



Faculty of Medicine
University of Dhaka

**NEURO-MUSCULOSKELETAL PROBLEMS AMONG THE
ELDERLY PEOPLE AT SELECTED OLD HOMES IN DHAKA CITY**

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DECLARATION

I declare that the work presented here is my own. All sources used have been cited here appropriately. Any mistakes and inaccuracies is my own. I also declare that for any publication, presentation or dissemination of information of the study. I would be bound to take written consent from the Department of Physiotherapy, Bangladesh Health Professions Institute (BHPI).

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Acronyms

ADL	Activities of Daily Living.
BAAIGM	Bangladesh Association for the Aged and Institute of Geriatric Medicine.
BHPI	Bangladesh Health Professions Institute.
BMRC	Bangladesh Medical and Research Council.
CRP	Centre for the Rehabilitation of the Paralyzed.
IRB	Institutional Review Board
MSD	Musculoskeletal Disorder.
MSK	Musculoskeletal
NSAID	Non-Steroidal Anti-Inflammatory Drug.
ROM	Range of Motion.
SPSS	Statistical Package for Social Science.
UN	United Nation.
US	United States
WHO	World Health Organization

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Abstract

Purpose: The purpose of this study to identify the Neuro-musculoskeletal problems among Elderly People at selected old homes. **Objective:** To identify the Neuro-musculoskeletal problems in the different body regions of Elderly people and determine the treatment received to solve Neuro-musculoskeletal problems and explore the socio-demographic characteristics of Elderly people with Neuro-musculoskeletal problems. **Methods:** A descriptive study was conducted with a structured interviewer-administrated questionnaire to collect information from 55 elderly people who have been living in old homes. Data were numerically coded and captured in Microsoft Excel, using an SPSS 25.0 version software program. **Results:** Total 55 Participants were taken to find out the Neuro-musculoskeletal problems among the elderly people at selected old homes in Dhaka city. Among 55 participants study found that 90.9%(n=50) participants were suffering from different musculoskeletal problems and 76.34% (n=42) participants responded that they had different neurological problems. Pain and limitation of range of motion in different joints of the body were found to be the highest musculoskeletal problems with 83.6% and 78.2% respectively. 76.4% had muscle weakness in different major group muscles in the body, 72.7% had difficulty in activities of daily living and 16.4% participants had postural deformity. On the other hand, “Arms or legs weakness for more than 24 hours” was found to be the highest neurological problem and “Suffering severe headaches, chiefly on one side of the head, which comes on from time to time” was the highest headache related problem among the elderly people with 56.4% & 40% respectively. **Conclusion:** In this study, researcher found neuro-musculoskeletal problems among elderly people at selected old homes in Dhaka city.

Key Words: Neuro-musculoskeletal problems, Elderly People, Old homes.

Word Count: 10,863

1.1 Background

Every person will have several different experiences during his or her life. The natural aging process brings about old age, which is the culmination of a human being's life experience. For humans, aging is a beautiful aspect of life. The term "wonderful" should not imply that aging is only good, but rather that it is extraordinary and outstanding (Kauffman et al., 2007).

Ageing is a universal, inherent, destructive process that affects all members of a species to varying degrees. Virtually all physiological functions lose effectiveness with ageing. Losses in the ability to maintain homeostasis, vision, hearing, memory, motor coordination, and other crucial physiological brain functions are all brought on by aging. Most important organs will experience atrophy or degeneration-related events as they get older (Vina et al., 2007). Aging is unavoidable at this point, and it is a source of anxiety for everyone. Because economies are globalizing and technology is fast changing, the world will have more elderly people than children. The population's aging is the most significant demographic and social change. Children and the elderly, on the other hand, require special attention. Physical, social, and financial issues plague the elderly. Older individuals are powerless, and disabilities are more common as people get older (El-fetoh et al., 2017).

One of the susceptible phases of the natural process of aging is old age. In this stage, people have declining physical stamina and age-related disease-related health issues. Worldwide, the proportion of the elderly is rising while the number of children is falling. Most people who are over 60 are regarded as "old." The elderly segment of any population is made up of those 60 years of age and over, and Bangladesh falls within this age range (Barikdar et al., 2016).

The global population of older individuals is rapidly increasing. The share of older persons aged 60 and up is the fastest rising category, with those aged 80 and up being the fastest growing component within this group. Around 70% of the world's older adults live in developed countries, with older persons accounting for roughly one-third of the population

in developed countries by 2025 (Gillsjo, 2012). Bangladesh is expected to be one of the top ten countries with the most elderly people. Bangladesh's current population is over 15 million people, and by 2025, it will account for roughly half of the world's total elderly population, together with four other Asian countries. According to the United Nations, the proportion of elderly people (those aged 60 and more) will increase in the next 40 years, accounting for more than 20% of the global population by 2050. Furthermore, it is predicted that by 2050, one in every five elderly people will be over the age of 80. The rise in life expectancy, especially in emerging nations, is largely responsible for the exponential increase in elderly people (Lucky et al., 2017).

Musculoskeletal disorders are impairing conditions that seriously harm one's health, particularly in elderly people. They are linked to pain, mobility issues, an elevated risk of fractures and falls, as well as a reduced capacity for or inability to carry out daily living activities (Minetto et al., 2020).

According to the World Health Organization (WHO), Musculoskeletal (MSK) problems are one of the most debilitating ailments among the elderly. The World Health Organization has identified four primary MSK diseases: Osteoarthritis, Rheumatoid arthritis, Osteoporosis, and Back pain. The World Health Organization's Global Burden of Disease research and the Bone and Joint Monitoring Project published a large report in 2003 on the burden of MSK disorders based on available data on the four primary MSK ailments (OA, RA, OP and LBP). The burden of these major MSK disorders grows with age, according to this report (Fejer and Ruhe, 2012).

Musculoskeletal conditions with accompanying long-term musculoskeletal pain are associated with distress, decreased activity and mobility, and an increased risk of disabilities (physical, psychological and social) which affect the older adults' physical and mental health and well-being (Gillsjo, 2012). Musculoskeletal pain impairs the elderly's bodily functions, causing them to lose their independence and require assistance with basic activities or self-care. Chronic musculoskeletal pain in the back and joints is linked to injury, a higher risk of falling, sleeping difficulties, depression, and a lower health-related quality of life (Che Hasan et al., 2021).

Neurological diseases are common in the elderly, affecting 5 percent to 55 percent of those aged 55 and up. They're linked to a higher chance of bad health outcomes like death, disability, falls, institutionalization, and hospitalization. In underdeveloped nations, little is known about the epidemiology, natural history, clinical pattern, etiologies, and therapeutic status of neurological illnesses in the elderly. In the developing world, the overall burden of neurologic disease is rising. In reality, the majority of nervous system illnesses occur in developing countries. In all locations, the risk of death increases dramatically for persons aged 60 and up. 60-year old's have a 55% probability of dying before their 70th birthday worldwide. Neuropsychiatric disorders are the leading causes of disability in both high and low-income WHO regions, accounting for more than 37% of years of healthy living lost as a result of disability among persons aged 15 and up. The crippling burden of neuropsychiatric disorders is about identical for men and women (Callixte et al., 2015).

Neurological diseases are so common in the general population, especially among the elderly, that they represent a major worldwide health issue. According to a recent analysis from the Rotterdam Study, one in every two women and one in every three men may suffer dementia, stroke, or parkinsonism at some point in their lives. According to the Global Burden of Disease Study, there were more than 80 million stroke survivors worldwide in 2016, 43.8 million people with dementia, 45.9 million people with active epilepsy, and 6.1 million people with Parkinson's disease in 2016. Neurological disorders were the greatest cause of disability (276 million disability-adjusted life-years) and the second leading cause of death (9 million) worldwide in 2016. The most essential risk factor for most neurological illnesses is growing older. The global prevalence of dementia, stroke, and Parkinsonism has increased by two or threefold between 1990 and 2016, owing primarily to the world's population's rapid aging (Dumurgier and Tzourio, 2020).

1.2 Rationale

Neuro-musculoskeletal problems are a primary cause of physical and mental disability among the elderly, and their incidence is expected to rise as the population becomes older. One of the most disabling disorders among the elderly is neuro-musculoskeletal difficulties. It is a common problem among elderly people. In Bangladesh neuro-musculoskeletal complaints among elderly people increasing gradually which causes massive suffering for them. But there is no exact statistics that, how many elderly people are suffering and for how long. Due to a lack of proper statistical studies, ‘complaints from neuro-musculoskeletal origin among elderly people are not considered an important issue in the primary health care system. Geriatric physical rehabilitation is a hidden thing in Bangladesh.

Through this study, it will be possible to identify the neuro-musculoskeletal problems as well as their associated risk indicators related to the elderly people living in old homes in Bangladesh. Moreover, the study aimed at providing recommendations in light of the risk factors for the prevention of neuro-musculoskeletal disorders. Besides, the study intends to put contribution to the establishment and enrichment of physiotherapy interventions in elderly care in old homes in Bangladesh. However, it is expected that physiotherapy professional development will be facilitated through the enrichment of knowledge, especially in the advanced area of geriatric physiotherapy. During the study data collection process investigator can help them to teach and give proper education and treatment about neuro-musculoskeletal problems and preventive methods.

On the other hand, this study will be helpful for professions or professionals in physiotherapy, and with this connection, other professionals will have a chance to gather their knowledge from this study. Research in this area can establish the skills of physiotherapists and be a base for spreading the profession into a new dimension in Bangladesh. It will help to focus on and present the role and importance of physiotherapy services for the ever-increasing elderly persons in Bangladesh.

1.3 Research question

What are the Neuro-musculoskeletal problems among the elderly people at selected old homes in Dhaka city?

1.4 Objective of the study

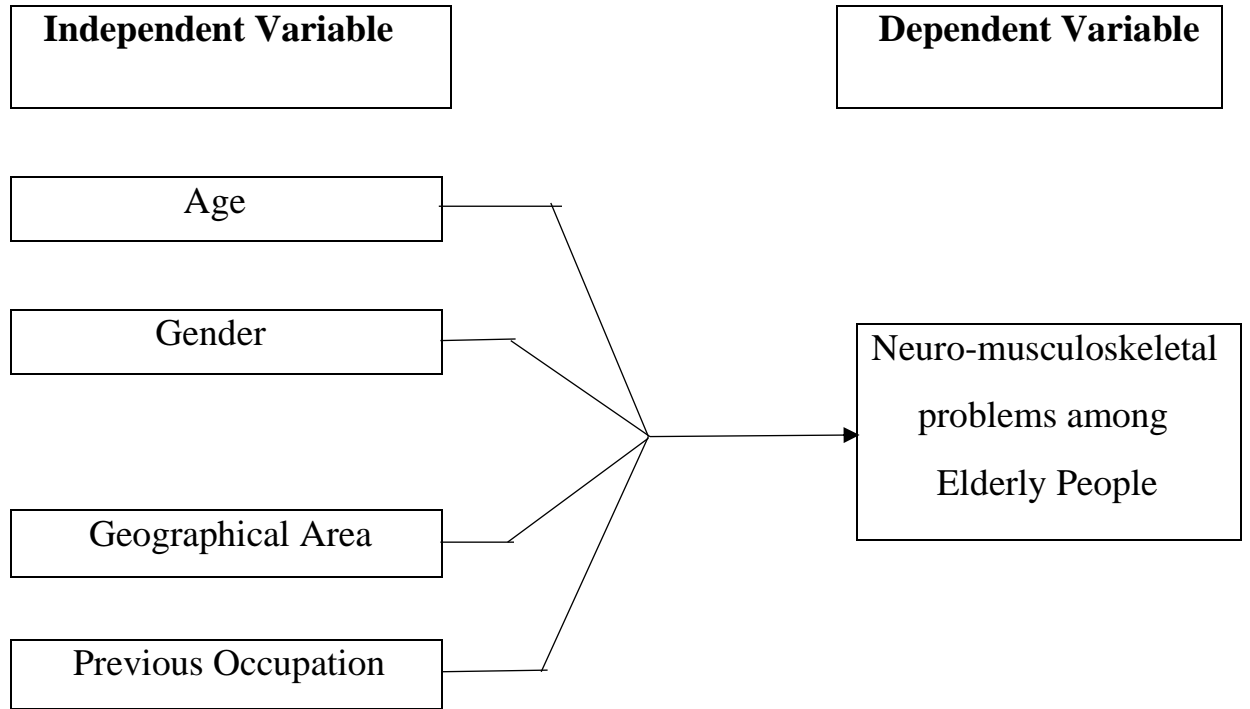
1.4.1 General objective

To determine the Neuro-musculoskeletal problems among the elderly people at selected old homes in Dhaka city.

1.4.2 Specific objective

1. To explore the Socio-demographic Characteristics of elderly people at the selected old home.
2. To find out the relation between age & musculoskeletal problems among elderly people.
3. To determine the different musculoskeletal problems such as pain, limitation of ROM, muscle weakness, postural deformity and difficulty during ADL due to MSK problems among elderly people.
4. To find out the pain intensity rate according to VAS scale of elderly people.
5. To identify the which treatment received to solve musculoskeletal problems among elderly people.
6. To find out the different neurological problems among elderly people.
7. To examine the different neurological examination among elderly people.

1.5 List of variables



1.6 Operational definition

1.6.1 Musculoskeletal problems

Musculoskeletal problems are complaints that originate in the musculoskeletal system. Musculoskeletal issues are a diverse set of ailments with little understanding of their etiology. The most common complaint in health interview surveys is musculoskeletal discomfort. Musculoskeletal problems affect the muscles, joints, tendons, and ligaments of the body. Musculoskeletal problems most commonly affect the back, neck, shoulders, and upper limbs; they rarely affect the lower limbs. Pain, joint range limitation, muscle weakness, and postural and physical deformities are the most common complaints associated with musculoskeletal disorders. It also has an impact on everyday activities.

1.6.2 Neurological problems

Any condition of the nerve system is referred to as a neurological disorder. A variety of symptoms can be caused by structural, metabolic, or electrical abnormalities in the brain, spinal cord, or other nerves. Paralysis, muscle weakness, poor coordination, loss of feeling, convulsions, confusion, pain, and altered degrees of consciousness are examples of symptoms. There are numerous neurological problems, some of which are rather common but many of which are uncommon. They can be diagnosed through a neurological examination and investigated and treated by neurologists and clinical neuropsychologists.

1.6.3 Elderly people

Aging is a universal human experience, and in our society, we refer to aged people as elders or elderly people who are kind to us because of their experiences and knowledge. Over 60 years is considered an "elderly person" by the United Nations, and most developed world countries have accepted the age of 65 as a definition of an older person. In Bangladesh, old people are defined as those who are 60 years or older, according to the WHO. The United Nations (UN) has further classified the age groups as follows: 60 to 69 years old, 70 to 79 years old, and over 80 years old.

1.6.4 Musculoskeletal problems and Elderly people

Musculoskeletal disorders cause significant suffering and consume a significant part of healthcare expenditures as people get older. Pain is the most common musculoskeletal complaint among the elderly. In persons over the age of 75, bone and joint disease is the leading cause of disability, and these people have more trouble with physical function. In a recent poll of more than 1500 adults aged 65 and over in Sydney, 50 percent said they had a musculoskeletal disease that was being treated by their doctor, and about a quarter said they used NSAIDs for back, neck, knee, and hand pain. Musculoskeletal discomfort was the most commonly reported source of disability in this cohort. The most common musculoskeletal symptoms among the aged include pain, joint range limitation, muscle weakness, and deformity. These symptoms are caused by musculoskeletal diseases such as osteoarthritis, rheumatoid arthritis, polymyalgia rheumatic, cervical myelopathy or stenosis, and osteoporosis.

1.6.5 Neurological problems and Elderly people

Neurological diseases are so frequent in the general population, particularly in elderly individuals. As the proportion of elderly persons in our community grows, more people will acquire the many acute and chronic neurological illnesses that come with advanced age. All of the body's organs gradually deteriorate, their function declines, and some components are influenced by biological and chemical changes that occur during aging. The brain and nervous system are no exception. As a result, people over 50 are more susceptible to neurological problems. Strokes, neuropathy, Alzheimer's disease, and Parkinson's disease are some of the most frequent neurological ailments that affect seniors. These illnesses can make life difficult for seniors by limiting their ability to live independently.

1.6.6 Old home or Elderly care home

To have a thorough understanding of 'Elderly care home,' we must first understand 'Elderly care.' The fulfillment of the distinctive demands and requirements that are unique to senior citizens is known as "eldercare." This wide word refers to services that help people live, such as special care, nursing care, and emergency care. The term "elderly care home" refers to a facility that provides all of these services in one location.

Population aging is a demographically unavoidable phenomenon since it is associated with the demographic shift and, as a result, with the decline in birthrates and mortality rates, particularly among older people. The ageing process will vary geographically in speed and extent depending on the set, speed, and intensity of the demographic shift. Compared to developed countries, the rate of population aging is substantially faster in developing nations. The aged and those in their working years, in particular, are affected by the widespread aging process, which also affects individuals, households, and subpopulations (Kabir et al., 2013).

The aging population today has a great impact on many facets of social and economic life. One of the most significant trends of the twentieth century was the aging of the population, which will present major issues in the twenty-first century. In 1900, only 1% of the world's population was 65 years or older; by 2000, that number had risen to 7%, and by 2050, it is predicted to reach 20% (Phillipson, 2013).

It is commonly recognized that the elderly population is growing quickly in most low-income nations, both proportionally and numerically. 53 percent of the 600 million elderly persons in the globe who are 60 years of age and older reside in Asia. With a 25% stake, Europe has the next-highest percentage. According to a United Nations report, by 2025, 858 million people, or 72% of the world's elderly population would reside in developing nations. Bangladesh, together with China, India, Indonesia, and Pakistan will account for 44% of the world's total aged population by 2025, making it one of the 20 nations with the biggest populations of senior citizens (Kabir et al., 2003).

Bangladesh has seen substantial growth in the number of elderly people due to lower birth rates and improved life expectancy. Every year, about 80,000 new old people join the over 60 age group. People over the age of 60 accounts for 6% of the total population of our country. Even though this percentage is minor in comparison to wealthy countries, it represents around 8 million people. Furthermore, forecasts show that by 2025, the population of elderly persons would have increased by 173 percent. In both rural and urban

areas of Bangladesh, the bulk of the elderly are between the ages of 60 and 69. However, in Bangladesh, roughly 80% of the elderly reside in rural areas (Chowdhury and Jabeen, 2008).

Aging is a progression that begins with development; nevertheless, these two concepts are frequently used to refer to separate processes. Senescence is a degenerative process that is ultimately incompatible with life (Fernandez et al., 2007). In the rapidly growing older population, age-related changes in the physiological organ systems of the human body are serious public health issues. Understanding the physiological changes and how they affect function is the first step in devising rational therapeutic or preventative methods to address these issues (Guccione et al., 2011).

Geriatric problems have a prevalence equivalent to chronic disorders (Saitz, 2007). The proportion of elderly people who are free of chronic illnesses at any age is tiny. More than half of male elders over the age of 80 and 70% of female elders of the same age have two or more chronic illnesses (Guccione et al., 2011). Longevity in old age is growing, and mortality rates from heart disease and stroke are decreasing, whereas cancer fatalities are slightly increasing. Hypertension and osteoarthritis are two of the most common chronic diseases, affecting up to 40% of men and nearly 50% of women. Other particular diagnoses, such as cancer or heart disease, affect roughly 20% of the population, whereas diagnosed diabetes and stroke affect about 10% of the population (Fernandez et al., 2007). The prevalence of the following geriatric conditions increased with age when comparing the youngest group (age range, 65-69) to the oldest group (age range, 90 and older): cognitive impairment (from 3% to 32%), injurious falls (from 6% to 22%), incontinence (from 9% to 27%), low body mass index (from 1% to 12%), dizziness (from 10% to 18%), vision impairment (from 5% to 23%), and incontinence (from 19 percent to 52 percent). Having aged, the percentage of patients with three or more of these illnesses increased (from 3% to 31%). The existence of a geriatric condition was substantially related to needing assistance with a daily living activity in analyses adjusted for the presence of chronic disease (Saitz, 2007).

Musculoskeletal disorders are common problems affecting the elderly. With age, musculoskeletal tissues show increased bone fragility, loss of cartilage resilience, reduced ligament elasticity, loss of muscular strength, and fat redistribution decreasing the ability of the tissues to carry out their normal functions. The loss of mobility and physical independence resulting from arthropathies and fractures can be particularly devastating in this population, not just physically and psychologically, but also in terms of increased mortality rates (Ghenou et al., 2012).

Pain is one of the most common illness symptoms in the elderly. Unrelieved pain, pain that endures, or pain that is out of proportion to tissue damage can lead to problems such as physical impairment and severe psychologic distress over time (Fernandez et al., 2007). According to studies, up to half of older persons who live independently and three-quarters of those in nursing homes suffer from persistent pain or pain that does not go away. Arthritis, nerve damage, and musculoskeletal difficulties are the most common causes of this sort of discomfort (Weiner, 2012). The lack of common definitions for what constitutes "severe" pain has hampered epidemiology research on pain in general populations. Despite this, studies have revealed that the prevalence of pain in community-dwelling older people could range from 25% to 56%. The causes of pain differ from one study to the next. In people over the age of 65, the prevalence of back pain ranges from 21% to 49.5%, joint pain from 20.5% to 71%, and headache from 1.2% to 50%. In general, musculoskeletal problems such as back pain and arthritis are probably the most common cause of pain in the elderly. Leg pain at night (e.g., cramps, restless legs) and claudication are also prevalent (Fernandez et al., 2007).

Passive range of motion loss in the elderly is usually gradual and modest, occurring at the extremes of a joint's potential range of motion. Even in the absence of pathology, this diminished amplitude of joint mobility may exist. In general, as one approaches age 39, the magnitude of passive joint range of motion decreases, and joint flexibility is negatively related to age. Females lose range of motion at a slower rate than males and joints in the upper extremities are more flexible than joints in the lower extremities (Guccione et al., 2011).

The age-related loss in muscle strength is on par with the observed fall in muscle mass. Between the ages of 30 and 80, leg and back muscle strength are reduced by 40%, while arm muscle strength is reduced by 30%. Another researcher claims that the average strength of back and leg muscles drops by 60%, owing to a progressive loss of muscular mass of 4% per decade from 25 to 50 years old and 10% per decade after that (Gonzalez et al., 2002).

In elder persons, kyphosis (a rounded upper back caused by a curvature of the thoracic region of the spinal column) or excessive lordosis (an increased amount of curvature of the lumbar or cervical portions of the spinal column) are common. Scoliosis is another prevalent malformation that affects the elderly. Degenerative scoliosis is frequently connected with other disorders, such as osteoporosis, among the elderly. A recent study found that a healthy population aged 60 and over had a prevalence of mild to severe adult scoliosis of up to 68 percent (Mehlman, 2020).

Walking becomes more harder as people get older. It was discovered that 15% of people had difficulties walking between the ages of 65 and 69, and 49% after the age of 85. Up to the age of 62, comfortable walking speed drops at a rate of 2.5 to 4.5 percent every decade, with males losing 16 percent and women losing 12 percent. Reduced balance has been observed in 13% of community-dwelling people aged 65 to 69, and in more than 46% of people aged 85 and up (Gonzalez et al., 2002). Postural instability is a prevalent condition in the aged population, affecting balance and hence limiting functional activity (Borah et al., 2007). Arthritis is the most frequent disease among the elderly and the leading cause of disability. Over the age of 70, 32% of non-institutionalized people had difficulties completing and 25% were unable to execute at least one of nine bodily activities, such as dressing or bathing (Fernandez et al., 2007).

Disorders of the nervous system (brain, spine, or nerves) are referred to as neurological diseases. They are the world's second-largest cause of death and the first leading cause of serious long-term impairment. Most neurological disorders become more common as people get older, and age influences the impact of risk factors, clinical presentation, and disease progression. By assessing a wide range of risk variables, longitudinal population-based studies provide important insights for a better understanding of the specificities of

neurological illnesses in older persons. Rapid population aging poses health and social care concerns, particularly in low-income countries (Dumurgier and Tzourio, 2020).

After the age of 60, physiological aging begins. Both animal models and people experience changes in the function of central cholinergic neurons as they age. Lower levels of cholinergic receptors reduced acetylcholine synthesis and release, and a significant drop in the number of muscarinic cholinergic neurons are all alterations that may be associated with age-related memory problems, common development in Alzheimer's disease (AD) patients. Furthermore, by the end of the sixth decade of life, dopaminergic neurons in the substantia nigra and dopamine in the striatum may have decreased by up to 50%, which are typical abnormalities seen in Parkinson's disease patients (PD). Longevity appears to have increased the incidence of stroke in much of the industrialized world. Apart from an aging population, the rising prevalence of hypertension, diabetes, obesity, and cardiovascular system problems has a substantial impact on the rise in the incidence of stroke. These diseases become more common as people get older (Kowalska et al., 2017). Dementia, stroke, and parkinsonism are three of the most common causes of death and disability in the elderly, and they place a significant burden on patients and their caregivers. Patients with stroke and parkinsonism are more likely to develop dementia, whereas dementia patients are more likely to get stroke (Licher et al., 2019).

Alzheimer's disease (AD) is the most frequent cause of dementia in older persons. A European collaborative study of population-based cohorts discovered that the prevalence of Alzheimer's disease grew steadily with age, from 0.6 percent in the 65-69 year old group to 22.2 percent in those aged 90 and up. In both men and women, the prevalence of Alzheimer's disease rises dramatically with age, roughly doubling every five years between the ages of 50 and 80, after which the rise may moderate in the oldest age groups (Dumurgier and Tzourio, 2020).

Stroke is described as a neurological deficit caused by a vascular source that results in an acute focal insult to the central nervous system. The incidence of stroke is strongly influenced by age. After the age of 45, the incidence doubles every decade, with nearly 75 percent of all strokes occurring after the age of 65 and 30 percent occurring after the age of 85. Below the age of 45, the incidence is minimal (10 cases per 100,000 person-years), but it steadily rises with age, reaching 1% or more beyond 75 years. Between the ages of 40 and 60, the incidence is around 2%, and after the age of 80, nearly 12% (Dumurgier and Tzourio, 2020).

After Alzheimer's disease, Parkinson's disease (PD) is the most common neurological condition. The most well-known risk factor is growing older. Parkinson's disease affects about 1% of the population over the age of 60 and 5% of the population over the age of 85 (Dumurgier and Tzourio, 2020).

Epilepsy is a long-term brain illness marked by recurring epileptic seizures. Seizures are the clinical symptoms of a process involving localized or diffusely distributed networks of neurons. Epilepsy has a bimodal distribution, with peaks in children and older adults, with the latter group having a higher prevalence than any other age group. Epilepsy is prevalent in about 0.5 percent of younger persons and 1.5 percent of community-dwelling elderly adults. The prevalence of epilepsy in the senior nursing home population can reach 7% of inhabitants. The annual incidence of epilepsy increases from 90 per 100,000 in those aged 65 to 69 to more than 150 per 100,000 in people aged 80 and more (Dumurgier and Tzourio, 2020).

3.1 Study Design

The study was conducted by using a descriptive study design to meet the study objectives.

3.2 Study site

The study site of the proposed research was Bangladesh Association for the aged and Institute of Geriatric Medicine (BAAIGM), Agargaon, Sher E Bangla Nagar, Dhaka & Institute for Autistic children and Blind Old home and TN mother-child Hospital, Boliarpur, Savar, Dhaka.

3.3 Study Population

The study population was elderly people who lived in two selected old homes in Dhaka.

3.4 Sample Size

A sample is a smaller group taken from the population. Sometimes the sample size may be big and sometimes it may be small, depending on the population and the characteristics of the study.

Formula:

$$n = \left\{ \frac{Z(1 - \frac{\alpha}{2})}{d} \right\}^2 \times pq$$

Here,

$$Z(1 - \frac{\alpha}{2}) = 1.96$$

$$p = 0.5$$

$$q = 1 - p$$

$$= 1 - 0.5$$

$$= 0.5$$

$$d = 0.05$$

The actual sample size was $n = 384$.

According to this equation, the sample should be more than 384 people but due to lack of time limitations and access difficulty, the study was conducted around with 55 participants.

3.5 Sampling Technique

The study was conducted by using the convenience sampling methods due to the time limitation and as it was one of the easiest, cheapest and quicker methods of sample selection. The researcher used this procedure, because, of getting those samples whose criteria were concerned with the study purpose.

3.6 Inclusion Criteria

- Elderly people who have been living in Elderly care homes
- Elderly people who were interested to participate in the study.

3.7 Exclusion Criteria

- The person who was mentally retardate. Because a mentally retarded person could answer appropriately that can mislead the result of the study.
- The medically unstable person. Because the medically unstable patient can be confused with the question that can mislead the result of the study.

3.8. Data Collection Procedure

In this study, data were collected by the ‘face-to-face interview’ technique and by using a structured questionnaire. Following that the investigator went to elderly people in old homes to take the permission if they are interested in this study or not. Firstly, the investigator introduced himself and the research project as well as its purpose. Then investigator met with the individual subject to find out if they were interested in participating.

3.9 Data collection tools

The researcher used consent forms and a questionnaire for data collection. The questionnaire was self-made questionnaire for musculoskeletal information and WHO protocol screening questionnaires for neurological information. The researcher also used SPSS (Statistical Package for the Social Sciences) software to analyze data and other materials such as pen, paper, pen drive, and computer.

3.10 Data analysis

The data analysis was performed in the program Statistical Package for social science (SPSS) version 25. The presentation was performed in SPSS and Microsoft office word 2016. Every questionnaire was rechecked for missing information or unclear information. At first put the name of variables in the variable view of SPSS and the types, values, decimal, label alignment, and measurement level of data. The next step was to input the data view of SPSS. After inputting all data researcher checked the inputted data to ensure that all data had been accurately transcribed from the questionnaire sheet to the SPSS data view. Then the raw data was ready for analysis in SPSS. Microsoft Word Excel was also used to present data using columns and pie charts.

3.11 Ethical consideration

The whole process of this research project was done by following the Bangladesh Medical Research Council (BMRC) guidelines and World Health Organization (WHO) Research guidelines. The proposal of the dissertation including the methodology was presented to the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) for approval and the proposal was approved by the faculty members and gave permission initially from the supervisor of the research project and the course coordinator before conducting the study. The researcher had taken permission for data collection from the authorities of the selected Elderly care homes. Written consent was taken from participants to ensure voluntary participation in the study and participants had the autonomy to leave the study at any time. Participants were informed about the aim, objectives & procedures involved in the study. Interviews were administrated in the free time of the Elderly people when they had no self-care activities (eating, bathing, sleeping, etc.). So, the rules & regulations of the Elderly care Homes have not disrupted the schedule for elderly people's activities. All sources were cited and acknowledged appropriately.

Total 55 Participants were taken to find out the Neuro-musculoskeletal problems among the elderly people at selected old homes in Dhaka city. Pain, Limitation of range of motion, Muscle weakness, postural deformity and difficulty during activities of daily living (ADL) are shown as musculoskeletal problems. On the other hand, loss of consciousness, loss of contact with surroundings, shaking of arms or legs which could not control, abnormal speech, pain in the face, paralyzed face or part of the face for more than 24 hours, arms or legs weakness for more than 24 hours, walking difficulty, loss of sensation or abnormal sensation in arms or legs for more than 24 hours and suffering headache are shown as neurological problems. Treatment received and some neurological examination is shown in the discussion of the result. The socio-demographic characteristics of Elderly people in an old home are also focused on in the result.

4.1 Socio-demographic information

Table 1: - Socio-demographic characteristics of elderly people at the selected old home.

Socio-demographic characteristics	Mean± SD, Frequency (%)
Age (Mean, SD)	63.85±6.712
Gender, n (%)	
Male	28 (50.9%)
Female	27 (49.1%)
Geographical Area, n (%)	
Rural	28 (50.9%)
Urban	27 (49.1%)
Education Level, n (%)	
Illiterate	4 (7.3%)
Primary	5 (9.1%)
Secondary	4 (7.3%)
Higher secondary	17 (30.9%)
Graduate	21 (38.2%)
Masters	4 (7.3%)
Previous occupation, n (%)	
Govt. employee	24 (43.6%)
Farmer	1 (1.8%)
House wife	11 (20%)
Business man	9 (16.4%)
Day labor	3 (5.5%)
Others	7 (12.7%)

The total participant was 55. The mean age of the respondents was (mean \pm SD): 63.85 \pm 6.712 years. The majority of the respondents 30.9% (n=17) were 60 to 64 years of age. Among the participants, 50.9% were male (n=28) and 49.1% were female (n=27). Of the participants 28(50.9%) live in rural and 27(49.1%) live in urban. The majority of the participant's educational level was graduate level 21(38.2%), Higher secondary 17(30.9%), Primary 5 (9.1%), Secondary 4 (7.3%), Masters 4 (7.3%), Illiterate 4 (7.3%). Most of the respondent's previous occupations were Govt. employees 24(43.6%), followed by House wife 11(20%), Business man 9(16.4%), Day labor 3(5.5%), and others 7(12.7%).(Table-1)

4.1.1 Age & Musculoskeletal problems

Out of 55 participants study found that 90.9%(n=50) participants were suffering from different musculoskeletal problems and the rest 9.1%(n=5) participants were not suffering from different musculoskeletal problems. In the study, the minimum age of a participant was 55 years and the maximum was 84 years. Among the 50 participants, a maximum of 28% participants had musculoskeletal complaints whose age range in between 60- 64 years, 24% participants had between 55-59 years, 24% participants had between 65-69 years, 14% participants had between 70-74 years, 6% participants had in between 75-79 years and 4% participants had in between 80+ years. (Figure: 1)

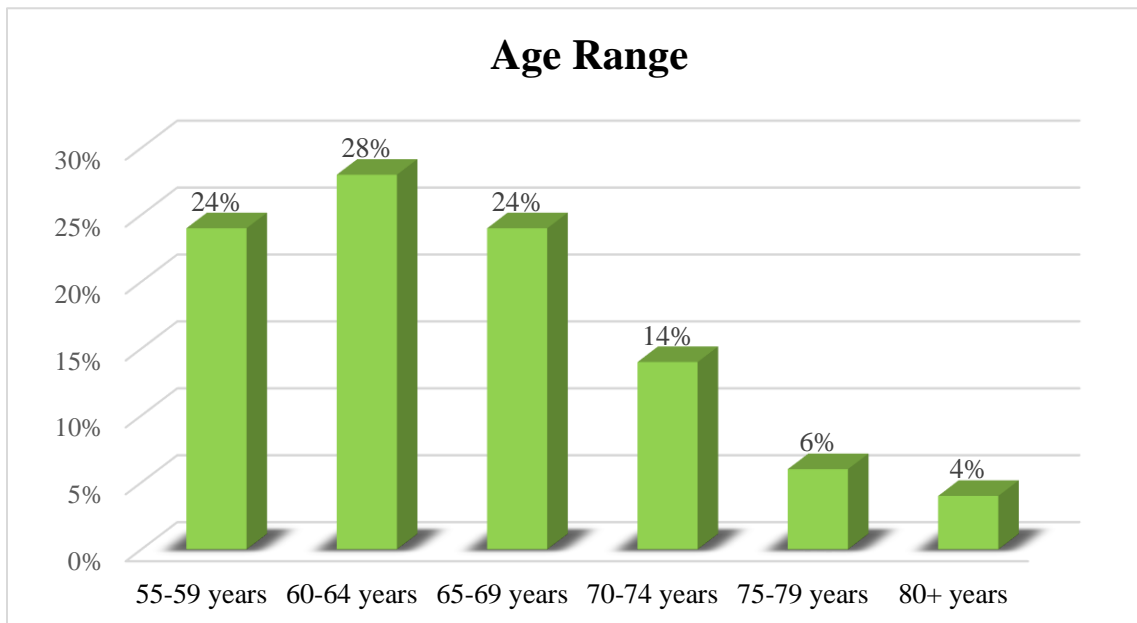


Figure 1: - Musculoskeletal problems in different age

4.2 Musculoskeletal problems among elderly people

Among 55 participants study found that 90.9%(n=50) participants were suffering from different musculoskeletal problems and the rest 9.1%(n=5) participants were not suffering from musculoskeletal problems. The main musculoskeletal problems were pain 83.6%. Difficulty in activities of daily living, Muscle weakness, Limitation of Range of motion in different joints of the body, and postural deformity were the musculoskeletal complaints reported with 72.7%, 76.4%, 78.2%, and 16.4%. (Figure: 2)

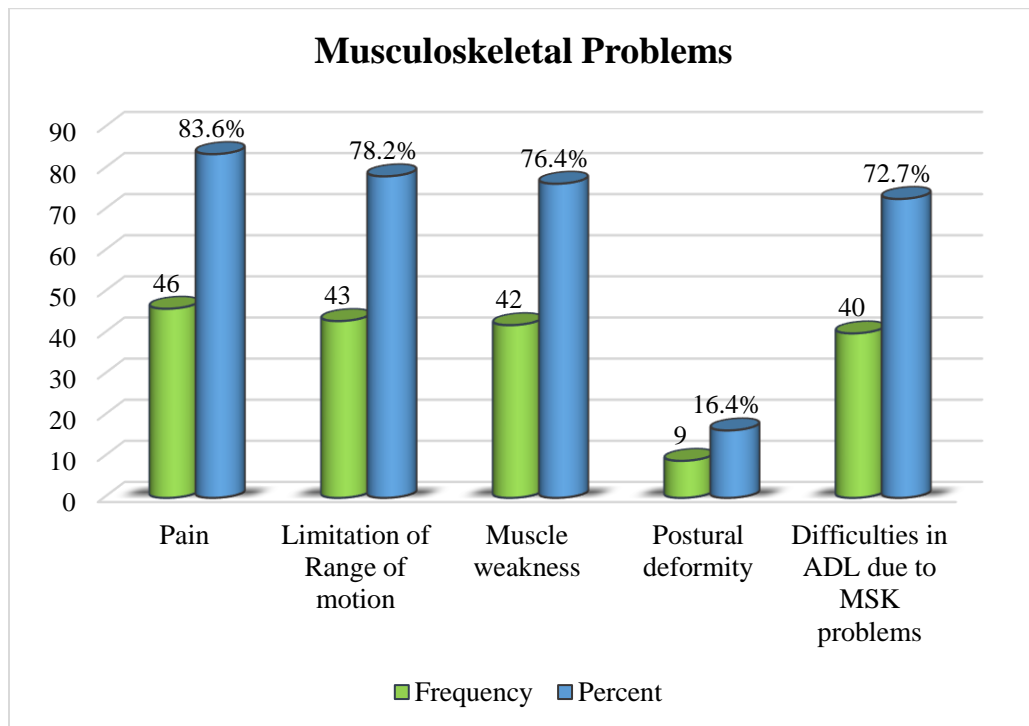


Figure 2: - Different musculoskeletal problems

4.2.1 Pain

Table 2: - Pain in different parts of the body

Parts of Body	Frequency, (%)
Knee	6 (10.9%)
Lower back	5 (9.1%)
Shoulder	4 (7.3%)
Hip	3 (5.5%)
Ankle	3 (5.5%)
Neck	2 (3.6%)
Elbow	2 (3.6%)
Wrist	2 (3.6%)
Head	1 (1.8%)
Buttock	1 (1.8%)
Toes	1 (1.8%)
Finger	1 (1.8%)
Upper back	1 (1.8%)
Chest	1 (1.8%)
Both wrist & Toes	1 (1.8%)
Both Shoulder & lower back	2 (3.6%)
Finger, Upper back & Chest	1 (1.8%)
Neck, Shoulder & Buttock	1 (1.8%)
Upper back & Lower back	1 (1.8%)
Shoulder & Hip	1 (1.8%)
Lower back & Knee	5 (9.1%)
Elbow, Finger & Toes	1 (1.8%)

Out of 55 participants, 83.6% (n=46) participants reported that they were suffering pain or discomfort in different parts of the body. Knee pain and lower back pain were found to be the highest pain problems with 10.9% and 9.1% respectively. About (7.3%) of the respondents complained of Shoulder pain followed by Hip joint pain (5.5%), Ankle pain (5.5%), Neck pain (3.6%), Elbow joint pain (3.6%), and Wrist joint pain (3.6%). Toes pain, Upper back pain, Finger pain, Buttock pain, Headache and Chest pain were the least pain problems reported with 1.8% respectively. Again, in the study it had been found that 9.1% of participants were suffering from Lower back & Knee pain together followed by Both Shoulder & lower back pain (3.6%), Wrist & Toes pain (1.8%), Shoulder & Hip joint pain (1.8%), Upper back & Lower back pain (1.8%), With the combination of Finger, Upper back & Chest pain (1.8%), Neck, Shoulder & Buttock pain (1.8%), Elbow, Finger & Toes pain (1.8%). (Table- 2)

4.2.2 Pain intensity rate according to VAS scale

Moderate pain & Mild pain were found to be the highest pain intensity rate according to the VAS scale with 58.2% & 20% respectively. About 16.4% of the respondents complained of no pain. Severe pain (5.5%) was the least pain intensity rate according to the VAS scale. (Figure: 3)

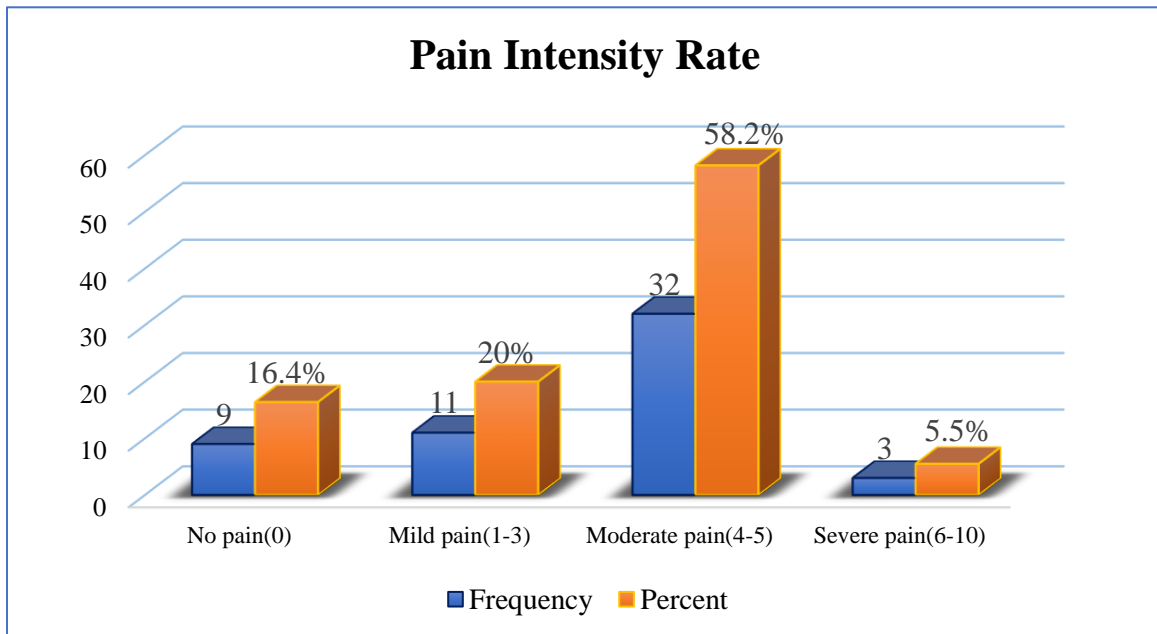


Figure 3: - Pain intensity according to VAS scale

4.2.3 Limitation of joint range of motion (ROM)

Table 3: - Limitation of Joint Range of Motion (ROM) in different joints of the body

Joints of Body	Frequency (%)
Knee	6 (10.9%)
Shoulder	5 (9.1%)
Lower back	4 (7.3%)
Wrist	4 (7.3%)
Elbow	4 (7.3%)
Neck	3 (5.5%)
Fingers	2 (3.6%)
Hip	2 (3.6%)
Ankle	2 (3.6%)
Toes	2 (3.6%)
Both Shoulder & Knee	4 (7.3%)
Both Lower back & Knee	3 (5.5%)
Both Shoulder & Hip	1 (1.8%)
Both Hip & Knee	1 (1.8%)

Among 55 participants, 78.2% (n=43) participants responded that they had limitations in Joint Range of Motion (ROM) in the different joints of the body. The highest limitation of joint range of motion present in the knee joint of elderly people was 10.9% and the limitation of range in the Shoulder joint was 9.1%. The same percentage of limitation of Elbow, Lower back and Wrist movement was 7.3%. Limitations of joint range of motion of Neck, Ankle, Fingers, Toes, and Hip joints were the least complaints reported with 5.5%, 3.6%, 3.6%, 3.6% and 3.6% respectively. Again in the study, it had been found that 7.3% of participants had a limitation of Joint Range of Motion (ROM) in together Shoulder & Knee joint followed by Lower back & Knee joint (5.5%), Shoulder & Hip joint (1.8%), Hip & Knee joint (1.8%). (Table-3)

4.2.4 Muscle weakness

Table 4: - Muscle weakness in different part of muscle of the body

Muscles of Body	Frequency (%)
Leg muscles	8 (14.5%)
Back muscles	6 (10.9%)
Arm muscles	4 (7.3%)
Hand muscles	4 (7.3%)
Thigh muscles	4 (7.3%)
Fore arm muscles	3 (5.5%)
Neck muscles	3 (5.5%)
Both Back & Leg muscles	5 (9.1%)
Both Neck & Leg muscles	3 (5.5%)
Both Arm & Leg muscles	2 (3.6%)

Out of 55 participants, 76.4% (n=42) participants reported that they had felt muscle weakness in different parts of the body. Weakness of leg muscle and weakness of back muscle was found to be the highest muscle weakness problems with 14.5% and 10.9% respectively. The same percentage of Arm, Hand & Thigh muscle weakness was 7.3%. Weakness of the Forearm and weakness of neck muscle was the least problems reported with 5.5% respectively. Again in the study, it had been found that 9.1% of participants had felt muscle weakness in together Back & Leg muscles followed by Neck & Leg muscles (5.5%), Arm & Leg muscles (3.6%). (Table- 4)

4.2.5 Postural Deformity

Among 55 participants, 16.4% (n=9) participants had Postural Deformity present in the body. Kyphotic posture was found to be the highest postural deformity among elderly people was 9.1%. Scoliotic and Lordotic postural deformities were found in the respondents, which were 5.5% & 1.8%. (Figure: 4)

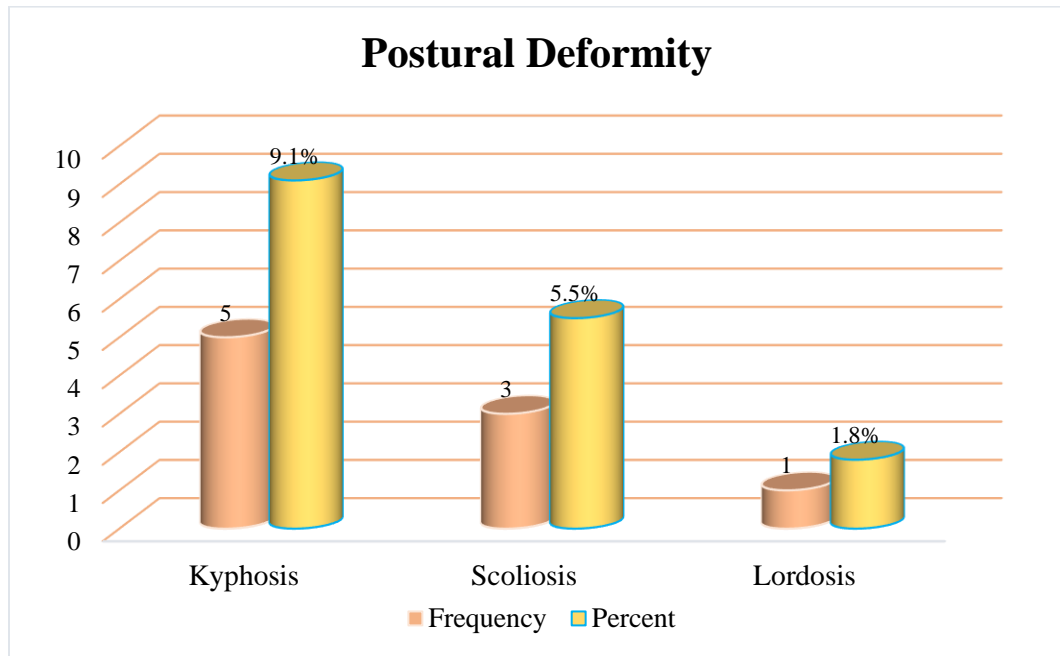


Figure 4: - Postural Deformity

4.2.6 Difficulties During Activities of Daily living (ADL)

Table 5: - Difficulties during Activities of Daily living (ADL)

Activities of Daily Living (ADL)	Frequency (%)
Toileting	7 (12.7%)
Walking	6 (10.9%)
Bathing	5 (9.1%)
Lifting	4 (7.3%)
Writing	3 (5.5%)
Dressing	3 (5.5%)
Gripping	2 (3.6%)
Eating	2 (3.6%)
Both Walking & Lifting	3 (5.5%)
Both Walking & Toileting	3 (5.5%)
Both Bathing & Toileting	2 (3.6%)

Out of 55 participants, 72.7% (n= 40) participants reported that they had difficulty during Activities of Daily Living (ADL). Toileting was found to be the highest problem of activities of daily living among elderly people was 12.7%. The percentage for Walking, Bathing and Lifting was 10.9%, 9.1% & 7.3%. Writing, Dressing, Gripping & Eating were the least problems reported with 5.5%, 5.5%, 3.6% and 3.6% respectively. Again in the study, it had been found that 5.5% of participants had difficulty during Walking & Lifting in together followed by Walking & Toileting (5.5%), Bathing & Toileting (3.6%).(Table-5)

4.3 Treatment

This study also revealed that 58.2% of the respondents took medication, 9.1% of respondents visited physiotherapists and 7.3% respondents have taken surgical management & others. Both medication & physiotherapy have taken 9.1% participants. (Figure: 5)

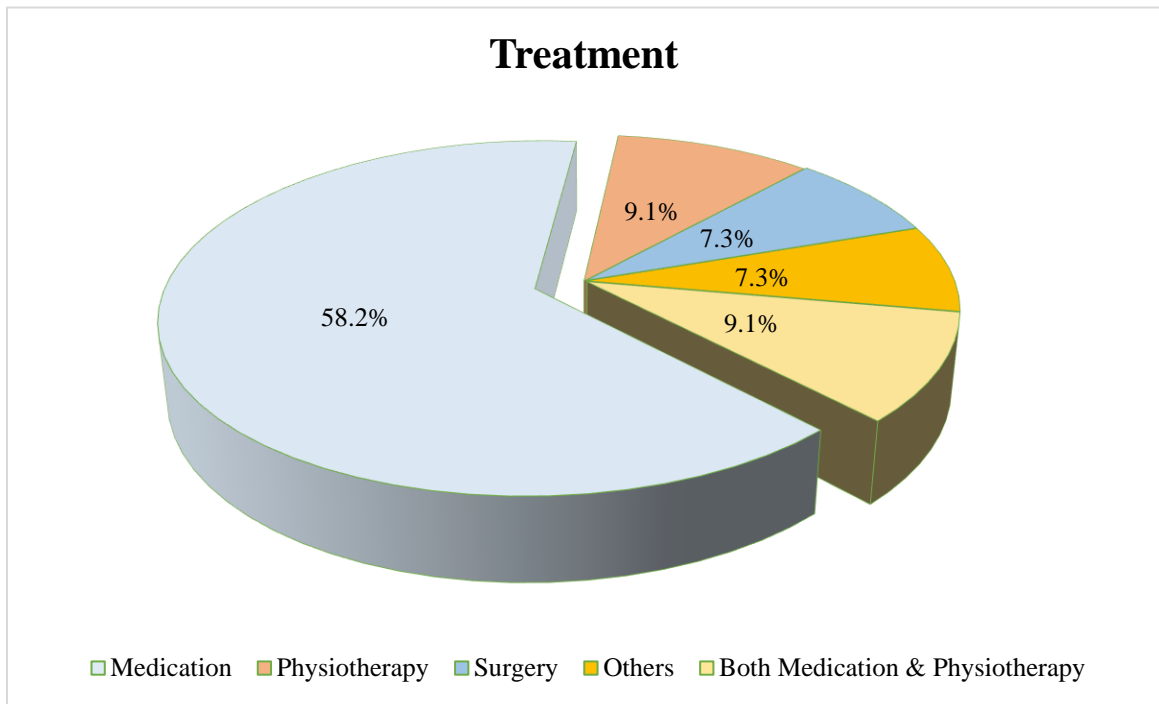


Figure 5: - Treatment

4.4 Neurological problems among elderly people

Table 6: - Different neurological problems (According to WHO protocol screening questionnaires)

Problems	Yes n (%)	No n (%)	Don't know n (%)	Didn't respond n (%)
Loss of consciousness	14(25.5%)	40(72.7%)	1(1.8%)	-
Lose contact with surroundings	13(23.7%)	39(70.9%)	2(3.6%)	1(1.8%)
Shaking of arms or legs which could not control	17(30.9%)	35(63.6%)	3(5.5%)	-
Abnormal speech	14(25.5%)	41(74.5%)	-	-
Pain in the face	17(30.9%)	38(69.1%)	-	-
Paralyzed face or part of face for more than 24 hours	14(25.5%)	34(61.8%)	7(12.7%)	-
Arms or legs weakness for more than 24 hours	31(56.4%)	24(43.6%)	-	-
Unable to walk properly	19(34.5%)	36(65.5%)	-	-
Loss of sensation or abnormal sensation in arms or legs for more than 24 hours	10(18.2%)	41(74.5%)	4(7.3%)	-
Suffering headache	25(45.5%)	30(54.5%)	-	-

Among 55 participants, 76.34% (n=42) participants responded that they had different neurological problems and the rest 23.66% (n=13) participants were not suffering from different neurological problems. The table-6 shows that the different neurological problems among elderly people at old homes. Among 55 participants, 25.5% participants reported that they had a history of loss of consciousness, 72.7% participants had no such kind of history and 1.8% participants don't know whether there was such a history of loss of consciousness. 23.7% participants had episodes of lose contact with their surroundings, 70.9% participants had no this kind of episode, 3.6% participants don't know whether there was such an episode of lose contact with their surroundings and 1.8% participant didn't respond about this incident. 30.9% participants had a problem with Shaking of arms or legs that they could not control, 63.6% participants had no such kind of problem and 5.5% participants don't know whether there was such a problem with Shaking arms or legs which could not control. 25.5% participants had abnormal speech patterns and the normal speech pattern was 74.5%. 30.9% participants were suffering pain in the face and 69.1% had no pain in the face. 25.5% participants had Paralyzed face or part of their face for more than 24 hours, 61.8% had no such kind of problem and 12.7% participants don't know whether there was such kind of problem. 56.4% participants had arms or legs weakness for more than 24 hours and 43.6% participants had no this kind of problem. 47.3% participants had unable to walk properly and were able to walk properly 52.7%. The percentage of loss of sensation or abnormal sensation in arms or legs for more than 24 hours was 18.2%, 74.5% participants had no such kind of problems and 7.3% participants don't know whether there was such a problem of loss of sensation or abnormal sensation in arms or legs for more than 24 hours. 45.5% participants were suffering problems of headaches and 54.5% had no complaints of headaches. As can be seen from the discussion above "arms or legs weakness for more than 24 hours" was found to be the highest neurological problem among elderly people 56.4%.

4.4.1 Headache-Related Problems

Table 7: - Headache Related Problems (According to WHO protocol screening questionnaires)

Questions	Yes n (%)	No n (%)	Don't know n (%)	Didn't respond n (%)	Not applicable n (%)
Do you suffer from severe headaches, chiefly on one side of the head, which comes on from time to time?	22(40%)	3(5.5%)	-	-	30(54.5%)
In association with these headaches, do you suffer from visual disturbance; e.g. black spots or zig-zag lines in front of the eye?	17(30.9%)	7(12.7%)	1(1.8%)	-	30(54.5%)
In association with these headaches, do you suffer from nausea or vomiting?	6(10.9%)	18(32.7%)	1(1.8%)	-	30(54.5%)
In association with these headaches, do you suffer from weakness or numbness in the limbs that last less than a few days?	10(18.2%)	12(21.8%)	3(5.5%)	-	30(54.5%)
Do these headaches occur only when you have a febrile illness?	9(16.4%)	16(29.1%)	-	-	30(54.5%)

Out of 55 participants, 45.45% (n=25) participants responded that they had Headache Related problems. The table-7 shows that Headache Related problems among elderly people at old homes. In the case of suffering severe headaches, chiefly on one side of the head, which come on from time to time, 40% participants were suffering from this problem, 5.5% participants were not such kind of problems and 54.5% participants were not applicable cause they were not suffering headache. In the case of association with headaches, suffering from visual disturbance; e.g., black spots or zig-zag lines in front of the eye, 30.9% participants were suffering from this problem, 12.7% participants were not such kind of problems, 1.8% participants don't know whether there was the relationship between these two problems and 54.5% participants was not applicable cause they were not suffering headache. In the case of association with headaches suffering from nausea or vomiting, 10.9% participants were suffering from this problem, 32.7% participants were not such kind of problems, 1.8% participants don't know whether there was a relationship between these two problems and 54.5% participants was not applicable cause they were not suffering headache. In the case of association with headaches suffering weakness or numbness in the limbs that last less than a few days, 18.2% participant were suffering from this problem, 21.8% participants did not have such kind of problems, 5.5% participant don't know whether there was the relationship between these two problems and 54.5% participants was not applicable cause they were not suffering headache. In the case of headaches occurring only when having a febrile illness, 16.4% participants were suffering from this problem, 29.1% participants were not such kind of problems and 54.5% participants were not applicable because they were not suffering headaches. As can be seen from the discussion above "suffering severe headaches, chiefly on one side of the head, which come on from time to time" was found to be the highest Headache Related Problem among elderly people 40%.

4.4.2 Neurological Examination

Table 8:- Different Neurological Examination (According to WHO protocol screening questionnaires)

Questions	Successful	Can't Test	Refused	Doesn't understand	Rt hand unsuccessful	Lt hand unsuccessful	Unsuccessful
Hold both arms above head for 30 sec.	38 (69.1%)	-	-	-	6 (10.9%)	4 (7.3%)	7 (12.7%)
Pick up matchstick from ground.	24 (43.6%)	2 (3.6%)	13 (23.6%)	-	2 (3.6%)	5 (9.1%)	9 (16.4%)
Close your eyes. Feel cloth sample. Is it (a) smooth or (b) rough?	40 (72.7%)	1 (1.8%)	-	3 (5.5%)	2 (3.6%)	2 (3.6%)	7 (12.7%)
Close your eyes. Touch your nose with the right index. Repeat using left index finger.	23 (41.8%)	-	3(5.5%)	2 (3.6%)	11 (20%)	7 (12.7%)	9 (16.4%)
Walk heel to toe along the white line (2m cloth)	20 (36.4%)	2 (3.6%)	11 (20%)	5 (9.1%)	-	-	17 (30.9%)
Stands with both feet together	41 (74.5%)	2 (3.6%)	-	-	-	-	12 (21.8%)
Close your eyes and stand still for 15 sec.	41 (74.5%)	2 (3.6%)	-	-	-	-	12 (21.8%)

The table-8 shows that different Neurological Examinations among elderly people at old homes. In the examination of Holding both arms above the head for 30 sec, 69.1% participants were successful, Rt hand unsuccessful (10.9%), Lt hand unsuccessful (7.3%) and unsuccessful (12.7%). In the examination of Pick-up matchstick from ground, 43.6% participants were successful, can't test (3.6%), Refused (23.6%), Rt hand unsuccessful (3.6%), Lt hand unsuccessful (9.1%) and unsuccessful (16.4%). In the examination of Close your eyes, feel cloth sample (a) smooth or (b) rough, 72.7% participants were successful, can't test (1.8%), Doesn't understand (5.5%), Rt hand unsuccessful (3.6%), Lt hand unsuccessful (3.6%) and unsuccessful (12.7%). In the examination of Put your hands out in front of you, close your eyes, touch your nose with the right index and Repeat using the left index finger, 41.8% participants were successful, Refused (5.5%), Doesn't understand (3.6%), Rt hand unsuccessful (20%), Lt hand unsuccessful (12.7%) and unsuccessful (16.4%). In the examination of Walk heel to toe along the white line (2-meter cloth), 36.4% participants were successful, can't test (3.6%), Refused (20%), Doesn't understand (9.1%) and unsuccessful (30.9%). In the examination of Stands with both feet together, 74.5% participants were successful, can't test (3.6%), and unsuccessful (21.8%). In the examination of Close your eyes and stand still for 15 sec, 74.5% participants were successful, can't test (3.6%) and unsuccessful (21.8%). As can be seen from the discussion above "Walk heel to toe along the white line" was found to be the highest unsuccessful rate of the neurological examination was 30.9%.

This study was a descriptive study to investigate the Neuro-musculoskeletal problems among elderly people. The main object of this study is to find out the Neuro-musculoskeletal problems among the elderly people at selected old homes in Dhaka city. In this study, 55 elderly people participated. The study found that maximum 28% participants had musculoskeletal complaints whose ages ranged from 60-64 years. Another study showed that more elderly individuals aged over 75 years' experience joint pain, joint stiffness, and swelling compared with those aged between 55 and 64 years (Che Hasan et al., 2021). In my study majority of the respondents, 30.9% (n=17) were 60 to 64 years of age. A similar study in Bangladesh showed that more than half 67% of respondents of the study subjects belonged 60-69 years of age (Lucky et al., 2017).

Among 55 participants study found that 90.9% (n=50) participants were suffering from different musculoskeletal problems. In the Kingdom of Saudi Arabia Among 276 participants, the overall prevalence of musculoskeletal diseases was 72.5% (El-fetoh et al., 2017). From this study among 55 participants were suffering from pain (83.6%), difficulty in activities of daily living (72.2%), muscle weakness (76.4%), limitation of ROM in different joints of the body 78.2% and postural deformity was 16.4%. In a comparable study in Bangladesh, nearly 95% of the 385 participants reported musculoskeletal pain, 36% reported joint limitations, 84 % reported muscular weakness, and 95% reported no postural deformity. Few of the participants had kyphosis, scoliosis, or lordosis, and 78% of the participants had difficulty with daily tasks (Lucky et al., 2017).

Pain in the different joints was one of the most common musculoskeletal problems among elderly people. Out of 55 participants, 83.6% (n=46) participants reported that they were suffering pain or discomfort in different parts of the body. Knee pain and lower back pain were found to be the highest pain problems with 10.9% and 9.1% respectively. About (7.3%) of the respondents complained of Shoulder pain followed by Hip joint pain (5.5%), Ankle pain (5.5%), Neck pain (3.6%), Elbow joint pain (3.6%), and Wrist joint pain (3.6%). Related study found that, Knee (n = 127/216, 58.8%), lower back (n = 110/216, 50.9%), and shoulder (n = 104/216, 48.2%) were the most common areas of pain in the

previous year. Knee discomfort was also the most prevalent type of pain in the previous seven days (28.8%) and the most common cause of trouble working (14.9%) among the elderly (Che Hasan et al., 2021). According to another study, neck and back symptoms are the third most prevalent symptom reported to primary care physicians by elderly patients (Kalkanis and Borges, 2001). Toes pain, Upper back pain, Finger pain, Buttock pain, Headache and Chest pain were the least pain problems reported with 1.8% respectively. One study showed that Foot and leg pain have been shown to grow as people get older, especially in their ninth decades. In contrast, after reaching a peak prevalence at 45 to 50 years of age, the prevalence of headaches declines with age. The frequency of chest pain rises in late middle age at the time of the disease's peak manifestation (Helme and Gibson, 2001). Again, in this study it had been found that 9.1% participants were suffering from Lower back & Knee pain together followed by Both Shoulder & lower back pain (3.6%), Wrist & Toes pain (1.8%), Shoulder & Hip joint pain (1.8%), Upper back & Lower back pain (1.8%), With the combination of Finger, Upper back & Chest pain (1.8%), Neck, Shoulder & Buttock pain (1.8%), Elbow, Finger & Toes pain (1.8%). Lucky et al. (2017) reported that among 100 elderly people 14% had shoulder, elbow, wrist, and knee pain all at the same time. So from the study, it can be summarized that knee pain, Low Back Pain, neck pain and shoulder pain were the most common complaints among elderly people rather than other complaints.

In this study also found that Moderate pain & Mild pain were found to be the highest pain intensity rate according to the VAS scale with 58.2% & 20% respectively. Also found that Severe pain (5.5%) was the least pain intensity rate according to the VAS scale.

Another musculoskeletal problem of the elderly was a limitation in range of motion in various joints due to degenerative changes in the joints that occur with age. The statistical analysis of the study showed that the highest limitation of joint Range of Motion was in the knee joint (10.9%) and the second highest was shoulder joint (9.1%) then lower back, wrist and elbow joint was (7.3%), then neck (5.5%) and then Finger, Hip, Ankle & Toes joint was (3.6%). Again in the study, it had been found that 7.3% participants had limitations in Joint Range of Motion (ROM) in together Shoulder & Knee joint followed by Lower back & Knee joint (5.5%), Shoulder & Hip joint (1.8%), Hip & Knee joint

(1.8%). When looking at the pain complaints, the study discovered that the highest pain was felt at the knee joint, followed by Low back pain, Shoulder pain, Hip pain, Ankle pain, and Neck pain, all of which followed the almost identical order of joint Range of motion limitation because there was a close relationship between pain and joint Range of motion limitation. According to a study on predicting the course of functional limitation in older individuals with knee pain, older adults with knee pain will have progressive or persistent functional difficulty or Range of Motion Limitations (Thomas et al., 2008). According to another study, arthritis is a primary source of disability in older adults, limiting the range of motion in many joints. It is particularly detrimental for older women, who have higher prevalence rates and disabilities than their male counterparts (Hughes and Dunlop, 2005).

The study also found that leg muscle weakness (14.5%) was the most common complaint then back muscle (10.9%) then arm muscle, hand muscle and thigh muscle was 7.3% and the Forearm & neck muscle was 5.5% which follow the almost same order of previous complaint pain and limitation of joint Range of motion. Again in the study, it had been found that 9.1% participants had felt muscle weakness in together Back & Leg muscles followed by Neck & Leg muscles (5.5%), Arm & Leg muscles (3.6%). Muscle weakness was shown to be the greatest risk factor in one study demonstrating that more than a third of adults over 65 falls each year (Venning, 2005).

In postural deformity the study found that Kyphotic posture was found to be the highest postural deformity among elderly people was 9.1%. Scoliotic and Lordotic postural deformities were found in the respondents, which were 5.5% & 1.8%. It is widely assumed that the thoracic kyphotic angle increases with age, especially in older women. The "dowager hump" is well-known, and most people associate it with spinal compression deformity or angulations (Bartynski et al., 2005). Although the exact prevalence of kyphosis in older people is unknown, recent estimates range from 20 to 40% (Kado et al., 2007).

Activities of daily living, Toileting (12.7%) was the top complaint of elderly people then walking (10.9%) then Bathing (9.1%) and then Lifting (7.3%). Again in the study, it had been found that 5.5% participants had difficulty during Walking & Lifting in together followed by Walking & Toileting (5.5%), Bathing & Toileting (3.6%). Up to 40% of

people over the age of 65 in affluent countries have a chronic illness or disability that affects their everyday activities (Hutton, 2008). One study shows that People in their forties and fifties who have had a history of arthritis are more prone to have mobility and daily living challenges as they get older (Covinsky et al., 2008).

This study also found that about 58.2% participants seek medical treatment for their complaints, about 9.1% seek physiotherapy management and 7.3% seek surgical & other management. Both medication & physiotherapy have taken 9.1% participants.

Neurological issues become more common as people get older, posing a huge demographic cost in terms of death, disability, and decreased quality of life. While life expectancy in rich countries has increased dramatically in recent decades, the relative mortality load linked with neurological disorders has increased significantly as well. Even though cerebrovascular diseases are the major cause of death, other neurological disorders contribute significantly to overall mortality (Czira et al., 2014).

In this study Among 55 participants, 76.34% participants responded that they had different neurological problems. “Arms or legs weakness for more than 24 hours” was found to be the highest neurological symptom among the elderly people was 56.4% followed by a History of loss of consciousness (25.5%), Episodes of losing contact with their surroundings (23.7%), Problem with Shaking of arms or legs that they could not control (30.9%), Abnormal speech patterns (25.5%) Suffering pain in the face (30.9%), Paralyzed face or part of the face for more than 24 hours (25.5%), Arms or legs weakness for more than 24 hours (56.4%), Unable to walk properly (47.3%), Loss of sensation or abnormal sensation in arms or legs for more than 24 hours (18.2%) and Suffering problems of headaches (45.5%). One study showed that These symptoms help in the evaluation of motor or sensitive deficit, tremor, ataxia, epilepsy, psychomotor delay, diplopia and memory failure (Quet et al., 2011). Another study showed that Stroke has been identified as the most common neurological condition among the elderly, with a prevalence rate of 33.34 per 1000 among those over 60 years of age. Epilepsy is a common disorder in infancy and adolescence, with a rate that declines with age. In underdeveloped nations, this is the typical pattern, whereas in affluent countries, active prevalence rises with each successive age group, with the highest age-specific prevalence in the elderly, ranging from 7 per 1000

at 60 years to 14 per 1000 at 80 years. In comparison to other research from Western countries, their study found a low prevalence of Parkinsonism. This is owing to a large number of elderly people in the sample population. Essential tremor is a prevalent condition among the elderly, and it is sometimes misdiagnosed as Parkinsonian tremor. The condition is frequently hereditary, and its manifestation is linked to age (Das et al., 2008).

This study also found that 45.45% participants responded that they had Headache Related problems. “Suffering severe headaches, chiefly on one side of the head, which come on from time to time” was found to be the highest Headache Related Problem among the elderly people was 40% and followed by Association with headaches, suffering from visual disturbance; e.g. black spots or zig-zag lines in front of the eye (30.9%), Association with headaches suffering from nausea or vomiting (10.9%), Association with headaches suffering weakness or numbness in the limbs that last less than a few days (18.2%), Headaches occurring only when having a febrile illness (16.4%). 54.5% participants were not applicable because they were not suffering headaches.

Related study showed that the most common symptom was headache followed by peripheral nerve illnesses and epilepsy. Headache prevalence was higher in both sexes between the ages of 41 and 60 years and was considerably higher in women than in men between the ages of 16 and 60 years. Of the 74 headache cases, 25 were diagnosed as migraine, 40 as tension headaches, and 9 as primary headache (Quet et al., 2011).

The highest unsuccessful rate of the neurological examination was found to be “Walk heel to toe along the white line” with 30.9% and the highest success rate of the neurological examination was “Stands with both feet together” with 74.5%.

5.1 Limitations of the study

It was an undergraduate study so some limitations and barriers during on conduction of this study may have been. Although the investigator tried to overcome all of the limitations there are some limitations which have given below.

- Sample size was relatively small. Only 55 sample was taken. So, the findings of the present study may not be generalized to all cases of the related topic.
- Study time was too short. That's why the study samples were collected only from two selected old homes at Dhaka city. It wasn't possible to collect sample from the whole population of elderly people at old homes in Dhaka division within a short period of time.
- It is a new area of research in Bangladesh and there were no available studies on the same issues of geriatric setting. Therefore, it is difficult to discuss the findings in the context of Bangladesh. However, literatures were found from different international primary sources.

6.1 Conclusion

Neuro-musculoskeletal disorders are a leading cause of physical and mental dysfunction in the elderly, and their prevalence is predicted to increase as the population ages. In Bangladesh, neuro-musculoskeletal disorders are on the rise among the elderly, causing them great trouble. This study aimed to find out the neuro-musculoskeletal problems among elderly people at selected old homes in Dhaka city. The problems of musculoskeletal disorders increase dramatically with age, resulting in significant suffering & consume a significant proportion of health care resources. The major musculoskeletal problems of the elderly population were pain, limitation of joint range of motion, muscular weakness, postural deformity, and difficulties performing activities of daily life. The study found that Knee pain was found to be the most common problem, with moderate and mild pain having the highest pain intensity rates on the VAS scale, the greatest limitation of joint range of motion at the knee joint, weaker leg muscles was found to be the highest muscle weakness problems, kyphosis as the most common postural deformity, and more difficult toileting and walking. There was also a link between musculoskeletal difficulties and socio-demographic parameters such as age (older people were more likely to complain about musculoskeletal problems). Neurological problems are extremely common in the general population, especially among the elderly. From this study “History of loss of consciousness, episodes of losing contact with their surroundings, problem with shaking of arms or legs that they could not control, abnormal speech patterns, suffering pain in the face, paralyzed face or part of the face for more than 24 hours, arms or legs weakness for more than 24 hours, unable to walk properly, loss of sensation or abnormal sensation in arms or legs for more than 24 hours & suffering problems of headaches” were found to be common neurological symptoms or problems between the elderly. Among these symptoms or problems, “Arms or legs weakness for more than 24 hours” was found to be the highest neurological problem among elderly people. This study also found that “Suffering severe headaches, chiefly on one side of the head, which come on from time to time” was the

highest headache-related problem among elderly people. Last of all the study will try to represent the prevalence of neuro-musculoskeletal problems among elderly people.

6.2 Recommendations

A recommendation evolves out of the context in which the study was conducted. The purpose of the study was to identify the Neuro-musculoskeletal problems among the elderly people at selected old homes in Dhaka city. Though the research has some limitations but researcher identified some further steps that might be taken for the better accomplishment of further research. For the ensuring of the generalizability of the research it is recommended to investigate a large sample. In this study Elderly people were taken only from the Elderly care home of Dhaka city. So, for further study, it was strongly recommended to include Elderly people from all over Bangladesh. Due to organizational problems, it was not possible to do a pilot study. But the pilot study is very much important for the validity of the questionnaire. For this it is strongly recommended that if any further study will be done in this area, then a pilot study should be done to format the questionnaire. In the future, there is scope for further studies to be done. Further study should identify the causes and risk factors of neuro-musculoskeletal complaints among Elderly people in both community and Elderly care homes and identify the scope of physiotherapy practice in this issue.

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Appendix-A

সম্মতি পত্র

(অংশগ্রহনকারীকে পড়ে শোনাতে হবে)

আস্‌সালামুআলাইকুম/নমস্কার,

আমার নাম তকি তাহমিদ, আমি এই গবেষণা প্রকল্পটি বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বি এইচ পি আই) এ পরিচালনা করছি যা আমার ৪র্থ বর্ষ বি এস সি ইন ফিজিওথেরাপী কোর্সের অধিভুক্ত। আমার গবেষণার শিরোনাম “ঢাকা শহরে অবস্থিত নির্ধারিত বৃদ্ধাশ্রমে বয়স্কদের মধ্যে নিউরোমাসকুলোস্কেলিটাল সমস্যা” আমি এক্ষেত্রে আপনার কিছু ব্যক্তিগত এবং এই সম্পর্কে আনুষঙ্গিক প্রশ্ন করতে চাচ্ছি। এতে আনুমানিক ১৫-২০ মিনিট সময় লাগবে।

আমি আপনাকে অনুরোধ করছি যে, এটা আমার অধ্যয়নের অংশ এবং যা অন্যকোন উদ্দেশ্যে ব্যবহার হবে না। তাই এই গবেষণায় আপনার অংশগ্রহণ বর্তমান ও ভবিষ্যৎ চিকিৎসায় কোন প্রকার প্রভাব ফেলবেনা। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনা প্রবাহে এটা নিশ্চিত করা হবে যে এই তথ্যের উৎস অপ্রকাশিত থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহন স্বেচ্ছাপ্রণোদিত এবং আপনি যে কোন সময় এই অধ্যয়ন থেকে কোন নেতিবাচক ফলাফল ছাড়াই নিজেকে প্রত্যাহার করতে পারবেন। এছাড়াও কোন নির্দিষ্ট প্রশ্ন অপছন্দ হলে উত্তর না দেওয়ার এবং সাক্ষাৎকারের সময় কোন উত্তর না দিতে চাওয়ার অধিকারও আপনার আছে।

এই অধ্যয়নে অংশগ্রহনকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি আমাকে অথবা আমার সুপারভাইজার ফাতেমা আক্তার, সহকারী অধ্যাপক, ফিজিওথেরাপি বিভাগ, বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট, সিআরপি, সাভার, ঢাকা-১৩৪৩-তে যোগাযোগ করতে পারেন।

সাক্ষাৎকার শুরু করার আগে আপনার কি কোন প্রশ্ন আছে?

আমি আপনার অনুরোধ নিয়ে এই সাক্ষাৎকার শুরু করতে যাচ্ছি।

হ্যাঁ.....

না.....

১। অংশগ্রহনকারীর স্বাক্ষর.....।

২। সাক্ষাৎগ্রহনকারীর স্বাক্ষর.....।

Appendix-B

CONSENT FORM

(Please read out to the participants)

Assalamualaikum/ Namasker,

My name is Taki Tahmid, I am conducting this study for a B. Sc in Physiotherapy project study dissertation titled “Neuro-Musculoskeletal problems among the elderly people at selected old homes in Dhaka city” under Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related information regarding this topic. You will perform some tasks which are mention in this form. This will take approximately 15-20 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. So, your participation in the research will have no impact on your present or future treatment. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous and also all information will be destroyed after completion of the study. Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview.

If you have any query about the study or your right as a participant, you may contact with me or my supervisor Mst. Fatema Akter, Assistant Professor, Department of Physiotherapy, BHPI, CRP, Savar, Dhaka. Do you have any questions before I start?

So, may I have your consent to proceed with the interview or work?

Yes

No

1. Signature of the Participant _____

2. Signature of the Interviewer _____

Appendix-C

Questionnaire Form (Bangla)

প্রশ্নপত্র

ব্যক্তিগত তথ্য

১। নাম:

২। বয়স:

৩। লিঙ্গ: ১ = পুরুষ ২ = মহিলা

৪। ঠিকানা:

৫। ফোন নম্বর:

৬। ধর্ম:

৭। ভৌগোলিক অবস্থান: ১ = নগর ২ = গ্রাম

৮। শিক্ষাগত যোগ্যতা:

১ = অশিক্ষিত ২ = প্রাথমিক ৩ = মাধ্যমিক

৪ = উচ্চমাধ্যমিক ৫ = স্নাতক ৬ = স্নাতকভেদে

৯। পূর্বের পেশা:

১ = চাকুরী ২ = কৃষক ৩ = গৃহিনী

৪ = ব্যবসায়ী ৫ = দিন মজুর ৬ = অন্যান্য

১০। পরিবারের সদস্য সংখ্যা:

১১। ভর্তির তারিখ:

অস্থি ও মাংসপেশী জনিত তথ্য

এই অংশ টুকু শুধুমাত্র বয়স্ক সেবা কেন্দ্রে বয়স্কদের অস্থি ও মাংসপেশী জনিত অভিযোগ গুলোর জন্য সাজানো হয়েছে।

০১। আপনি কি কখনো আপনার শরীরের কোন অংশে ব্যথা বা ব্যথা জাতীয় কোন সমস্যা অনুভব করেছেন?

১= হ্যাঁ

২= না

(যদি 'হ্যাঁ' হয় তাহলে ২, ৩, এবং ৪ নং প্রশ্নের উত্তর দিন আর যদি 'না' হয় ৫ নং এ চলে যান)

০২। আপনি নিম্নবর্ণিত আপনার শরীরের কোন অংশে ব্যথা অনুভব করেছেন বা করেছিলেন? টিক দিন (✓)।

১=মাথা

২=ঘাড়

৩=কাঁধ

৪=কনুই

৫=কজি

৬=হাতের আঙ্গুল

৭=পিঠ

৮=কোমর

৯=বুক

১০=উরু সন্ধি

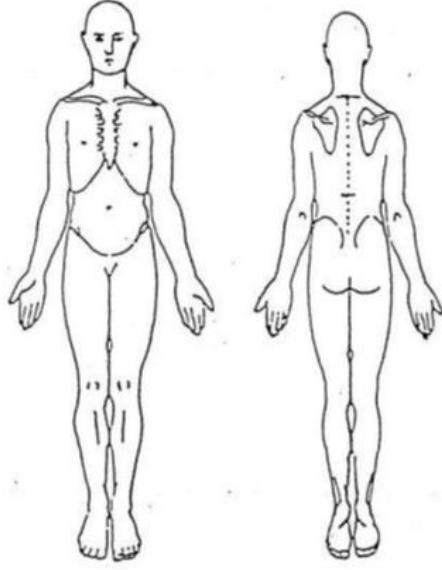
১১=নিতম্ব

১২=হাঁটু

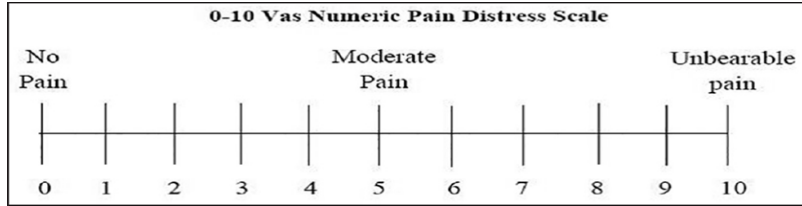
১৩=পায়ের গোড়ালী

১৪=পায়ের আঙ্গুল

০৩। টিক (✓) চিহ্নের মাধ্যমে আপনার অনুভূত ব্যথার জায়গাটি চিহ্নিত করুন।



০৪। ভাস স্কেল অনুযায়ী ব্যথা বা অস্বস্তি রেট করুন।



০৫। আপনি কি কখনো আপনার শরীরের কোন অঙ্গ সন্ধিতে নড়াচড়া জনিত সীমাবদ্ধতা অনুভব করেছেন?

১= হ্যাঁ

২= না

(যদি 'হ্যাঁ' হয় তাহলে ৬ নং প্রশ্নের উত্তর দিন আর যদি 'না' হয় ৭ নং এ চলে যান)

০৬। আপনি নিম্নবর্ণিত আপনার শরীরের কোন অঙ্গি সন্ধিতে নড়াচড়া জনিত সীমাবদ্ধতা অনুভব করেছেন বা করেছিলেন?

১=ঘাড়

২=কাঁধ

৩=কনুই

৪=কজি

৫=হাতের আঙ্গুল

৬=কোমর

৭=উরু সন্ধি

৮=হাঁটু

৯=পায়ের গোড়ালী

১০=পায়ের আঙ্গুল

০৭। আপনি কি কখনো আপনার শরীরের কোন অংশের মাংশপেশীতে দুর্বলতা অনুভব করেছেন?

১=হ্যাঁ

২=না

(যদি 'হ্যাঁ' হয় তাহলে ৮ নং প্রশ্নের উত্তর দিন যদি না হয় ৯ নং এ চলে যান)

০৮। আপনি নিম্নবর্ণিত আপনার শরীরের কোন অংশের মাংশপেশীতে দুর্বলতা অনুভব করেছেন বা করেছিলেন? টিক(√) দিন।

১= ঘাড়ের মাংশপেশীতে

২=কোমরের মাংশপেশীতে

৩= বাহুর মাংশপেশীতে

৪=অগ্রহাতের মাংশপেশীতে

৫= হাতের মাংশপেশীতে

৬=উরুর মাংশপেশীতে

৭= পায়ের মাংশপেশীতে

০৯। আপনার শরীরের পিঠের অংশের কোন শারীরিক বিকৃতি আছে?

১= হ্যাঁ

২=না

(যদি 'হ্যাঁ' হয় তাহলে ১০নং প্রশ্নের উত্তর দিন আর যদি 'না' হয় ১১ নং এ চলে যান)

১০। আপনার পিঠে নিম্নবর্ণিত কোন ধরনের শারীরিক বিকৃতি আছে?

১=কঁজো ভাব

২=অতিরিক্ত সোজা ভাব

৩=ডান অথবা বাম দিকে বাঁকা ভাব

১১। আপনার নিম্নবর্ণিত কোন কোন দৈনন্দিন কাজ কর্ম করতে অসুবিধা মনে হয়?

১=খাবার খেতে

২=লিখতে

৩=জামা কাপড় পরতে

৪=কোন জিনিস ধরতে

৫=গোসল করতে

৬=হাটা চলা করতে

৭=কোন জিনিস তুলতে

৮=পায়খানায় বসতে

১২। উপরোক্ত যে কোন সমস্যার জন্য আপনি নিম্নবর্ণিত কোন চিকিৎসা নিয়েছেন?

১=ঔষধ

২=ফিজিওথেরাপি

৩= শল্য চিকিৎসা

৪=অন্যান্য

স্নায়ুজনিত তথ্য

এই অংশ টুকু শুধুমাত্র বয়স্ক সেবা কেন্দ্রে বয়স্কদের স্নায়ুজনিত অভিযোগ গুলোর জন্য সাজানো হয়েছে।

০১। আপনি কি কখনো জ্ঞান হারিয়েছেন?

১=হ্যাঁ (একাধিক বার)

২=হ্যাঁ (একবার)

৩=কখনও না

৪=জানি না

৫ = সাড়া দেন নি

০২। আপনার কি কখনো এমন হয়েছে যে, আশেপাশের কাউকে চিনতে পারছিলেন না?

১ = হ্যাঁ

২ = সম্ভবত

৩ = কখনও না

৪ = জানি না

৫ = সাড়া দেন নি

০৩। আপনার কি কখনো হাত বা পা কাঁপতে শুরু করে যা আপনি নিয়ন্ত্রণ করতে পারেন না?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

০৪। আপনার কথা বলা কি স্বাভাবিক?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

০৫। আপনার মুখমন্ডলের কোথাও ব্যাথা আছে বা ছিল?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

০৬। আপনার কি কখনো মুখমন্ডল বা এর কোন অংশ ২৪ ঘন্টার বেশি সময় ধরে অবস ছিল?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

০৭। আপনার কি কখনো হাত বা পায়ে ২৪ ঘন্টার বেশি সময় ধরে দুর্বলতা ছিল?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

০৮। আপনার কি কখনো স্বাভাবিক হাটাচলার সমস্যা ছিল?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

০৯। আপনার কি কখনো স্পর্শানুভূতিহীন বা অস্বাভাবিক স্পর্শানুভূতি হয়েছে যা আপনার হাত বা পা কে ২৪ ঘন্টার বেশি সময় ধরে প্রভাবিত করে?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

১০। আপনি কি কখনো মাথা ব্যথায় ভুগেছেন?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

(যদি ১০ নং প্রশ্নের উত্তর হ্যাঁ হয় তাহলে ১১, ১২, ১৩, ১৪, এবং ১৫ নং প্রশ্নের উত্তর দিন আর যদি না হয় তাহলে প্রশ্নগুলো এড়িয়ে যান)

১১। আপনি কি তীব্র মাথা ব্যথায় ভুগছেন বিশেষ করে মাথার এক পাশে, যেটা মাঝে মধ্যে শুরু হয়?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

৫ = প্রয়োজ্য নয়

১২। এই মাথা ব্যথার কারণে আপনি কি দৃষ্টিশক্তির সমস্যায় ভুগছেন? যেমন, চোখের সামনে কালো দাগ বা আঁকাবাঁকা লাইন।

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

৫ = প্রয়োজ্য নয়

১৩। এই মাথা ব্যথার কারণে আপনার কি বমি বা বমি বমি ভাব হয়?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

৫ = প্রয়োজ্য নয়

১৪। এই মাথা ব্যথার কারণে, আপনি কি অল্প কিছু দিনেরও কম সময় ধরে অঙ্গ-প্রত্যঙ্গে দুর্বলতা বা অবসতায় ভুগছেন?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

৫ = প্রয়োজ্য নয়

১৫। আপনার জ্বর জনিত অসুখ হলেই কি এই মাথা ব্যথা হয়?

১ = হ্যাঁ

২ = না

৩ = জানি না

৪ = সাড়া দেন নি

৫ = প্রয়োজ্য নয়

স্বায়ুজনিত পরীক্ষা

পরীক্ষা-১) উভয় হাত মাথার উপরে ৩০ সেকেন্ড ধরে রাখুন।

- | | |
|---------------------|-----------------------|
| ১ = উভয় হাত সফল | ২ = যাচাই করা যায় না |
| ৩ = অস্বীকৃতি | ৪ = বুঝতে পারে না |
| ৫ = ডান হাত ব্যর্থ | ৬ = বাম হাত ব্যর্থ |
| ৭ = উভয় হাত ব্যর্থ | |

পরীক্ষা-২) মাটি থেকে দেশলাই কাঠি তুলুন।

- | | |
|---------------------|-----------------------|
| ১ = উভয় হাত সফল | ২ = যাচাই করা যায় না |
| ৩ = অস্বীকৃতি | ৪ = বুঝতে পারে না |
| ৫ = ডান হাত ব্যর্থ | ৬ = বাম হাত ব্যর্থ |
| ৭ = উভয় হাত ব্যর্থ | |

পরীক্ষা-৩) আপনার চোখ বন্ধ করুন। নমুনা কাপড়টি স্পর্শ করে বলুন মসৃণ নাকি খসখসে?

- | | |
|---------------------|-----------------------|
| ১ = উভয় হাত সফল | ২ = যাচাই করা যায় না |
| ৩ = অস্বীকৃতি | ৪ = বুঝতে পারে না |
| ৫ = ডান হাত ব্যর্থ | ৬ = বাম হাত ব্যর্থ |
| ৭ = উভয় হাত ব্যর্থ | |

পরীক্ষা-৪) আপনার দুহাত সামনে রাখুন। চোখ বন্ধ করে ডান হাতের তর্জনি আঙ্গুল দিয়ে নাক স্পর্শ করুন। পুনরায় বাম হাতের তর্জনি আঙ্গুল দিয়ে নাক স্পর্শ করুন।

- | | |
|----------------------------------|---------------------------------|
| ১ = উভয় হাত সফল | ২ = যাচাই করা যায় না |
| ৩ = অস্বীকৃতি | ৪ = বুঝতে পারে না |
| ৫ = ডান হাতের নিয়ন্ত্রণ দুর্বল | ৬ = বাম হাতের নিয়ন্ত্রণ দুর্বল |
| ৭ = উভয় হাতের নিয়ন্ত্রণ দুর্বল | |

পরীক্ষা-৫) এক পায়ের আঙ্গুলের সামনে অপর পায়ের গোড়ালি স্পর্শ করে সাদা দাগ বরাবর হাটুন। (দুই মিটার কাপড়)

১ = সফল

২ = যাচাই করা যায় না

৩ = অস্বীকৃতি

৪ = বুঝতে পারে না

৫ = দাড়াতে সমস্যা

৬ = ব্যার্থ

পরীক্ষা-৬) দুই পা একসাথে রেখে দাড়ান।

১ = সফল

২ = যাচাই করা যায় না

৩ = অস্বীকৃতি

৪ = বুঝতে পারে না

৫ = ব্যার্থ

পরীক্ষা-৭) চোখ বন্ধ করে ১৫ সেকেন্ড পর্যন্ত স্থির হয়ে দাড়ান (যদি পরীক্ষা-৬ সফল হয়)।

১ = সফল

২ = যাচাই করা যায় না

৩ = অস্বীকৃতি

৪ = বুঝতে পারে না

৫ = ব্যার্থ

৬ = প্রয়োজ্য নয়

Appendix-D

Questionnaire Form

Socio-demographic Information

1. Name:

2. Age:

3. Gender: 1= Male 2= Female

4. Address:

5. Contact No:

6. Religion:

7. Geographical area: 1=Urban 2= Rural

8. Educational Level:

1= Illiterate 2= Primary 3= Secondary

4= Higher Secondary 5=Graduate 6= Masters

9. Previous Occupation:

1= Govt. Employee 2= Farmer 3= House Wife

4= Business man 5= Day labor 6= Others

10. Family Members:

11. Date of admission:

Musculoskeletal information

This part is designed to determine the common musculoskeletal complaints among Elderly people at 'Elderly care Home'.

01. Have you ever experienced any kinds of pain or discomfort at any part of your body?

1= Yes

2= No

[If Yes please answer the Question no (2,3,4) If No please skip the Question no (2,3,4)]

02. Where have you experienced pain or discomfort at the following parts of your body?

1= Head

2= Neck

3= Shoulder

4= Elbow

5= Wrist

6= Finger

7= Upper back

8= Lower back

9= Chest

10= Hip

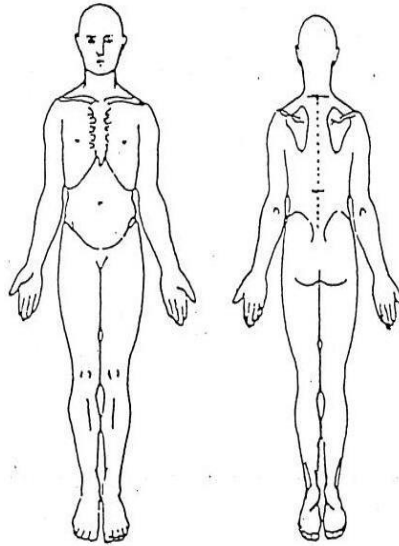
11= Buttock

12= Knee

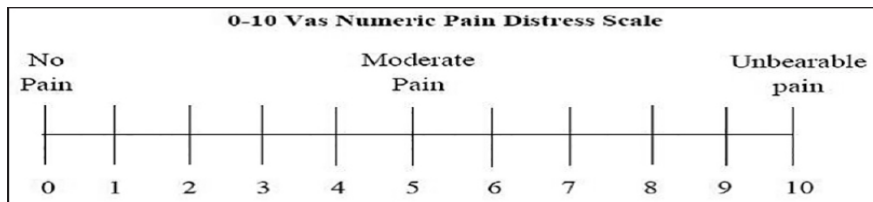
13= Ankle

14= Toes

03. Please indicate the areas by tick (☐) where you experience pain & discomfort.



04. Rate the pain or discomfort according to vas scale.



05. Have you ever experienced any limitation of joint range of movement at any part of your body?

1= Yes

2= No

(If Yes please answer the Question no 06, If No please skip the Question no 06)

06. Where have you experienced limitation of joint range of movement at the following joints of your body?

- | | |
|------------|---------------|
| 1= Neck | 2= Shoulder |
| 3= Elbow | 4= Wrist |
| 5= Fingers | 6= Lower back |
| 7= Hip | 8= Knee |
| 9= Ankle | 10= Toes |

07. Have you ever felt any weakness of muscles at the any part of your body?

- | | |
|--------|-------|
| 1= Yes | 2= No |
|--------|-------|

(If Yes please answer the Question no 08, If No please skip the Question no 08)

08. Where have you felt weakness of muscles at the following parts of your body?

- | | |
|-----------------|---------------------|
| 1= Neck muscles | 2= Back Muscles |
| 3= Arm muscles | 4= Fore arm muscles |
| 5= Hand muscle | 6= Thigh muscles |
| 7= Leg muscles | |

09. Have you any postural deformity present in your body?

- | | |
|--------|-------|
| 1= Yes | 2= No |
|--------|-------|

(If Yes please answer the Question no 10, If No please skip the Question no 10)

10. What type of postural deformity present in your body?

- | | |
|-------------|------------|
| 1=Kyphosis | 2=Lordosis |
| 3=Scoliosis | |

11. Have you ever experienced any difficulty in following activities of daily living (ADL). Please tick (☐) the option.

- | | |
|-------------|--------------|
| 1= Eating | 2= Writing |
| 3= Dressing | 4= Gripping |
| 5= Bathing | 6= Walking |
| 7= Lifting | 8= Toileting |

12. What kind of treatment have you taken for your above problems?

- 1= Medication
- 2= Physiotherapy
- 3= Surgery
- 4= Others

Neurological information

This part is designed to determine the common neurological complaints among Elderly people at 'Elderly care Home'.

01. Have you ever lost consciousness?

1=Yes (more than once) 2=Yes(once) 3=Never
4=Don't know 5=Didn't respond

02. Have you ever had episodes where you lose contact with your surroundings?

1=Yes 2=Possible 3=Never
4=Don't know 5=Didn't respond

03. Have you ever had any shaking of your arms or legs and which you could not control?

1=Yes 2=No
3=Don't know 4=Didn't respond

04. Is your speech normal?

1=Yes 2=No
3=Don't know 4=Didn't respond

05. Have you had episodes of pain in the face?

1=Yes 2=No
3=Don't know 4=Didn't respond

06. Has your face or part of your face ever been paralyzed for more than 24 hours?

1=Yes 2=No
3=Don't know 4=Didn't respond

07. Have you ever had any weakness in your arms or legs for more than 24 hours?

1=Yes

2=No

3=Don't know

4=Didn't respond

08. Have you ever been unable to walk properly?

1=Yes

2=No

3=Don't know

4=Didn't respond

09. Have you ever had loss of sensation or abnormal sensation affecting your arms and legs, lasting for more than 24 hours?

1=Yes

2=No

3=Don't know

4=Didn't respond

10. Have you ever suffered from headache?

1=Yes

2=No

3=Don't know

4=Didn't respond

[If Question 10 answer is Yes, please answer the Question no (11,12,13,14,15) If No please skip the Question no (11,12,13,14,15)]

11. Do you suffer from severe headaches, chiefly on one side of the head, which come on from time to time?

1=Yes

2=No

3=Don't know

4=Didn't respond

5=Not applicable

12. In association with these headaches, do you suffer from visual disturbance; e.g. black spots or zig-zag lines in front of the eye?

1=Yes

2=No

3=Don't know

4=Didn't respond

5=Not applicable

13. In association with these headaches, do you suffer from nausea or vomiting?

- 1=Yes 2=No 3=Don't know
4=Didn't respond 5=Not applicable

14. In association with these headaches, do you suffer from weakness or numbness in the limbs that last less than a few days?

- 1=Yes 2=No 3=Don't know
4=Didn't respond 5=Not applicable

15. Do these headaches occur only when you have a febrile illness?

- 1=Yes 2=No 3=Don't know
4=Didn't respond 5=Not applicable

❖ **Neurological Examination**

E1. Hold both arms above head for 30 sec.

- 1=Both hand successful 2=Can't test
3=Refused 4=Doesn't understand
5=Rt hand unsuccessful 6=Lt hand unsuccessful
7=Rt & Lt unsuccessful

E2. Pick up matchstick from ground.

- 1=Both hand successful 2=Can't test
3=Refused 4=Doesn't understand
5=Rt hand unsuccessful 6=Lt hand unsuccessful
7=Rt & Lt unsuccessful

E3. Close your eyes. Feel cloth sample. Is it (a) smooth or (b) rough?

- 1=Both hand successful 2=Can't test
3=Refused 4=Doesn't understand
5=Rt hand unsuccessful 6=Lt hand unsuccessful
7=Rt & Lt unsuccessful

E4. Put your hands out in front of you. Close your eyes. Touch your nose with the right index. Repeat using left index finger.

1=Both hand successful	2=Can't test
3=Refused	4=Doesn't understand
5=Rt hand poor control	6=Lt hand poor control
7=Rt & Lt poor control	

E5. Walk heel to toe along the white line (2 meter cloth).

1=Successful	2=Can't test
3=Refused	4=Doesn't understand
5=Stands with difficulty	6=Unsuccessful

E6. Stands with both feet together.

1=Successful	2=Can't test
3=Refused	4=Doesn't understand
5=Unsuccessful	

E7. Close your eyes and stand still for 15 sec. (Only if E6 answer is 1).

1=Successful	2=Can't test
3=Refused	4=Doesn't understand
5=Unsuccessful	6=Not applicable

Appendix-E

IRB Permission Letter



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref:

CRP/BHPI/IRB/02/2022/551

Date:

20/02/2022

Taki Tahmid
4th Year B.Sc. in Physiotherapy
Session: 2016 – 2017
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh.

Subject: Approval of the research project proposal “Neuro-Musculoskeletal problems among the elderly people at selected old homes in Dhaka city” by ethics committee.

Dear Taki Tahmid,
Congratulations.

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the principal investigator and Mst. Fatema Akter as thesis supervisor. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation/thesis/research Proposal
2	Questionnaire (English & Bengali version)
3	Information sheet & consent form.

The purpose of the study is to find out the Neuro-musculoskeletal problems among the elderly people at selected old homes in Dhaka city. Since the study involves questionnaire that takes maximum 30minutes and have no likelihood of any harm to the participants, the members of the Ethics committee approved the study to be conducted in the presented form at the meeting held at 09:00 AM on October 12, 2021 at BHPI (30th IRB Meeting).

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Appendix-F

Permission Letter



বাংলাদেশ হেল্থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)
CRP-Chapain, Savar, Dhaka. Tel: 02224445464, 02224441404, Website: www.bhpi.edu.bd

Date: 28.03.2022

To
The Manager,
Bangladesh Association for the Aged & Institute of Geriatric Medicine
Agargaon, Sher-E-Bangla Nagar, Dhaka.

Subject: *Regarding Data collection for dissertation.*

Greetings from Bangladesh Health Professions Institute (BHPI). I would like to inform you that, BHPI, the Academic Institute of CRP is running B. Sc in Physiotherapy Course, under Faculty of Medicine, University of Dhaka.

According to the content of 4th year of University course curriculum, the students have to do Research and Course work in different topics to develop their skills. Considering the situation, your institute will be the most appropriate place to collect data.

4th year students of BHPI Taki Tahmid would like to collect data in your organization in your convenient time.

We shall remain grateful to you if you could kindly allow us in conducting the placement.

With regards

Shofiq
Md. Shofiqul Islam
Associate Prof. & Head
Dept. of Physiotherapy
BHPI

Permit
25/03/22
ডা. মহম্মদ কবির
সহকারী, জাতিসংঘ
বাংলাদেশ জাতিসংঘ

Appendix-G

Permission Letter



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)
CRP-Chapain, Savar, Dhaka, Tel: 02224445464, 02224441404, Website: www.bhpi.edu.bd

Date: 28.03.2022

To
Chief Executive Officer,
Institute for Autistic children & Blind Old home and TN mother Child Hospital,
Chandulia, Boliarpur, Savar, Dhaka.

Subject: *Regarding Data collection for dissertation.*

Greetings from Bangladesh Health Professions Institute (BHPI). I would like to inform you that, BHPI the Academic Institute of CRP is running B. Sc in Physiotherapy Course, under Faculty of Medicine, University of Dhaka.

According to the content of 4th year of University course curriculum, the students have to do Research and Course work in different topics to develop their skills. Considering the situation, your institute will be the most appropriate place to collect data.

4th year students of BHPI Taki Tahmid would like to collect data in your organization in your convenient time.

We shall remain grateful to you if you could kindly allow us in conducting the placement.

With regards

Shofiq
Md. Shofiqul Islam
Associate Prof. & Head
Dept. of Physiotherapy
BHPI

*Approved
14/03/22*