 14.3% were divorced. Additionally, 29.3% of female loners were widowed with 5.4% being divorced. Previous studies show that widowhood creates the biggest vulnerability for emotional distress while isolating individuals completely from social contact. People who are married experience less loneliness because they have the support of their spouse for emotional connexion and partnership alongside shared management of responsibilities (Vedder et al., 2024). The education level of participants showed moderate correlation with their reported feelings of loneliness for men (Cramer's V = 0.161) and women (Cramer's V = 0.235) according to statistical calculations. Research indicates that higher educated individuals develop strong coping mechanisms while increasing social

understanding and obtaining multiple interaction options (Deasy et al., 2014). The data shows that uneducated or primary-school educated older males experienced higher levels of loneliness yet educational status did not affect female loneliness rates (Hajek et al., 2024). Physical activity combined with social participation acted as protective elements against loneliness among both male and female participants. The link between physical activity and loneliness showed increased strength among older women (Cramer's V = 0.189) than among older men (Cramer's V = 0.157).

The relationship between female participants spending time on hobbies and interests showed only a weak connection to their feeling of loneliness (Cramer's V = 0.187). Stress reduction and enhanced social connections from physical activity and social interactions explain these results according to Smith et al. (2017). Loneliness did not show any significant relationships with the variables under analysis. The three factors of smoking history (Cramer's V = 0.094), BMI (Cramer's V = 0.080) and medical conditions (Cramer's V = 0.128) demonstrated low association in the male population.

The relationships between women's loneliness and their living conditions (Cramer's V = 0.089), marital status (Cramer's V = 0.087), and chronic disease status (Cramer's V = 0.085) were all very weak. The particular relation between health status and lifestyle variables to loneliness effects is weaker when compared to socioeconomic and social conditions according to research findings. The research offers essential knowledge on the extent of loneliness experienced by elderly people in Bangladesh. A large survey participant number (n = 475), offline data collection and bilingual questionnaire (Bangla and English) availability reinforce the dependable nature of this research. By analyzing BMI and food habit alongside their relationship to loneliness the investigation adds to existing educational understanding. The analysis comes with several important restrictions that need attention. The survey process lasted too long and self-report assessments likely introduced memory

distortion throughout the research. Since the study focused on Bangladesh older adults only the results fail to generalize to other populations. Survey participants might have underreported feelings of loneliness because social customs and negative prejudices relating to loneliness exist in the community. The study proves we need specialized interventions targeting elderly loneliness because of its importance in society.

Economic status has shown a powerful connection with loneliness thus policymakers should establish financial assistance programs and pension systems alongside making health care accessible for elderly citizens. Community-based programs creating opportunities for physical exercise and social involvement together with intergenerational contact programs need implementation to reduce senior loneliness (Hsueh et al., 2022). Medical staff need to adopt standard procedures for detecting loneliness during assessments and they should provide guidance to patients who face isolation risks (Perissinotto et al., 2019). Longitudinal research studies are essential to understand how permanent loneliness affects both health status and human well-being. The research would benefit from extending its boundaries to diverse geographic areas and cultural environments to obtain worldwide statistical patterns. Using open-ended interviews with participants allows for better understanding of how people handle loneliness in their lives. The research requires an investigation of digital-based intervention strategies like online support groups and telemedicine counseling to deal with loneliness in modern times (Santini et al., 2020).

# Chapter 5: Conclusion

In conclusion, it can be stated that , this study offers a thorough evaluation of lonely encounters and causal factors influencing older people in Bangladesh. Feeling loneliness is much influenced by age combined with socioeconomic level, marriage status, and social contact points in the process. Those with insufficient high school education as well as those who had divorce or widowerhood connected with those who live in urban areas exhibited more likelihood of feeling lonely. According to the study, social contacts and physical exercise guard elderly people against loneliness. The survey demonstrates the necessity of creating specific intervention approaches through financial aid programs and community welfare plans and budget-friendly mental health services for senior citizens. Monitoring for loneliness in elderly patients and organising social activities for different generations are helpful ways to avoid this condition. Combining policy change with clinical treatments and community involvement represents the necessary approach to fight this phenomenon. Future scientific papers must concentrate on three main study designs, which include an emphasis on e-interventions, analytical research in various cultural circumstances, and a dedication to long-term approaches. These research areas will advance knowledge of complex loneliness systems to create effective evidence-driven strategies for worldwide improvement of older adult lifestyles.

# References

Akhter-Khan, S. C., Van Es, W., Prina, M., Lawrence, V., Piri, I., Rokach, A., Heu, L. C., & Mayston, R. (2024). Experiences of loneliness in lower- and middle-income countries: A systematic review of qualitative studies. *Social Science & Medicine*, *340*, 116438. https://doi.org/10.1016/j.socscimed.2023.116438

Amin, I. (2017). Perceptions of Successful Aging among Older Adults in Bangladesh: An Exploratory Study. *Journal of Cross-Cultural Gerontology*, *32*(2), 191–207. https://doi.org/10.1007/s10823-017-9319-3

Carrim, N. M. H. (2017). 'New' Men and 'New' Women: Cultural Identity Work of Husbands and Wives Related to Housework and Childcare. *Asian Social Science*, *13*(11), 1. https://doi.org/10.5539/ass.v13n11p1

Cattan, M., White, M., Bond, J., & Learmouth, A. (2005). Preventing social isolation and loneliness among older people: A systematic review of health promotion interventions. *Ageing and Society*, *25*(01), 41–67. https://doi.org/10.1017/S0144686X04002594

Chemaitelly, H., Kanaan, C., Beydoun, H., Chaaya, M., Kanaan, M., & Sibai, A. M. (2013). The role of sex in the association of social capital, social support, and economic security with self-rated health among older adults in deprived communities in Beirut. *Quality of Life Research*, *22*(6), 1371–1379. https://doi.org/10.1007/s11136-012-0273-9

Committee on the Health and Medical Dimensions of Social Isolation and Loneliness in Older Adults, Board on Health Sciences Policy, Board on Behavioral, Cognitive, and Sensory Sciences, Health and Medicine Division, Division of Behavioral and Social Sciences and Education, & National Academies of Sciences, Engineering, and Medicine. (2020). *Social*

*Isolation and Loneliness in Older Adults: Opportunities for the Health Care System* (p. 25663). National Academies Press. https://doi.org/10.17226/25663

Deasy, C., Coughlan, B., Pironom, J., Jourdan, D., & Mannix-McNamara, P. (2014). Psychological Distress and Coping amongst Higher Education Students: A Mixed Method Enquiry. *PLoS ONE*, *9*(12), e115193. https://doi.org/10.1371/journal.pone.0115193

Ellison, C. G., & George, L. K. (1994). Religious Involvement, Social Ties, and Social Support in a Southeastern Community. *Journal for the Scientific Study of Religion*, *33*(1), 46. https://doi.org/10.2307/1386636

Giddings, L. S., Roy, D. E., & Predeger, E. (2007). Women's experience of ageing with a chronic condition. *Journal of Advanced Nursing*, *58*(6), 557–565. https://doi.org/10.1111/j.1365-2648.2007.04243.x

Hajek, A., Gyasi, R. M., & König, H.-H. (2024). Factors associated with loneliness among individuals aged 80 years and over: Findings derived from the nationally representative "Old Age in Germany (D80+)" study. *Archives of Gerontology and Geriatrics*, *123*, 105443. https://doi.org/10.1016/j.archger.2024.105443

Hawkley, L. (2025). Loneliness psychology. In *Britannica*.

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review. *Perspectives on Psychological Science*, *10*(2), 227–237. https://doi.org/10.1177/1745691614568352

Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social Relationships and Mortality Risk: A Meta-analytic Review. *PLoS Medicine*, *7*(7), e1000316. https://doi.org/10.1371/journal.pmed.1000316

Hsueh, Y.-C., Batchelor, R., Liebmann, M., Dhanani, A., Vaughan, L., Fett, A.-K., Mann, F., & Pitman, A. (2022). A Systematic Review of Studies Describing the Effectiveness, Acceptability, and Potential Harms of Place-Based Interventions to Address Loneliness and Mental Health Problems. *International Journal of Environmental Research and Public Health*, *19*(8), 4766. https://doi.org/10.3390/ijerph19084766

Kabir, Z. N., Szebehely, M., Tishelman, C., Chowdhury, A. M. R., Höjer, B., & Winblad, B. (1998). Aging trends—Making an invisible population visible: The elderly in Bangladesh. *Journal of Cross-Cultural Gerontology*, *13*(4), 361–378. https://doi.org/10.1023/A:1006536217913

Kabir, Z. N., Tishelman, C., Agüero-Torres, H., Chowdhury, A. M. R., Winblad, B., & Höjer, B. (2003). Sex and rural–urban differences in reported health status by older people in Bangladesh. *Archives of Gerontology and Geriatrics*, *37*(1), 77–91. https://doi.org/10.1016/S0167-4943(03)00019-0

Kim, S., Choe, K., & Lee, K. (2020). Depression, Loneliness, Social Support, Activities of Daily Living, and Life Satisfaction in Older Adults at High-Risk of Dementia. *International Journal of Environmental Research and Public Health*, *17*(24), 9448. https://doi.org/10.3390/ijerph17249448

Lara, E., Martín-María, N., De La Torre-Luque, A., Koyanagi, A., Vancampfort, D., Izquierdo, A., & Miret, M. (2019). Does loneliness contribute to mild cognitive impairment and dementia? A systematic review and meta-analysis of longitudinal studies. *Ageing Research Reviews*, *52*, 7–16. https://doi.org/10.1016/j.arr.2019.03.002

Li, Y. (2022). Social care for disabled elderly women in urban China: The roles of the community. *Social Science & Medicine*, *314*, 115473. https://doi.org/10.1016/j.socscimed.2022.115473

Meng, L., Xu, R., Li, J., Hu, J., Xu, H., Wu, D., Hu, X., Zeng, X., Zhang, Q., Li, J., & Liu, D. (2024).

The silent epidemic: Exploring the link between loneliness and chronic diseases in China's elderly. *BMC Geriatrics*, *24*(1), 710. https://doi.org/10.1186/s12877-024-05163-2

Moeyersons, M., De Vliegher, K., Huyghe, B., De Groof, S., Milisen, K., & De Casterlé, B. D. (2022). 'Living in a shrinking world'—The experience of loneliness among community-dwelling older people with reduced mobility: A qualitative grounded theory approach. *BMC Geriatrics*, *22*(1), 285. https://doi.org/10.1186/s12877-022-02998-5

Morgan, S. (1993). Third World Urbanization, Migration, and Family Adaptation. In J. Kasarda & A. Parnell, *Third World Cities: Problems, Policies, and Prospects* (pp. 235–254). SAGE Publications, Inc. https://doi.org/10.4135/9781483325293.n12

Perissinotto, C., Holt-Lunstad, J., Periyakoil, V. S., & Covinsky, K. (2019). A Practical Approach to Assessing and Mitigating Loneliness and Isolation in Older Adults. *Journal of the American Geriatrics Society*, *67*(4), 657–662. https://doi.org/10.1111/jgs.15746

Rahman, K. M. M., Islam, R., Khan, Md. A. I., & Akhter, S. (2024). Loneliness and associated socio-demographic factors among rural older adults in Naogaon district of Bangladesh: A cross-sectional study. *SN Social Sciences*, *4*(12), 219. https://doi.org/10.1007/s43545-024-01020-6

Rico-Uribe, L. A., Caballero, F. F., Martín-María, N., Cabello, M., Ayuso-Mateos, J. L., & Miret, M. (2018). Association of loneliness with all-cause mortality: A meta-analysis. *PLOS ONE*, *13*(1), e0190033. https://doi.org/10.1371/journal.pone.0190033

Ron, P. (2004). Depression, Hopelessness, and Suicidal Ideation Among the Elderly: A Comparison Between Men and Women Living in Nursing Homes and in the Community. *Journal of Gerontological Social Work*, *43*(2–3), 97–116. https://doi.org/10.1300/J083v43n02_07

Silverman, P. R. (2004). *Widow to Widow* (0 ed.). Routledge.

https://doi.org/10.4324/9780203020975

Speck, S. (2017). “They Moved to City Areas, Abroad”: Views of the Elderly on the Implications of Outmigration for the Middle Hills of Western Nepal. *Mountain Research and Development*, *37*(4), 425. https://doi.org/10.1659/MRD-JOURNAL-D-17-00034.1

Srivastava, S., Ramanathan, M., Dhillon, P., Maurya, C., & Singh, S. K. (2021). Sex Differentials in Prevalence of Loneliness among Older Adults in India: An Analysis from WHO Study on Global AGEing and Adult Health. *Ageing International*, *46*(4), 395–421. https://doi.org/10.1007/s12126-020-09394-7

Sultana, M., & Rahman, M. (2024). Socioeconomic Challenges and Coping Strategies Adopted by the Widows in Bangladesh. *BARISHAL UNIVERSITY JOURNAL OF SOCIAL SCIENCES*, *4*(2).

Sutin, A. R., Stephan, Y., Luchetti, M., & Terracciano, A. (2020). Loneliness and Risk of Dementia. *The Journals of Gerontology: Series B*, *75*(7), 1414–1422. https://doi.org/10.1093/geronb/gby112

Trask, B. S. (May 22). Migration, Urbanization, and the Family Dimension. *Department of Economic and Social Affairs (UNDESA) Division for Inclusive Social Development (DISD)*, 1–95.

Valtorta, N. K., Kanaan, M., Gilbody, S., Ronzi, S., & Hanratty, B. (2016). Loneliness and social isolation as risk factors for coronary heart disease and stroke: Systematic review and meta-analysis of longitudinal observational studies. *Heart*, *102*(13), 1009–1016. https://doi.org/10.1136/heartjnl-2015-308790

Vedder, A., Stroebe, M. S., Stokes, J. E., Schut, H. A. W., Schut, B., Boerner, K., & Boelen, P. A.

(2024). Exploring loneliness across widowhood and other marital statuses: A systematic review integrating insights from grief research. *Journal of Social and Personal Relationships, 41*(12), 3741–3769. https://doi.org/10.1177/02654075241277229

WHO. (2019). World population prospects 2019: Highlights (ST/ESA/SER.A/423). *40. United Nations, Department of Economic and Social Affairs, Population Division*. https://www.un.org/development/desa/pd/news/world-population-prospects-2019-0

World Bank. (2020). *Population estimates and projections*. https://databank.worldbank.org/source/world-development-indicators#

Yang, K., & Victor, C. (2011). Age and loneliness in 25 European nations. *Ageing and Society*, *31*(8), 1368–1388. https://doi.org/10.1017/S0144686X1000139X

Zhong, S., Lee, C., Foster, M. J., & Bian, J. (2020). Intergenerational communities: A systematic literature review of intergenerational interactions and older adults' health-related outcomes. *Social Science & Medicine*, *264*, 113374. https://doi.org/10.1016/j.socscimed.2020.113374

## Appendix A

**A study on the prevalence and associated risk factors for mental health problems among Geriatric Population in Bangladesh**

[বাংলাদেশি প্রবীণ জনসংখ্যার উপর মানসিক স্বাস্থ্য এবং তার কারণ নিয়ে একটি গবেষণা]

[এই গবেষণাটি বাংলাদেশের প্রবীণ জনসংখ্যার মানসিক স্বাস্থ্য এবং তার কারণ মূল্যায়ন করার জন্য করা হয়েছে। এই গবেষণা কার্যক্রমটি একটি ইনস্টিটিউশনাল রিভিউ বোর্ড (SEU/Pharm/CECR/021/2024) থেকে নৈতিক অনুমোদন পেয়েছে। এটি সম্পূর্ণরূপে একটি অজ্ঞাতনামা/নামবিহীন জরিপ যেখানে আপনাকে সনাক্ত করা যাবে না কিংবা আপনার প্রদানকৃত সকল তথ্য শতভাগ গোপন ও সুরক্ষিত থাকবে। আপনার দেওয়া সকল তথ্য শুধুমাত্র গবেষণা কাজে এবং একাডেমিক উদ্দেশ্যে গোপনীয়তা বজায় রেখে ব্যবহার করা হবে।এই গবেষণায় অংশগ্রহণের জন্য সম্মতি খুব গুরুত্বপূর্ণ। এই মহৎ উদ্যোগে আপনার সহযোগিতার জন্য অগ্রিম ধন্যবাদ।]

Express your consent to participate in the research and processing of anonymous data for scientific purposes [এই নামবিহীন/অজ্ঞাতনামা বৈজ্ঞানিক সমীক্ষায় অংশগ্রহনের জন্য সম্মতি প্রকাশ করুন]

*I am a Bangladeshi senior citizen and have no objection to the privacy policy of this survey and the information collected. I voluntarily agree to take part in this study. [আমি একজন বাংলাদেশি প্রবীণ ব্যক্তি এবং এই সমীক্ষার গোপনীয়তা নীতি এবং সংগৃহীত তথ্য নিয়ে আমার কোন আপত্তি নেই। আমি স্বেচ্ছায় এই গবেষণায় অংশ নিতে সম্মত।]

- ☐ I do agree (আমি একমত)
- ☐ I do not agree (আমি একমত নই)

স্বাক্ষর: তারিখ:

Please tick one box for each statement [প্রতিটি উক্তির জন্য যে উত্তরটি আপনার মতামতকে সবচেয়ে ভালোভাবে বর্ণনা করে তা চিহ্নিত করুন]

***Section 1: Demographic Questions***

১. বয়স বছরে (Age in years): _____

২. ওজন কেজিতে (Weight in kg): _____

৩. উচ্চতা (Height): _____

৪. লিঙ্গ (Sex):

- ☐ পুরুষ (Male)
- ☐ মহিলা (Female)

- অন্যান্য (Others)

৫.বসবাসের স্থান (Living Area)

- গ্রাম (Rural Area)
- শহর (Urban Area)

৬.বৈবাহিক অবস্থা (Marital Status):

- অবিবাহিত (Unmarried)
- বিবাহিত (Married)
- বিধবা/বিপত্নীক (Widowed)
- তালাকপ্রাপ্ত (Divorced)

৭. বসবাসের অবস্থান (Living Arrangement):

- পরিবার ছাড়া (Without Family)
- পরিবারের সাথে (With Family)

৮. পরিবারের ধরন (Family Type):

- যৌথ পরিবার (Joint Family)
- একক পরিবার (Nuclear Family)

৯. আপনার সাথে বসবাসরত মানুষের সংখ্যা (Number of people living with you): _____

১০. শিক্ষার স্তর (Level of Education):

- পড়ালেখা করি নাই (No formal education)
- প্রাথমিক (Primary)
- মাধ্যমিক (Secondary)
- স্নাতক/স্নাতকোত্তর (Graduate/above)

১১.পেশা (Profession):

- বর্তমানে কাজ করছেন (Currently working)
- কাজ করছেন না (Not working)

১২. মাসিক পারিবারিক আয় (Monthly Family Income): _____

১৩.আপনার কি কোনো দীর্ঘস্থায়ী রোগ বা অবস্থা রয়েছে? (Do you have any chronic disease or conditions)?

- হ্যাঁ (Yes)
- না (No)

১৪.আপনার নিজের দৈনন্দিন কাজে অন্যের সাহায্যের প্রয়োজন হয় কি না? (Do you need any help to perform your regular activities)?

- হ্যাঁ (Yes)
- না (No)

১৫. সামাজিক কর্মকাণ্ডে অংশগ্রহণ করবার প্রবণতা (How often do you participate in social activities?

- দৈনিক (Daily)
- সাপ্তাহিক (Weekly)
- মাসিক (Monthly)
- বিরলভাবে (Rarely)
- কখনো না (Never)

১৬. আপনি কি সামাজিক যোগাযোগ মাধ্যম ব্যবহার করেন? (Do you use social media to communicate with others):

- হ্যাঁ (Yes)
- না (No)

১৭. আপনি কি ধর্মীয় আচার-বিধি পালন করেন? (Do you follow any religious or spiritual practices)?

- হ্যাঁ (Yes)
- না (No)

১৮. আপনি কি নিয়মিত শরীরচর্চা (ব্যায়াম) করেন? (Do you perform regular physical exercise)?

- হ্যাঁ (Yes)
- না (No)

১৯. আপনার কি কোনো শখ বা আগ্রহ আছে, যেখানে আপনি প্রতিদিন কিছু সময় ব্যয় করেন? (Any hobby or interest where you spend some time daily):

- হ্যাঁ (Yes)
- না (No)

২০. ধূমপানের অভ্যাস (Smoking Habit):

- ধূমপায়ী (Smoker)
- ধূমপান মুক্ত (Non-smoker)

২১.ফাস্ট-ফুড খাওয়ার অভ্যাস (Frequent Consumption of Fast-foods):

- মাসে দুইবার বা তার বেশি (Two or more in a month)
- মাসে দুইবারের কম (Less than twice in a month)

২২.আপনি কি নিয়মিত ভিটামিন/মিনারেল/ফুড গ্রহণ করেন? (Do you take any Food/Nutritional/vitamin supplements):

- হ্যাঁ (Yes)
- না (No)

## Loneliness: UCLA-3

১. আপনি কি আপনাকে সঙ্গ দেয়ার লোকের অভাব বোধ করেন? [How often do you feel left out?]

- কদাচিৎ (Hardly ever)
- মাঝে মাঝে (Some of the time)
- প্রায়ই (Often)

২. আপনি কি নিজেকে অবহেলিত/অন্যদের থেকে বাদ পড়ে গিয়েছেন বলে মনে করেছেন? [How often do you feel isolated from others?]

- কদাচিৎ (Hardly ever)
- মাঝে মাঝে (Some of the time)
- প্রায়ই (Often)

৩. আপনি কি নিজেকে অন্যদের থেকে বিচ্ছিন্ন হয়ে গিয়েছেন বলে মনে করেন? [How often do you feel that you lack companionship?]

- কদাচিৎ (Hardly ever)
- মাঝে মাঝে (Some of the time)
- প্রায়ই (Often)

অন্য কোন মন্তব্য:……

গবেষকের নাম: স্বাক্ষর: তারিখ: