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'EPIDEMIOLOGY OF PEOPLE WITH DISABILITY IN ONE SELECTED AREA AT SAVAR UPAZILLA'

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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

'EPIDEMIOLOGY OF PEOPLE WITH DISABILITY IN ONE SELECTED AREA AT SAVAR UPAZILLA'

Submitted by **Kashfia Rahman**, for partial fulfilment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT)

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DECLARATION

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

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First of all, I would like to pay my gratitude to Almighty who has given me the ability to complete this research project in time. When I started the study I didn't know whether I could complete it or not, but I believed, 'Fortune favors the brave'. So, I was determined to try my best to make it a success and I am most grateful to almighty ALLAH. Gratitude is due to my parents for their constant encouragement. Special appreciation goes to my dedicated supervisor, Ehsanur Rahman, Assistant Professor at the Department of Physiotherapy & Rehabilitation, (JUST), for his unwavering support and guidance. I acknowledge the valuable contributions of Dr. Mohammad Anwar Hossain, Prof. Md. Obaidul Haque, and Sazal Kumar Das, my respected teachers. Thanks to Muhammad Millat Hossain for facilitating the research, and Shahid Afridi, Research Assistant, for their excellent guidance. I appreciate the authorities at BHPI for permitting this dissertation. Lastly, I express my thanks to all well-wishers and friends who have supported me, as well as the study participants for their cooperation.

Acronym

SCI	Spinal Cord Injury
ISCoS	International Spinal Cord Society (ISCoS)
BHPI	Bangladesh Health Profession Institute
BMRC	Bangladesh Medical Research Council
DALYs	Disability-adjusted life years
CRP	Centre for the Rehabilitation of the Paralysed
ICH	Intracerebral Hemorrhage
IRB	Institutional Review Board
NHS	National Health Service (NHS)
SFB	Stroke Foundation of Bangladesh
RCT	Randomized Controlled Trials
NGO	Non-governmental organization
WHO	World Health Organization
QVSFS	Questionnaire for Verifying Stroke-free Status

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Abstract

Purpose: To find out the epidemiological status of stroke and spinal cord injury patients of Savar Union. **Objective:** To find out the demographic status of people with stroke and SCI, to explore the incidence rate of stroke and SCI survivors of Savar Union, and to elucidate the risk factors with stroke and associated comorbidities with spinal cord injury. **Methodology:** A retrospective cross-sectional study design was utilized. The sample was selected through a convenience sampling method. 72 samples for stroke and 39 samples for SCI were selected conveniently from 9 wards of Savar Union. The researcher used this method so that the aim and objectives of the study could be fulfilled. The study was conducted from May 2023 to July 2023. **Result:** The occurrence of strokes stands at 1.4, while for spinal cord injuries, it is 1. Males exhibit a higher percentage of both strokes (63.9%) and spinal cord injuries (64.1%). Strokes are more prevalent in the 51 to 70 years age group at 29.2%, whereas spinal cord injuries are more common in the 21 to 40 years age group. In binary logistics, the p-value for postgraduate stroke patients is 0.04, signifying statistical significance. Among stroke survivors, high blood pressure is prevalent in 94.4% of cases. **Conclusion:** This study reveals notable gender and age disparities in strokes and spinal cord injuries, with males comprising 63.9% and 64.1%, respectively. Strokes are prevalent in the 51 to 70 years age group (29.2%), while spinal cord injuries peak in the 21 to 40 years age group. A statistically significant link (p=0.04) exists between postgraduate status and strokes. High blood pressure is highly prevalent (94.4%) among stroke survivors, emphasizing the need for targeted interventions and awareness campaigns. The study recommends future research and preventative measures considering these demographics for effective strategies in reducing the burden of these conditions.

Keywords: *Incidence, Prevalence, Spinal Cord Injury, Stroke, Disability*

CHAPTER I INTRODUCTION

1.1 Background

A stroke is a medical emergency that occurs when there is a sudden disruption in the blood supply to the brain. This disruption can have severe consequences, as the brain relies on a constant flow of oxygen and nutrients delivered through the bloodstream. When this supply is interrupted, brain cells can begin to die within minutes, leading to potentially irreversible damage **(**Vlisides and Moore 2021). There are two primary types of strokes. The first type is Ischemic Stroke. This is the most common type, accounting for about 85% of all strokes. It occurs when a blood clot or plaque buildup in an artery narrows or blocks the blood vessel, reducing blood flow to the brain. As a result, brain tissue in the affected area may become damaged or die. Ischemic strokes can be further divided into two subtypes: thrombotic and embolic (Wafa et al. 2020). A thrombotic type of stroke occurs when a blood clot forms in an artery that supplies blood to the brain. This clot usually develops in areas with plaque buildup. An embolic stroke happens when a blood clot or debris travels from another part of the body (often the heart) to the brain, causing a blockage in a smaller blood vessel (Li et al. 2020). The second type is Hemorrhagic Stroke. This type of stroke is less common but often more severe. It occurs when a blood vessel in the brain ruptures, causing bleeding into or around the brain (Neaton et al. 1993). Hemorrhagic strokes can be categorized into two subtypes: intracerebral and subarachnoid. Intracerebral Hemorrhage occurs when a blood vessel within the brain bursts, leading to bleeding and damage to nearby brain tissue. Subarachnoid Hemorrhage type of stroke involves bleeding into the space between the brain and the surrounding tissues. It is often caused by the rupture of an aneurysm - a weak, bulging area of a blood vessel (Vlisides and Moore 2021)

Spinal Cord Injury (SCI) is a devastating condition that results from damage to the spinal cord, a crucial part of the central nervous system responsible for transmitting signals between the brain and the rest of the body (Holmes 2017). The extent of disability in SCI varies depending on the location and severity of the injury. There are two main types of SCI: complete and Incomplete (Hamid et al. 2018). In a complete SCI, there is a total loss of sensation and motor function below the level of the injury. This means that the affected individual typically has no movement or feeling in the areas below the damaged part of the spinal cord. An incomplete SCI means that there is still

some degree of retained sensation or motor function below the level of the injury (Rahman et al. 2017). The extent of impairment can vary widely, and individuals with incomplete SCI may have varying degrees of movement or sensation below the injury site (Sachdeva et al. 2018). The location of the spinal cord injury is also important in determining the type and severity of functional deficits. Injuries higher up on the spinal cord, such as those in the cervical region (neck), are typically more severe and can result in quadriplegia, affecting both the arms and legs (Zamarioli et al. 2020). Injuries lower on the spinal cord, such as in the thoracic or lumbar regions, often lead to paraplegia, affecting only the lower limbs **(**Zamarioli et al. 2020).

Strokes and spinal cord injuries are distinct medical conditions with different causes and consequences. Strokes result from interruptions in the brain's blood supply and can be ischemic or hemorrhagic. In contrast, spinal cord injuries involve damage to the spinal cord and can be complete or incomplete, with the type and severity of impairment varying depending on the location of the injury. Understanding these definitions and types is essential for the proper diagnosis and treatment of these conditions (Kader et al. 2017). In examining the incidence of stroke and spinal cord injury (SCI) patients across different regions, it becomes evident that these conditions pose significant challenges and demand tailored healthcare approaches (Zhang et al. 2013).

In Asia, home to nearly 60% of the world's population, stroke and SCI cases are alarmingly prevalent (Chen et al. 2022). Factors such as a rapidly aging population, lifestyle changes, and limited access to quality healthcare have contributed to the high incidence rates (Van et al. 2022). In countries like Bangladesh, where healthcare infrastructure is still developing, the burden of stroke and SCI is particularly heavy (Razzak, Roy and Khan 2016). A lack of awareness, timely intervention, and rehabilitation facilities further exacerbate the situation, leaving many individuals with long-term disabilities (Wasay et al. 2014).

Europe, on the other hand, exhibits a varied landscape in terms of stroke and SCI incidence. Western European nations with advanced healthcare systems have made significant progress in reducing stroke incidence through awareness campaigns and improved treatments. However, Eastern European countries continue to face challenges in managing these conditions due to limited resources and healthcare disparities (Thayabaranathan et al. 2022; Chen et al. 2022).

Australia, with its well-established healthcare infrastructure, has made notable strides in stroke prevention and treatment. The country's comprehensive approach, including public health initiatives and specialized stroke units, has led to a decline in stroke incidence. SCI, though less prevalent than stroke, still poses a significant health concern, often resulting from traumatic accidents (Kilkenny et al. 2022).

While there is a substantial global burden of stroke and SCI, disparities in incidence rates highlight the role of socioeconomic factors, healthcare access, and public health policies. Developing countries, like Bangladesh, urgently need to strengthen healthcare systems, enhance awareness, and improve prevention strategies to combat the rising tide of stroke and SCI cases (Saha et al. 2022). In contrast, regions like Europe and Australia demonstrate the potential for reducing the incidence of these conditions through robust healthcare systems, research, and public awareness (Sabariego et al. 2023). Furthermore, stroke and SCI incidence vary across the world, reflecting a complex interplay of factors such as demographics, healthcare infrastructure, and socioeconomic conditions. The global healthcare community must work collectively to address these challenges, promoting prevention, early intervention, and rehabilitation, regardless of geographic location, to alleviate the burden of stroke and SCI on individuals and societies worldwide (Thayabaranathan et al. 2022).

Disability is a multifaceted issue that affects millions of people worldwide, and in the context of Bangladesh, it presents a particularly challenging scenario. Among the various causes of disability, stroke, and spinal cord injury (SCI) stand out as major contributors, deeply intertwined with the disability landscape in the country (Lo, Chan and Flynn 2021). In Bangladesh, stroke ranks among the leading causes of disability, affecting individuals across all age groups. The risk factors for stroke, such as hypertension, diabetes, and sedentary lifestyles, are prevalent in the Bangladeshi population, contributing to the high incidence of strokes (Mondal et al. 2022). When stroke survivors do not receive prompt medical attention or access to rehabilitative services, they often experience long-term disabilities. Common stroke-related disabilities in Bangladesh include paralysis, speech impairments, and cognitive deficits. These disabilities can severely impact a person's ability to perform daily activities, participate in the workforce, and engage in social interactions (Saha et al. 2022). SCI, on the other hand, is primarily caused by traumatic incidents, such as road accidents and falls. Bangladesh has one of the highest rates of road traffic accidents

in the world, leading to a significant number of SCI cases. This type of injury can result in severe physical disabilities, including paraplegia or quadriplegia, depending on the level of the spinal cord affected (Rahman et al. 2017). Individuals with SCI in Bangladesh often face numerous challenges, including limited access to specialized medical care, assistive devices, and rehabilitation services. As a result, they may experience long-lasting disabilities that affect their mobility and independence (Šiška and Habib, 2013)

The disability landscape in Bangladesh is further complicated by socioeconomic factors. The country grapples with poverty, limited access to education, and inadequate healthcare infrastructure. These issues disproportionately affect individuals with disabilities, making it even more challenging for them to lead fulfilling lives (Razzak, Roy and Khan 2016). Discrimination and stigma also persist in Bangladeshi society, further marginalizing those with disabilities and hindering their social inclusion. Addressing the disability-related challenges posed by stroke and SCI in Bangladesh requires a multi-pronged approach (Islam et al. 2013). Firstly, there is a pressing need to raise awareness about stroke prevention and the importance of seeking immediate medical attention when stroke symptoms occur. Public health campaigns can educate the population about risk factors and lifestyle modifications to reduce stroke incidence (Rahman et al. 2018). Additionally, the establishment of stroke units in hospitals across the country, equipped with specialized medical staff and rehabilitation services, is crucial to improving outcomes for stroke survivors. For SCI, road safety initiatives and stricter enforcement of traffic laws can help reduce the number of traumatic injuries. Furthermore, improving emergency response services and enhancing the quality of care for SCI patients is essential. Access to assistive devices like wheelchairs and adaptive technologies should also be prioritized to promote independence and social inclusion among individuals with SCI. (Kader et al. 2017)

In the broader context, addressing disability-related challenges in Bangladesh requires a concerted effort to promote inclusivity and combat societal stigma. Education and employment opportunities must be made accessible to individuals with disabilities, and public spaces and transportation should be designed with their needs in mind. In conclusion, stroke and SCI are significant contributors to disability in Bangladesh (Šiška and Habib 2013). To alleviate the burden of disability caused by these conditions, comprehensive strategies that encompass prevention, timely medical intervention, rehabilitation, and societal inclusion are essential. Bangladesh must work

towards creating an environment where individuals with disabilities have the opportunity to lead fulfilling lives and contribute to society to the best of their abilities (Kader et al. 2017;

1.2 Rationale

Research in the fields of SCI (Spinal Cord Injury) and Stroke will help in developing better treatment options, rehabilitation techniques, and medications for individuals affected by SCI and stroke, enhancing their quality of life. Understanding the demographic characteristics of the affected population, such as age, gender, ethnicity, and socioeconomic status, is crucial for tailoring healthcare services and interventions. It helps to identify potential disparities and informs resource allocation. Determining the incidence rate provides valuable information about the new cases of stroke and SCI within a specific population and timeframe. This data is essential for healthcare planning, early intervention strategies, and assessing the effectiveness of prevention programs. Identifying risk factors associated with stroke and SCI can guide preventive measures and public health campaigns. Understanding the migration patterns of patients can reveal potential factors contributing to these conditions, such as environmental or lifestyle factors, and inform policies addressing those issues.

Finding the incidence of stroke and spinal cord injury (SCI) in the context of CRP (Center for the Rehabilitation of the Paralyzed) can be immensely beneficial for several reasons. First of all, Resource Allocation. Knowing the incidence rates of stroke and SCI in the CRP's catchment area allows for better resource allocation. CRP can plan and allocate resources such as medical staff, rehabilitation equipment, and facilities to meet the actual needs of the community. Then comes, ‘Service Planning’. Incidence data helps in planning the types and levels of services required. For instance, if there is a high incidence of stroke, CRP may need to expand its stroke rehabilitation programs, hire more specialized staff, or procure additional equipment and facilities tailored to stroke patients. Then comes Early Intervention and prevention strategies. Understanding the incidence can aid in the development of early intervention programs. Early detection and prompt rehabilitation services are crucial for better outcomes in both stroke and SCI cases. CRP can proactively identify high-risk populations and implement preventive measures. A high incidence rate may indicate underlying risk factors in the community. CRP can collaborate with public health agencies to develop and implement prevention strategies, such as awareness campaigns, lifestyle interventions, or community health programs aimed at reducing the incidence of stroke and SCI. Additionally, Incidence data can be used for research purposes and advocacy efforts. CRP can collaborate with researchers to study the causes and trends of stroke and SCI in their area, leading

to evidence-based practices and policies. This research can also help in fundraising and advocacy efforts to secure more support for CRP's initiatives. Lastly, Capacity Building. A higher incidence may necessitate the training of more healthcare professionals and rehabilitation specialists. CRP can use this information to invest in training programs to meet the growing demand for services. In summary, understanding the incidence of stroke and SCI can significantly enhance CRP's ability to serve its community effectively. It allows for informed decision-making, targeted interventions, and improved overall care for individuals with these conditions.

1.3 Research Question

What is the incidence rate of people with disability in the Savar Union?

1.4 Study Objectives

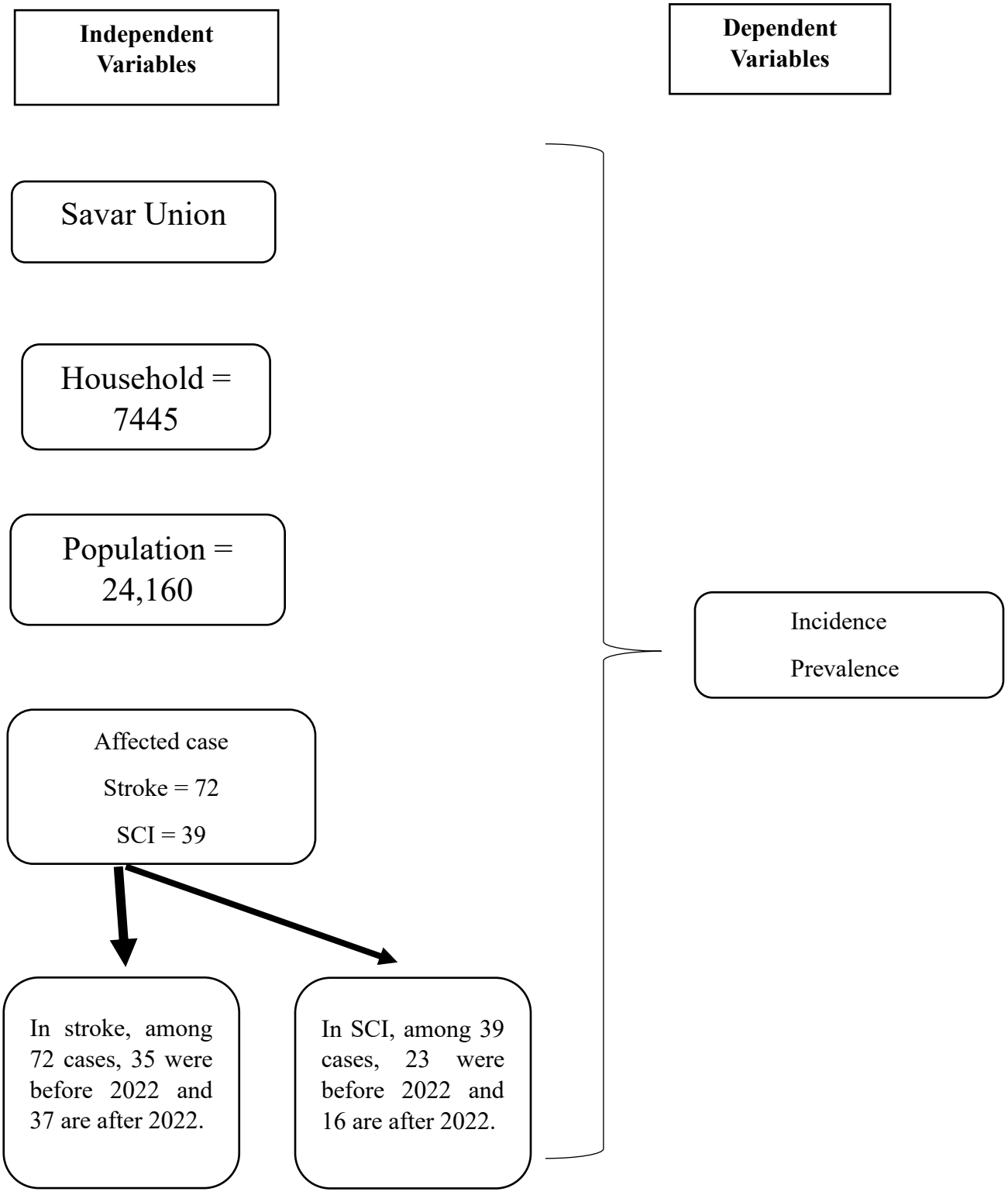
1.4.1 General objective:

The study aims to find out the epidemiological status of stroke and spinal cord injury patients of Savar Union

1.4.2 Specific objective:

- To find out the demographic status of people with Stroke and SCI
- To explore the incidence rate of stroke and SCI survivors of the Savar Union.
- To elucidate the risk factors of patients with stroke and SCI

1.5 Conceptual Framework



1.6 Operational Definition

Incidence: Incidence is just a way of saying how often something happens or how many new cases of something occur within a specific period. For example, it can be used to measure how many people get a particular disease in a year or how often a certain event, like car accident, happens in a month. It helps us understand the frequency of events or situations.

Prevalence: Prevalence is a way of telling how common something is in a certain group or population. It helps us figure out how many people, or what portion of the group, have a specific condition or characteristic at a particular time. For example, it can tell us how many people in a city have a particular illness right now. It's about understanding the extent of something in a given place or group.

Spinal Cord Injury: A spinal cord injury happens when there's damage to the spinal cord, which is like a long, thin bundle of nerves in the back. This can occur if there's a serious accident or injury that affects the spine. When the spinal cord is injured, it can lead to problems with feeling, movement, or even paralysis in parts of the body below the injury site.

Stroke: A stroke is a sudden, serious problem in the brain. It happens when the blood flow to a part of the brain is stopped, often due to a blood vessel blockage or bursting. This can cause the brain not to work properly, and it can lead to issues like trouble speaking, moving, or understanding things. Strokes are serious and need medical attention right away because they can cause lasting damage if not treated quickly.

Disability: Disability is when a person has a condition that makes certain things harder for them to do compared to someone without that condition. It can affect a person's ability to move, see, hear, think, or do everyday tasks. Disabilities can be physical, like using a wheelchair, or they can be related to mental or cognitive abilities. People with disabilities often need support or accommodations to help them live their lives to the fullest and overcome the challenges they may face.

CHAPTER-II LITERATURE REVIEW

Stroke is a leading cause of disability and death worldwide. According to the World Health Organization (WHO), there were approximately 13.7 million new cases of stroke in 2016 (Vlisides and Moore, 2021). Understanding the regional distribution of stroke helps allocate resources for prevention and treatment effectively. Spinal cord injuries, often resulting from accidents, have a profound impact on a person's quality of life. The World Health Organization estimates that worldwide, 250,000 to 500,000 people suffer from spinal cord injuries each year (Kader et al. 2017). Regional variations in incidence necessitate tailored rehabilitation and support services. Understanding the incidence and prevalence of stroke and spinal cord injury is crucial for both healthcare planning and public health interventions. These conditions have a significant impact on the affected individuals, their families, and society as a whole. Statistical interpretation underscores the urgent need to comprehensively examine the incidence and prevalence of stroke and spinal cord injury in various regions, including the US, Asia, Bangladesh, Europe, Africa, Australia, and worldwide, to develop targeted strategies for better patient care and prevention

Every year in the United States, about 17,700 new SCI cases happen (Zamarioli et al. 2020). In the United States, there are around 294,000 people living with SCI, and it can range from not so bad to really bad. Most SCIs come from car crashes, causing about 38% of all cases. Falls are the second most common reason, making up about 30% of SCI cases (Conti et al. 2023). Violence, sports accidents, and other things cause the rest. About 80% of the people with SCI are guys (Sabariego et al. 2023). The riskiest age group for SCI is 16 to 30 years old. Some groups like African Americans have higher rates of SCI. SCIs can be complete (very bad) or incomplete (not so bad) (Smith et al. 2018). Most are incomplete and might get better. The level of injury can be quadriplegia (can't move arms or legs) or paraplegia (can't move legs), depending on the case. SCI needs lots of medical care and rehab, which costs a lot. On average, SCI costs between $1 million and $5 million over a lifetime, depending on how bad it is. SCI can also cause long-term problems with the body and mind, making life tough for those who have it (Richards et al. 2017; Mirzaeva et al. 2019).

On the other hand, Stroke is a widespread and significant medical condition with substantial implications for public health. It is a global health concern, with approximately 15 million people

experiencing a stroke each year (Mondal et al. 2022). It is estimated that 5.5 million people die from stroke annually, making it the second leading cause of death worldwide. High blood pressure (hypertension) is the most significant risk factor for stroke, contributing to around 50% of all cases (Turana et al. 2021). Other risk factors include smoking, diabetes, unhealthy diet, physical inactivity, and excessive alcohol consumption. Globally, stroke is responsible for around 11% of all deaths (Thayabaranathan et al. 2022). In high-income countries, the mortality rate due to stroke has been decreasing, but it remains a major cause of death in low- and middle-income nations. Strokes pose a substantial economic burden. The direct and indirect costs associated with stroke care, rehabilitation, and lost productivity are enormous. In the United States alone, the annual cost of stroke is estimated to be over $34 billion (Lo, Chan and Flynn 2021). There are significant disparities in stroke prevalence and outcomes worldwide, with higher rates in certain regions, such as sub-Saharan Africa and Southeast Asia. Access to healthcare, education, and lifestyle factors contribute to these disparities.

Asia faces a significant health challenge in the form of a high incidence of stroke, particularly in countries experiencing aging populations. This issue is underscored by alarming statistical numbers. According to the World Health Organization (WHO), approximately 6.6 million deaths due to stroke occurred in Asia in 2016, representing a considerable portion of the global burden (Van et al. 2022). It's essential to understand the factors contributing to this elevated incidence. Lifestyle plays a pivotal role, and statistics reveal that unhealthy dietary habits and low physical activity levels are prevalent. In many Asian nations, diets high in salt and unhealthy fats contribute to hypertension and obesity, both of which are major risk factors for stroke (Turana et al. 2021). WHO reports indicate that in some regions, up to 40% of the population is overweight or obese (Dai et al. 2021). These figures emphasize the urgent need to promote healthier dietary choices and increase physical activity levels to reduce stroke risk. Furthermore, variations in stroke prevalence within Asia are closely tied to socioeconomic disparities. Countries with lower income levels often have limited access to quality healthcare and face challenges in implementing stroke prevention and care programs. For example, the stroke incidence rate in Japan, a high-income country in Asia, is substantially lower than in lower-income countries in South and Southeast Asia (Thayabaranathan et al. 2022). This discrepancy is attributed to differences in healthcare infrastructure, awareness, and access to preventive services. The numbers paint a stark picture of inequality. To illustrate, in some regions, the mortality rate from stroke is nearly double that of

high-income countries in Asia. Such disparities highlight the critical need for equitable access to healthcare and targeted interventions to bridge the gap in stroke prevention and care. Efforts to improve stroke prevention and care in Asia have gained momentum in response to the rising incidence (Choi et al. 2018; Kim, Jung and Saposnik 2016). Regional organizations, governments, and healthcare institutions have launched initiatives to address this pressing issue. For instance, in China, one of the countries with a high stroke incidence, the "Healthy China 2030" program has been established to promote healthy lifestyles and improve access to healthcare (Kilkenny et al. 2022). Similar initiatives are emerging in countries like South Korea, India, and Thailand, with a focus on public awareness, early detection, and the development of specialized stroke care facilities. These efforts aim to reduce the burden of stroke, as it is estimated that by 2030, Asia will account for more than half of all stroke-related deaths worldwide if significant interventions are not put in place (Venketasubramanian et al. 2017). In summary, the high incidence of stroke in Asia, particularly in aging populations, is a critical health challenge underscored by substantial statistics. Lifestyle factors, such as unhealthy diets and sedentary behavior, significantly contribute to stroke risk. Socioeconomic disparities within the continent further compound the issue, leading to variations in stroke prevalence (Suwanwela and Poungvarin 2016; Wasay et al. 2014). However, there is hope as Asia has initiated various efforts to improve stroke prevention and care, focusing on public awareness, early intervention, and equitable access to healthcare. These numbers and trends highlight the urgency of addressing this pressing health concern and working towards a healthier, more equitable future for the Asian population (Turana et al. 2021).

Stroke is a significant health concern in Bangladesh, and statistics reveal the extent of the challenge. In 2017, it was reported that stroke accounted for about 6.6% of all deaths in the country (Mondal et al. 2022). The incidence of stroke is particularly high, partly due to unique challenges posed by the healthcare infrastructure and socioeconomic factors. The healthcare system in Bangladesh, while making strides, still faces limitations in terms of resources and accessibility. In 2018, there were only 1.07 doctors per 1,000 people in the country, indicating a shortage of healthcare professionals (Saha et al. 2022). Additionally, many Bangladeshis face difficulties in accessing medical care, especially in rural areas. This situation further complicates the timely management of stroke cases, which requires prompt medical attention. Socioeconomic factors play a critical role in the prevalence of stroke in Bangladesh. Limited awareness about risk factors, lack of education, and low socioeconomic status contribute to the increased burden. The Bangladesh

Demographic and Health Survey in 2017 reported that 29.7% of women and 23.1% of men had no education. This lack of education can hinder understanding of stroke risk factors and the importance of a healthy lifestyle (Saha et al. 2022. Poverty is also a significant issue, with a substantial portion of the population living below the poverty line. In 2019, it was reported that about 24.3% of the population was living in poverty, and this can lead to poor dietary choices and limited access to healthcare, further exacerbating the stroke risk (Mondal et al. 2022).

In response to these challenges, Bangladesh has seen some positive developments in addressing stroke. The government, recognizing the urgency of the issue, has undertaken initiatives to improve stroke care and prevention. In 2018, the Ministry of Health and Family Welfare launched a "Stroke and Neurological Rehabilitation Project." This project focuses on increasing awareness, training healthcare professionals, and ensuring better access to care for stroke patients. Additionally, the government is working to strengthen the overall healthcare infrastructure in the country, which will indirectly benefit stroke patients by improving general healthcare services. Non-governmental organizations (NGOs) are also playing a vital role in addressing the issue of stroke in Bangladesh. For instance, the Stroke Foundation of Bangladesh, a non-profit organization, is dedicated to raising awareness, providing support to stroke survivors and their families, and advocating for better stroke care in the country. These organizations are instrumental in bridging gaps in stroke prevention, care, and support, particularly in regions where government resources are limited. In conclusion, stroke incidence and prevalence in Bangladesh are substantial, with unique challenges posed by the healthcare infrastructure and socioeconomic factors. The shortage of healthcare professionals and limited access to care are significant issues. Socioeconomic factors, including education and poverty, further compound the problem. However, there is hope in the form of government initiatives and the dedicated work of NGOs. The Stroke and Neurological Rehabilitation Project, along with organizations like the Stroke Foundation of Bangladesh, are contributing to a positive shift in stroke awareness, prevention, and care. These efforts, along with continued investments in healthcare infrastructure, offer promise for a brighter future for stroke management in Bangladesh (Turana et al. 2021; Hamid et al. 2018)

Stroke and spinal cord injuries are pressing health issues in Europe, and statistics paint a revealing picture of these challenges. The incidence of stroke varies significantly across European countries (Wafa et al. 2020). In 2018, it was reported that some nations, such as Ukraine and Russia, had

much higher stroke rates compared to Western European countries like France and Germany (Li et al. 2020. This variation can be attributed to multiple factors, including lifestyle and healthcare access. Healthcare systems play a crucial role in stroke management and Europe's diverse approaches to healthcare influence outcomes. High-income countries with robust healthcare infrastructure often report lower stroke incidence rates, whereas some Eastern European nations face challenges related to access and quality of care. Lifestyle factors also contribute to these differences, with variations in dietary habits, physical activity levels, and smoking rates (Dai et al. 2021). For example, Mediterranean countries like Spain and Italy, known for their heart-healthy diets, tend to have lower stroke rates. Europe has made significant progress in stroke treatment and prevention, with advancements in medical technology, stroke care units, and public health campaigns (Béjot et al. 2016). The European Stroke Organization, in collaboration with national initiatives, has been working to improve awareness and early intervention, leading to better outcomes for stroke patients. These statistics and trends underscore the importance of understanding the regional nuances in Europe to tailor effective strategies for stroke and spinal cord injury prevention and care (Johansson et al. 2021; Smith et al. 2022). The burden of these conditions in the continent is staggering, with alarming statistics reflecting the gravity of the situation.

In 2020, Africa was home to approximately 6.4% of the global population, but it accounted for 10% of stroke-related deaths, illustrating the disproportionate impact (Madasa et al. 2020). This highlights the pressing need to address the high burden of stroke and spinal cord injuries on the continent. One significant factor exacerbating the neurological health crisis in Africa is the influence of communicable diseases, particularly HIV. The prevalence of HIV in Africa remains high, with 20.6 million people living with HIV in 2020 (Madasa et al. 2020). Studies have shown that individuals with HIV are at a higher risk of developing neurological complications, including strokes and spinal cord injuries. In fact, research indicates that people with HIV are twice as likely to suffer a stroke compared to those without the virus. This staggering statistic underscores the interconnectedness of communicable diseases and neurological health. In addition to the role of HIV, limited access to healthcare exacerbates the challenges in managing strokes and spinal cord injuries in Africa. The World Bank reported in 2019 that only 45% of the African population had access to essential health services, leaving the majority without proper care (Akinyemi et al. 2021). Furthermore, there is a severe shortage of neurologists and specialized medical facilities in many

African countries, resulting in delayed or inadequate treatment for stroke and spinal cord injury patients. Consequently, many individuals do not receive timely medical attention, leading to more severe and often fatal outcomes. The struggle to manage stroke and spinal cord injuries is compounded by the lack of awareness and education about these conditions. In some African communities, there is a pervasive lack of understanding about the risk factors and symptoms of strokes and spinal cord injuries. As a result, patients may not recognize the warning signs, and families may delay seeking medical help, further reducing the chances of recovery (Kang et al. 2018).

Nevertheless, there are initiatives across Africa aimed at improving stroke care and raising awareness about these conditions. These efforts include increasing the number of neurologists and healthcare professionals who specialize in stroke management. Additionally, telemedicine and mobile health clinics are being used to reach remote and underserved communities, providing critical medical information and consultation (Joseph et al. 2017). Moreover, public health campaigns are working to educate the population about stroke prevention and the importance of seeking prompt medical attention. These efforts have contributed to an increased recognition of stroke symptoms and an uptick in the number of patients arriving at hospitals within the crucial window for effective treatment (Phillips, Braaf and Joseph 2018) . In summary, the statistics on stroke and spinal cord injury incidence and prevalence in Africa reveal a concerning reality. The continent bears a disproportionate burden of these conditions, partly due to the influence of communicable diseases like HIV. Limited access to healthcare and inadequate stroke management contribute to the grim outlook. However, ongoing initiatives to improve neurological healthcare and raise awareness offer hope for a better future, highlighting the importance of continued efforts to address these critical health challenges in Africa.

Stroke and Spinal Cord Injury (SCI) are critical health concerns in Australia, impacting the lives of many. Let's delve into the statistics and unique factors that contribute to their incidence and prevalence in this nation. Firstly, the numbers tell a compelling story. In Australia, the incidence of stroke is substantial, with approximately 56,000 new cases each year. This accounts for more than 1 in 4 deaths and is a leading cause of adult disability (Siriratnam et al. 2020). On the other hand, Spinal Cord Injury affects about 15,000 Australians, with a higher prevalence in males (Kang et al. 2018). The aging population plays a significant role in these statistics. As Australia's

population ages, the risk of stroke and SCI increases. The elderly are more vulnerable to these conditions, given the natural aging process, where blood vessels might become less flexible, increasing the likelihood of strokes. Additionally, falls and accidents, a common cause of SCI, tend to occur more frequently among older adults (New et al. 2015). The Australian healthcare system plays a vital role in managing stroke and SCI. It ensures that individuals receive timely and appropriate care. The Stroke Foundation in Australia works diligently to raise awareness, promote prevention, and enhance stroke care. The Australian healthcare system prioritizes fast and accurate diagnosis and access to specialized treatments, which has resulted in a significant reduction in stroke-related mortality and improved outcomes for survivors. Similarly, for those with SCI, Australia provides comprehensive rehabilitation services and support, aiming to improve the quality of life for individuals affected (Anderlini, Wallis and Marinovic 2020) . Concerns among indigenous populations are of particular importance. Indigenous Australians face a higher risk of stroke due to disparities in social determinants of health, like lower socioeconomic status and limited access to healthcare services. Cultural factors may also influence lifestyle choices and access to health education (Krishnamurthi et al. 2018). To address these disparities, community-based programs, and culturally sensitive interventions are essential. Efforts are underway to improve awareness, prevention, and management of stroke among indigenous communities, focusing on improving access to healthcare services and providing education on risk factors. Preventive strategies and public health campaigns are instrumental in reducing the burden of stroke and SCI in Australia (Kashida et al. 2022). Public health initiatives emphasize the importance of a healthy lifestyle, including regular exercise, a balanced diet, and smoking cessation to reduce the risk of stroke. Community education programs on recognizing the signs of a stroke and taking swift action are widespread. In terms of SCI prevention, campaigns encourage safety practices, like helmet use during recreational activities, and educating the public on the consequences of risky behaviors. The government and organizations actively work towards implementing safety measures and awareness campaigns. In conclusion, the incidence and prevalence of stroke and SCI in Australia are influenced by several factors, including the aging population and disparities among indigenous communities (Anderlini, Wallis and Marinovic 2020). The Australian healthcare system plays a pivotal role in addressing these conditions, ensuring timely and quality care. Preventive strategies and public health campaigns are critical in reducing the burden of these conditions (Clissold 2017). Continued efforts to improve healthcare access, raise awareness, and

enhance preventive measures are essential to tackling the challenges posed by stroke and SCI in Australia.

Let's take a closer look at the global statistics of Stroke and Spinal Cord Injury (SCI) affecting people of all ages and backgrounds. Stroke is a major concern around the world, with over 13 million people experiencing a stroke every year. Sadly, about 5.5 million of these cases result in death. Stroke doesn't discriminate; it affects people in both developed and developing countries (Wong et al. 2017). Now, turning our attention to Spinal Cord Injuries, the global burden is increasing as well. Approximately 250,000 to 500,000 people suffer from SCI each year. Many of these injuries are caused by accidents, particularly road traffic accidents, falls, and violence (Kamper 2016). The consequences of SCI can be life-altering, often resulting in permanent disability. The increasing prevalence of SCI is a global concern that calls for collective efforts to prevent such injuries and provide better care for those affected (Kamper 2016). The World Health Organization (WHO) is actively involved in promoting rehabilitation services and advocating for increased access to quality healthcare for people with SCI. International organizations, such as the International Spinal Cord Society (ISCoS), collaborate with healthcare professionals and researchers worldwide to advance knowledge and treatment options for SCI (Lo, Chan and Flynn 2021).

Disability is a global issue, impacting millions of people, and conditions like stroke and spinal cord injuries are major contributors to disability worldwide. According to the World Health Organization (WHO), approximately 15% of the world's population, which is around 1 billion people, live with some form of disability (Ottoboni et al. 2022). According to the Global Burden of Disease Study, stroke is responsible for more than 80 million years of living with disability (YLD) globally (Lo, Chan and Flynn 2021). Up to 50% of stroke survivors experience some form of disability, including paralysis, cognitive impairments, and speech difficulties. On the other hand, Spinal cord injuries often lead to severe and permanent disabilities (Hodkin et al. 2018). It is estimated that there are 27 million people living with spinal cord injuries globally. Nearly 90% of spinal cord injury cases are due to traumatic causes, such as accidents and falls, resulting in various degrees of paralysis and loss of function (Jayaraman et al. 2018). Disabilities, including those resulting from stroke and spinal cord injuries, have a significant economic impact. According to the World Bank, disability-adjusted life years (DALYs) related to neurological disorders, which

include stroke and spinal cord injuries, accounted for 11% of global DALYs in 2019 (Lo, Chan and Flynn 2021). Disparities in disability prevalence exist, with people in low-income countries often experiencing a higher burden. For example, in some low-income regions, access to medical care and rehabilitation services for stroke and spinal cord injuries is limited, leading to a higher likelihood of disability (Ottoboni et al. 2022).

These statistics emphasize the substantial impact of stroke and spinal cord injuries on the global burden of disability. They highlight the urgent need for comprehensive healthcare systems, rehabilitation services, and preventive measures to reduce the incidence and improve the quality of life for those affected by these conditions. Addressing the challenges posed by stroke and spinal cord injuries is not only a health priority but also an economic and social imperative for nations worldwide.

CHAPTER III METHODOLOGY

3.1 Study design

A retrospective cross-sectional study design was utilized, chosen for its appropriateness in achieving the research goals. In this approach, historical data is examined to assess the prevalence and incidence of a specific condition or characteristic within a population at a specific duration. Researchers collect existing data from various sources, such as records and surveys, and analyze it as if it were gathered at a single time point. This methodology is valuable for studying the historical occurrence of particular events or conditions and identifying trends over time. Incidence, which measures the rate of new cases of a specific condition within a population over a defined period, is typically investigated retrospectively, where researchers track a group of individuals over time to identify new and existing cases. One key advantage of cross-sectional investigations is their speed and cost-effectiveness, as they require no follow-up, reducing the financial resources needed for the study.

3.2 Study site

This study was conducted in Savar Union, Bangladesh.

Study area: 9 wards (areas in the rural and semi-urban category) of Savar Union were covered for data collection for stroke and Spinal cord injury patients.

- Ward no 1: Porabari
- Ward no 2: BPATC
- Ward no 3: Chapain
- Ward no 4: Deogao
- Ward no 5: Miton, Kristopur
- Ward no 6: Kolma uttor
- Ward no 7: Kolma Dokkhin
- Ward no 8: Dhorenda
- Ward no 9: Namagenda

The chronological order is derived from the Bangladesh National Portal website. The study was conducted from 5th May 2023 to 30th July 2023.

3.3 Data collection procedure:

Data was gathered through face-to-face interviews using specialized questionnaires related to stroke and spinal cord injuries. Each individual's data collection process typically lasted around 15 to 20 minutes.

Pilot Study: Before commencing the main data collection, a pilot study involving 10 participants was conducted. The pilot study served as a preparatory phase to refine the data collection procedure. It allowed the researchers to identify and address any challenges that might arise during questioning. Moreover, it facilitated the creation of a preliminary plan for structuring the questions and determining if any modifications were required for the questionnaire. Through the pilot study, the researchers gained valuable insights on how best to collect data and develop an effective approach for the actual data collection process.

3.4 Data collection tools:

Information was obtained through the utilization of tailored questionnaires concerning stroke and spinal cord injuries. Stroke patients, in particular, were surveyed using QVSFS questionnaires. In addition to these, various items such as consent forms, paper, pens, pencils, diaries, and smartphones were employed in the data collection process.

The Questionnaire for Verifying Stroke-Free Status (QVSFS) is a tool employed to evaluate an individual's self-reported medical history related to stroke or cerebrovascular events. Typically, it comprises a set of inquiries designed to collect information about the person's health history, with a particular emphasis on symptoms and incidents related to strokes. The primary objective of the QVSFS is to identify individuals who have not experienced a stroke or cerebrovascular events. This questionnaire proves valuable in clinical, research, or epidemiological contexts, serving as a means to screen for stroke-free status and collect pertinent data for subsequent analysis. It's worth noting that the specific questions within the QVSFS can vary depending on the version or specific study in which it is employed.

3.5 Study Population and Sampling

Population: It is the set of all observable items or occurrences on which the research is conducted.

Sample: A sample is a representative part of a population. For this research, the study population is Stroke and Spinal cord injury patients residing in the 9 areas in the rural and semi-urban categories of Savar Union. Data was collected from May 2023 to July 2023.

Sampling technique: The sample was selected through a convenience sampling method for conducting this study. A convenience sample is a group of individuals who (conveniently) were available for study.

3.6 Sample size

The equation of sample size calculation is given below:

$$n = \frac{Z^{2\cdot} \times p\,(1 - p)}{E^2}$$

Here,

n is the required sample size.

Z is the Z-score corresponding to the desired level of confidence (e.g., 95% confidence corresponds to a Z-score of approximately 1.96).

p is the estimated prevalence or incidence rate of the condition of the study (expressed as a proportion between 0 and 1).

E is the desired margin of error, 0.05

With an estimated prevalence rate of 0.10 for spinal cord injury (Kumar et al. 2018) and an estimated prevalence rate of 0.05 for stroke (Tu et al. 2022), the sample size calculation is,

For Stroke,

$$n = \frac{(1.96)^2 \times 0.05\ (1 - 0.05)}{(0.05)^2}$$

$= 72$

For Spinal cord Injury,

$$n = \frac{(1.96)^2 \times 0.10\ (1 - 0.10)}{(0.05)^2}$$

$= 138$

The actual sample size for this study was calculated as 72 for stroke, and 138 for Spinal Cord Injury. 72 samples were collected for Stroke but we could find only 39 for SCI.

As it is an academic thesis, self-funding and data were collected by considering the feasibility and time limitations. The mentioned number of 39 samples for spinal cord injury were selected conveniently.

3.7 Inclusion criteria

1. Patients who have experienced a stroke (Kilkenny et al. 2022) or spinal cord injury (SCI) (Hamid et al. 2018) are eligible for participation in the study.

2. Diagnosed with a stroke or spinal cord injury (SCI) within the last 12 months. (Kilkenny et al. 2022; Hamid et al. 2018)

3. Ability to provide informed consent or have a legal guardian provide consent if incapable of doing so themselves.

4. Ability to communicate effectively in the primary language of the study.

3.8 Exclusion criteria

1. Individuals with mental instability that could hinder their ability to provide informed consent or actively participate in the study will be excluded.

2. Patients who do not express a clear willingness to participate in the research will not be eligible for inclusion in the study.

3. Severe cognitive impairment or dementia that affects the ability to understand and participate in the study. (Kilkenny et al. 2022)

4. Active substance abuse or addiction that may interfere with study participation. (Hamid et al. 2018)

5. Previous participation in similar research.

6. Any condition or circumstance that, in the judgment of the investigators, may compromise the participant's safety or the integrity of the study.

3.9 Data management and analysis

After completing the initial data collection, every questionnaire was checked again to find out any mistakes or unclear information. The data was analyzed through Statistical Package of Social Science (SPSS) version 20 and data was leveled in a Microsoft Excel worksheet and arranged in results. The data was analyzed through statistical tests to fulfill research objectives.

3.10 Informed Consent

All participants provided their written consent. The participants verbally received an explanation of the consent form. The researcher gave the participants an explanation of how they may participate in this study. Every participant signed a written consent form provided to the researcher. As a result, the participant confirmed that they were able to understand the permission form and that their participation was voluntary. The confidentiality of the participant's data was made very obvious to them. The researcher gave the subjects his word that the study wouldn't hurt them. The study may not have directly benefited the participants, but it may have done so in the future for cases similar to theirs, it was revealed. Participants are free to revoke their permission at any time. To maintain privacy, data from this study were coded anonymously. The study wouldn't make them feel awful.

3.11 Ethical consideration

A research proposal was submitted to the physiotherapy department of Bangladesh Health Profession Institute for approval and the proposal was approved by the faculty members. Prior to starting the data collection, approval from the relevant authorities was acquired to ensure the participants' safety. The head of the physiotherapy department gave his official consent for the data collection and patient file review. Within the allotted time, data gathering was initiated and finished. Information was kept secure at all times. The study was carried out under the guidelines of the Bangladesh Medical and Research Council (BMRC) and the World Health Organization (WHO).

CHAPTER IV RESULT

In Savar Union, 24,160 individuals aged 21 and above across 7,445 households underwent screening. The recorded cases include 72 instances of stroke and 39 of spinal cord injury. Specifically for the year 2022, new cases amounted to 37 for stroke and 16 for spinal cord injury. The prevalence rates stand at 2.9 for stroke and 1.9 for spinal cord injury. Calculating the incidence rates, we find 1.4 for stroke and 1 for spinal cord injury (Table 1).

Table 1: **Incidence and Prevalence Rate at Savar Union**

Condition	Total Population	Total Case	New case in 2022	Prevalence	Incidence
Stroke	24160	72	37	2.9	1.4
SCI	24160	39	16	1.6	1

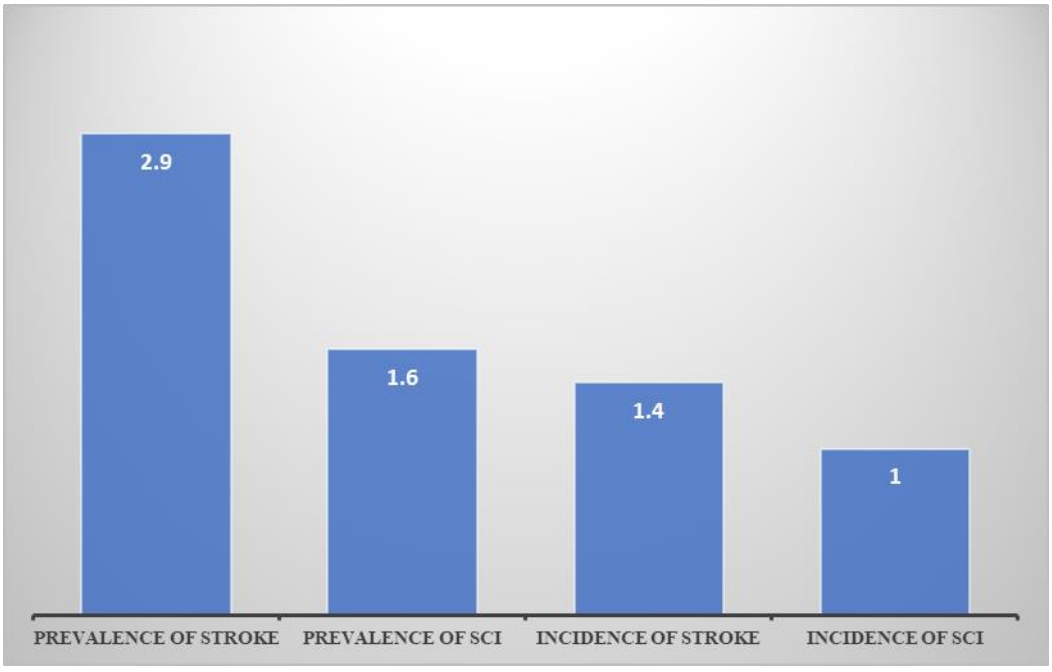


Figure 1: Incidence and Prevalence rate of Stroke and SCI in Savar Union

Table 2: Sociodemographic profile of the participants

Sociodemographic characteristics of the study population (Stroke – 72, SCI – 39)		
Characteristics	Stroke - n (%)	SCI - n (%)
Age in category	21 – 30 years - 3 (4.2%)	21 – 30 years - 16 (41%)
	31 – 40 years - 8 (11.1%)	31 – 40 years - 16 (41%)
	41 – 50 years - 12 (16.7%)	41 – 50 years - 1 (2.6%)
	51 – 60 years - 21 (29.2%)	51 – 60 years - 4 (10.3%)
	61 – 70 years - 21 (29.2%)	61 – 70 years - 2 (5.1%)
	71 – 80 years - 5 (6.9%)	
	81 – 90 years - 2 (2.8%)	
Gender	Male - 46 (63.9%)	Male - 25 (64.1%)
	Female - 26 (36.1%)	Female - 14 (35.9%)
Education	No formal education - 20 (27.8%)	No formal education - 6 (15.4%)
	Primary Education -22 (30.6%)	Primary Education - 11 (28.2%)
	SSC - 5 (6.9%)	SSC - 10 (25.6%)
	HSC - 13 (18.1%)	HSC - 8 (20.5%)
	Hons - 6 (8.3%)	Hons - 3 (7.7%)
	Post graduation - 6 (8.3%)	Post graduation - 1 (2.6%)
Occupation	Housewife - 23 (31.9%)	Housewife -3 (7.7%)
	Agriculture - 7 (9.7%)	
	Service holder - 11 (15.3%)	Service holder - 9 (23.1%)
	Day-labor - 3 (4.2%)	Day-labor - 2 (5.1%)
	Business - 15 (20.8%)	Business - 6 (15.4%)
	Student - 1 (1.4%)	Student - 6 (15.4%)
	Unemployed - 4 (5.6%)	Unemployed - 7 (17.9%)
	Others - 4 (5.6%)	Others - 6 (15.4%)
	Retired - 4 (5.6%)	

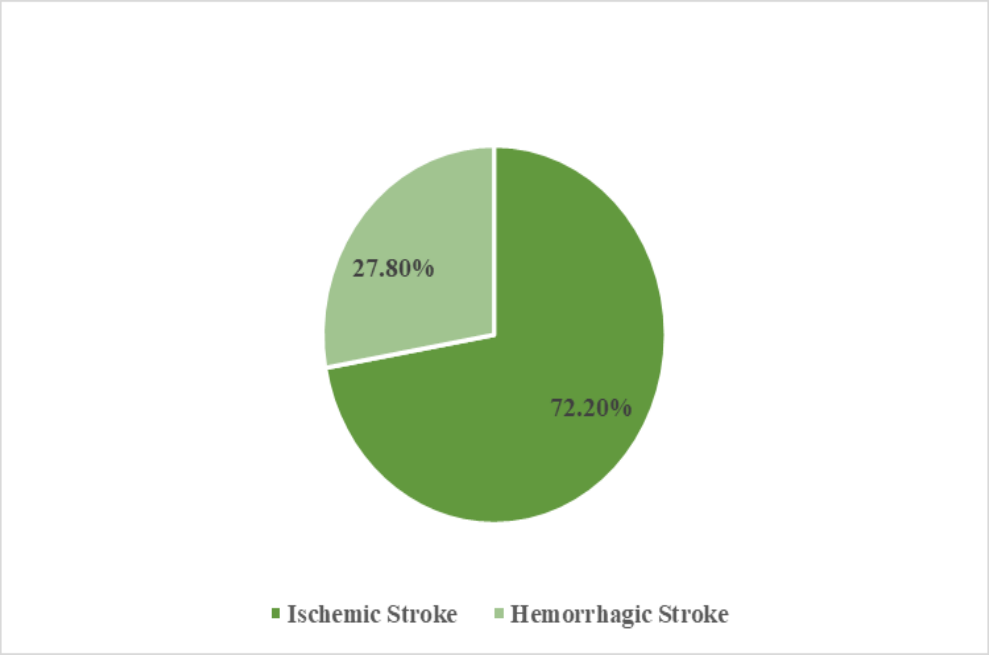
Table 2 displays the sociodemographic characteristics of the study population, encompassing age categories, gender, education, and occupation. Among the stroke patients, 63.9% were male, while 36.1% were female. Age distribution comprised 4.2% for 21-30 years, 11.1% for 31-40 years, 16.7% for 41-50 years, 29.2% for 51-60 and 61-70 years, 6.9% for 71-80 years, and 2.8% for 81-90 years. Regarding education, 27.8% had no formal education, 30.6% had primary education, 6.9% possessed SSC, 18.1% held an HSC, and 8.3% had honors or master's degrees. Occupationally, 31.9% were housewives, 9.7% were engaged in agriculture, 15.3% were service holders, 4.2% worked as day laborers, 20.8% were in business, 1.4% were students, and 5.6% were unemployed. For individuals with spinal cord injuries, 64.1% were male, and 35.9% were female. The age breakdown included 41% for both 21-30 years and 31-40 years, 2.6% for 41-50 years, 10.3% for 51-60 years, and 5.1% for 61-70 years. In terms of education, 15.4% lacked formal education, 28.2% had primary education, 25.6% completed SSC, 20.5% achieved HSC, 7.7% had honors, and 2.6% had postgraduate qualifications. Occupation-wise, 7.7% were housewives, 23.1% were service holders, 15.4% were in business, 15.4% were students, and 17.9% were unemployed.

In the radiology reports, it's found that most strokes (72.2%) were caused by a lack of blood supply (ischemic), while 27.8% were due to bleeding (hemorrhagic) (Figure 2). When the data was collected, 16.7% of people had complete paralysis, 76.4% had some degree of paralysis, 2.8% fully recovered, and unfortunately, 4.2% didn't survive (Figure 3). Using the NPR scale to measure pain, 26.4% experienced mild pain, 61.1% had moderate pain, and 12.5% faced severe pain. All patients reported sudden painless weakness, 93.1% had sudden numbness, 86.1% experienced painless vision loss (even losing half their vision), and 34.7% struggled to comprehend.

Surprisingly, 100% of the patients felt sudden, painless weakness, and a majority also had sudden numbness and vision problems (Figure 4). More than a quarter (27%) had a history of a previous stroke, and among them, 13% were completely reliant on family members for daily activities.

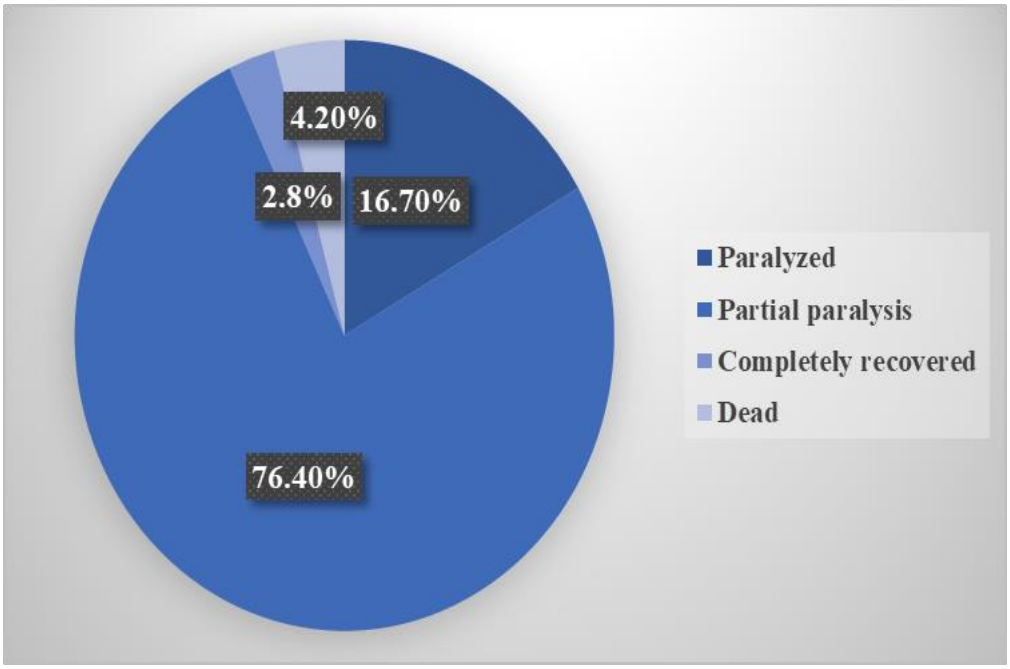
In simpler terms, the analysis shows that strokes were mainly either caused by a lack of blood supply or bleeding. Many patients faced paralysis, pain, weakness, numbness, and vision issues. Unfortunately, some didn't survive, and others were left dependent on family due to previous strokes.

Figure 2: Stroke type according to radiology report



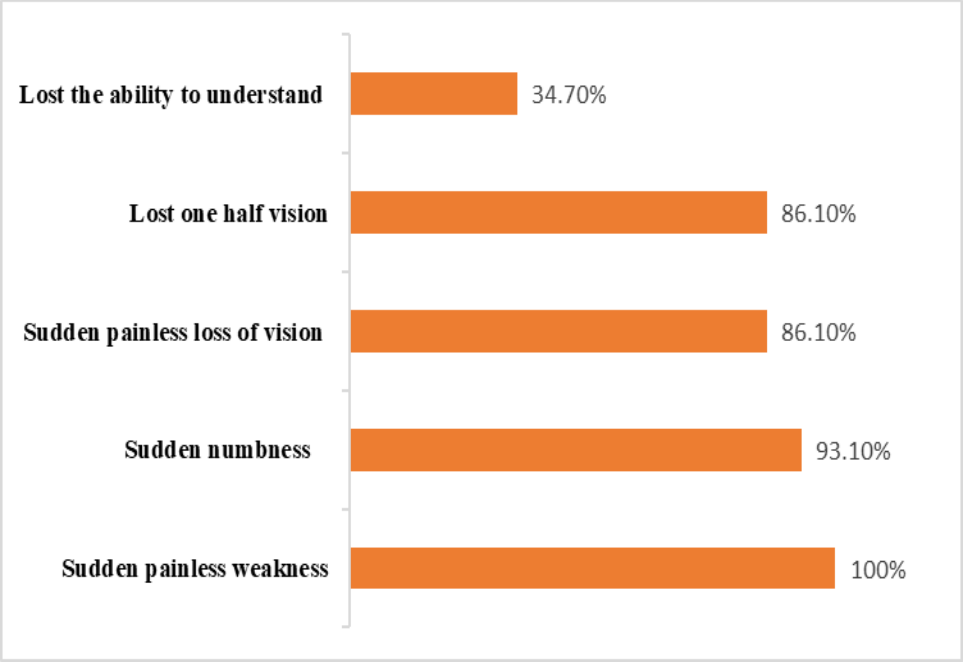
In the radiology reports, it's found that most strokes (72.2%) were caused by a lack of blood supply (ischemic), while 27.8% were due to bleeding (hemorrhagic)

Figure 3: Present State of Stroke Participants.



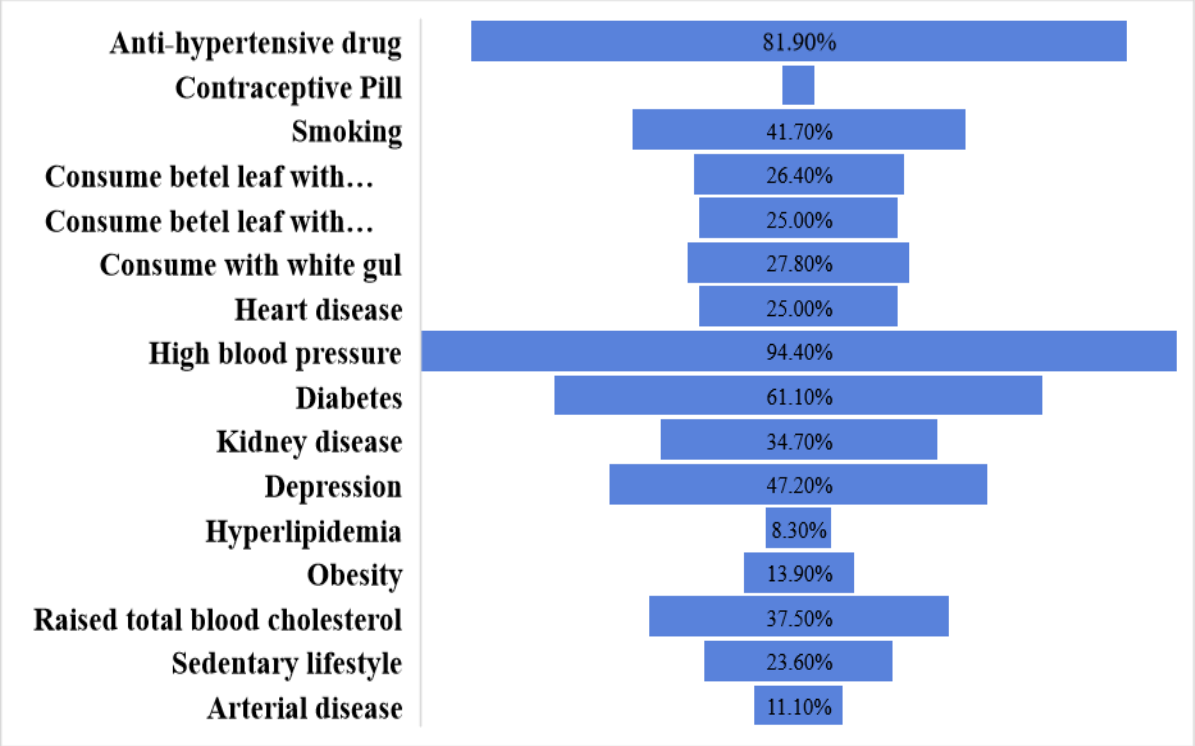
16.7% of people had complete paralysis, 76.4% had some degree of paralysis, 2.8% fully recovered, and unfortunately, 4.2% didn't survive.

Figure 4: Presenting features of Stroke



All patients reported sudden painless weakness, 93.1% had sudden numbness, 86.1% experienced painless vision loss (even losing half their vision), and 34.7% struggled to comprehend. Surprisingly, 100% of the patients felt sudden, painless weakness, and a majority also had sudden numbness and vision problems

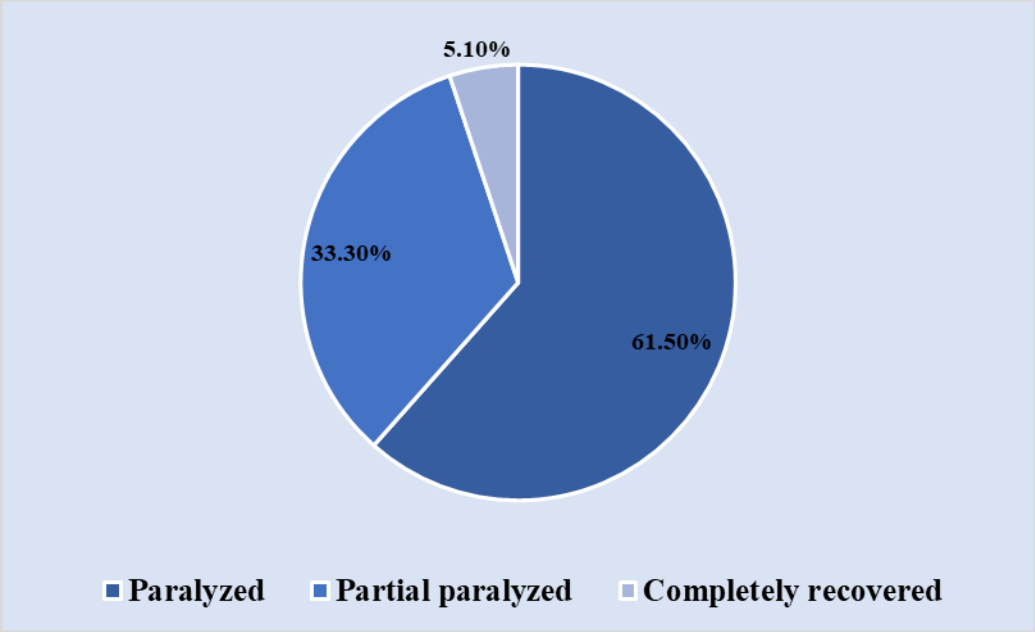
Figure 5: Distribution of risk factors among stroke patients in Savar Union



Out of all the patients, a high number (94.40%) had high blood pressure, and most of them (81.90%) were using medication for it. Some had heart issues (25%), diabetes (61.10%), kidney problems (34.70%), high cholesterol (37.50%), and arterial disease (11.10%). A small percentage of females (4.20%) had taken contraceptive pills, and about 41.70% were smokers.

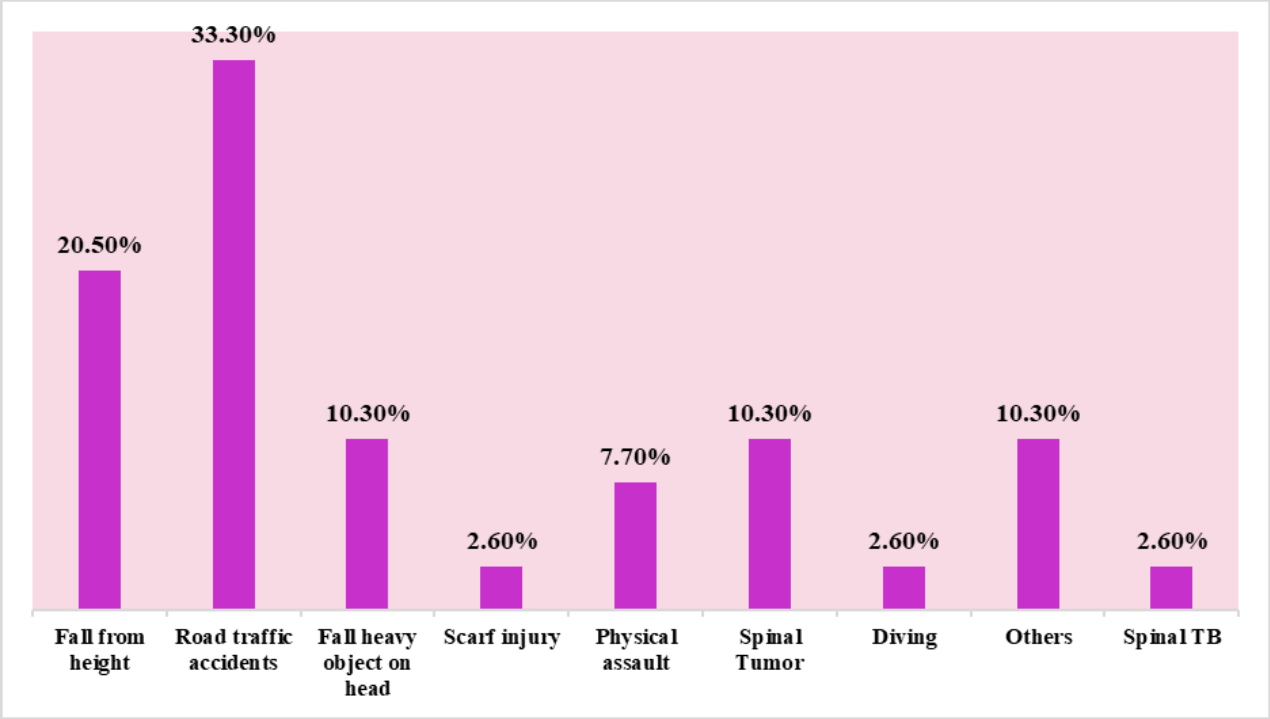
When it came to habits, around a quarter had consumed betel leaf with flavored tobacco, another quarter had added substances to betel leaf, and nearly 28% had it with white gul. A significant portion (23.60%) led a sedentary lifestyle. Obesity was a concern for 13.90% of participants, and almost half (47.2%) were dealing with depression.

Figure 6: The present state of SCI patients



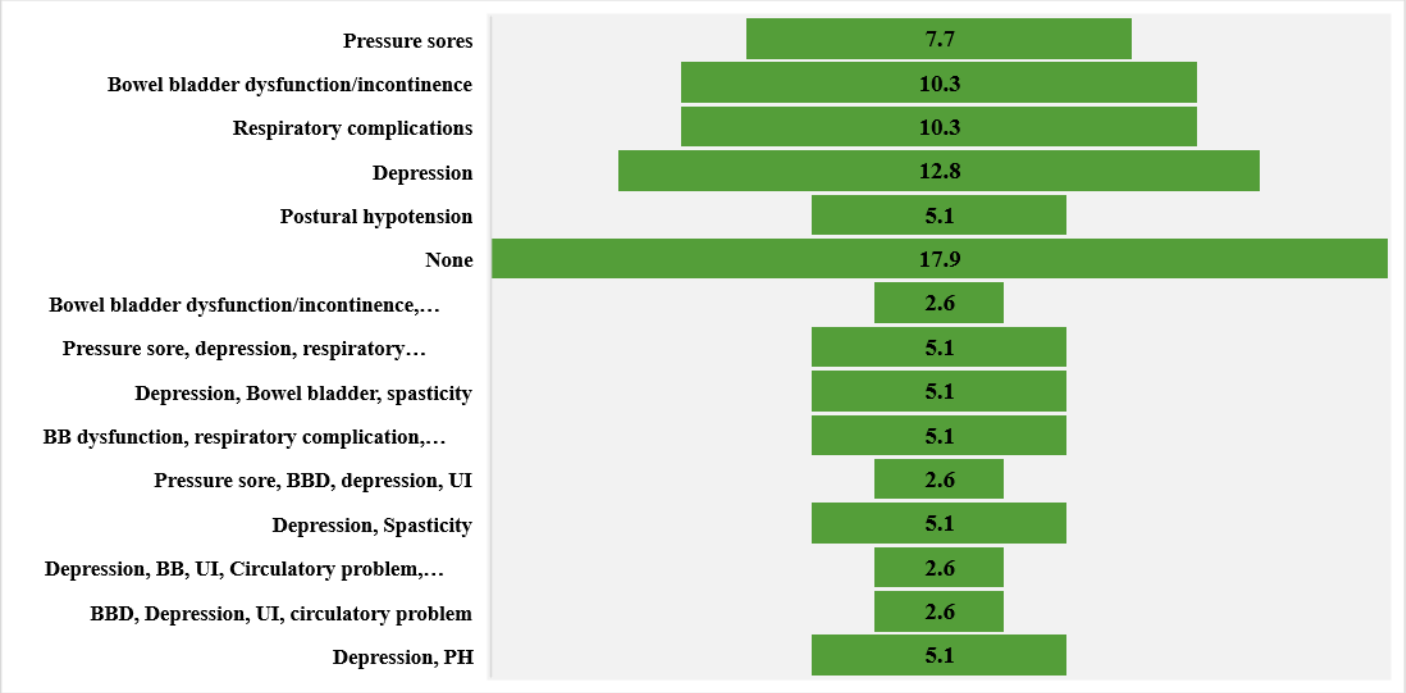
Out of the 39 individuals with spinal cord injuries, 61.50% experienced full paralysis, 33.30% had partial paralysis, and a small group (5.10%) fully recovered. Most individuals (87.2%) received a diagnosis of Traumatic Paraplegia, while a smaller percentage (12.8%) were diagnosed with Traumatic Tetraplegia.

Figure 7: Causes of Spinal Cord Injury



The leading cause of spinal cord injuries is road traffic accidents, accounting for 33.3%. Falls from heights contribute to 20.5%, injuries from heavy objects falling on the head make up 10.3%, scarf-related injuries are at 2.6%, physical assault accounts for 7.7%, spinal tumors are responsible for 10.3%, diving incidents represent 2.6%, and other causes collectively make up 10.3%, with spinal tuberculosis accounting for 2.6%.

Figure 8: Comorbidity after SCI (in percentage) in Savar Union



Following spinal cord injury, various associated health issues were identified. These include pressure sores at 7.7%, bowel bladder dysfunction or incontinence at 10.3%, respiratory complications at 10.3%, depression at 12.8%, postural hypotension at 5.1%, and no additional complications in 17.9% of cases. Combinations of complications were also observed, such as bowel bladder dysfunction, spasticity at 2.6%, pressure sore, depression, respiratory complications at 5.1%, depression, bowel bladder dysfunction, spasticity at 5.1%, bowel bladder dysfunction, respiratory complications, depression, postural hypotension, urinary incontinence, and spasticity at 5.1%, pressure sore, bowel bladder dysfunction, depression, urinary incontinence at 2.6%, depression, spasticity at 5.1%, depression, bowel bladder dysfunction, urinary incontinence, circulatory problems, and spasticity at 2.6%, bowel bladder dysfunction, depression, urinary incontinence, and circulatory problems at 2.6%, and depression, postural hypotension at 5.1%.

Table 3: Risk of Stroke according to socio-economic condition in Savar Union.

Characteristics	Adjusted OR (95%CI)	P value
Age		
21- 30 years	-	0.654
31-40 years	0.59(0-0)	1
41-50 years	0(0-0)	0.9
51- 60 years	0(0-0)	0.9
61-70 years	0(0-0)	0.9
71 - 80 years	0(0-0)	0.9
81-90 years	0(0-0)	0.9
Gender	1.551(0.390 - 6.161)	0.5
Education		
No formal Education	-	0.2
Primary	1.388 (0.327 - 5.882)	0.6
SSC	7.8 (0-0)	0.9
HSC	0.19 (0.016 - 2.243)	0.1
Hons	1.943 (0.211 - 17.919)	0.5
Post Grad.	17.001 (1.107 - 261.086)	0.04

The gender-adjusted odds ratio stands at 1.5 (confidence interval 0.3 - 6.1) with a p-value of 0.5, indicating no significant association. Binary logistic analysis suggests no substantial correlation between age and stroke occurrence, as reflected by p-values ranging from 0.5 for 21-30 years to 0.9 for age categories 41-50, 51-60, 61-70, 71-80, and 81-90.

Regarding education levels, adjusted odds ratios with 95% confidence intervals are as follows: Primary 1.388 (0.327 - 5.882), SSC 7.8 (0-0), HSC 0.19 (0.016 - 2.243), Hons 1.943 (0.211 - 17.919), and Post Graduation 17.001 (1.107 - 261.086). The associated p-values are 0.2 for no formal education, 0.6 for primary, 0.9 for SSC, 0.1 for HSC, 0.5 for Hons, and 0.04 for post-graduation.

Table 4: Risk of SCI according to socio-economic condition in Savar Union

Characteristics	Adjusted OR (95%CI)	P value
Age		
21- 30 years	-	0.8
31-40 years	0.296 (0.033-2.695)	0.2
41-50 years	1.9 (0-0)	1
51- 60 years	0.523 (0.028 - 9.845)	0.6
61-70 years	0.475 (0.016 - 14.393)	0.6
Gender	0.150 (0.016 - 1.403)	0.09
Education		
No formal Education	-	0.5
Primary	4.262 (0.227- 80.006)	0.3
SSC	1.916 (0.111-33.059)	0.6
HSC	11.246 (0.501-252.374)	0.1
Hons	0.828 (0.025-27.695)	0.9
Post Grad.	0(0-0)	1

The adjusted odds ratio for gender is 1.5 (confidence interval 0.016 - 1.4) with a p-value of 0.09, indicating a potential but not significant association. Age, as revealed by binary logistic analysis, doesn't strongly correlate with the occurrence of spinal cord injury (SCI). The adjusted odds ratios for different age categories are 31-40 years - 0.296 (0.033-2.695), 41-50 years - 1.9 (0-0), 51-60 years - 0.523 (0.028 - 9.845), and 61-70 years - 0.475 (0.016 - 14.393). The p-values for age categories 21-30, 31-40, 41-50, 51-60, and 61-70 are 0.8, 0.2, 1, 0.6, and 0.9, respectively. Examining education levels, the adjusted odds ratios with 95% confidence intervals are as follows: Primary 4.262 (0.227- 80.006), SSC 1.916 (0.111-33.059), HSC 11.246 (0.501-252.374), Hons 0.828 (0.025-27.695). The p-values for no formal education, primary, SSC, HSC, and Hons are 0.5, 0.3, 0.6, 0.1, and 0.9, respectively.

CHAPTER V DISCUSSION AND LIMITATIONS

5.1 Discussion

Savar Union, known for its diverse population, contends with health challenges like stroke and spinal cord injuries (SCI). This discussion delves into the occurrence and prevalence of these health issues, considering various factors such as age, gender, education, occupation, stroke types, risk factors, SCI causes, and associated comorbidities. Understanding the frequency of these conditions within the community is pivotal for strategic public health planning. Incidence, indicating new cases within a specific timeframe, and prevalence, representing the total cases at a given point, serve as crucial metrics. Age emerges as a significant factor influencing the occurrence of stroke and SCI, as demographic analysis unveils their distribution across diverse age groups. This insight becomes instrumental for healthcare providers, allowing them to tailor preventive strategies to specific age brackets. Gender analysis becomes crucial for understanding potential disparities, contributing to the development of targeted healthcare initiatives. Education levels play a role in impacting awareness and management, while occupational factors contribute to the incidence of these health issues. Distinguishing between ischemic and hemorrhagic strokes offers insights into the diverse nature of strokes, enabling healthcare professionals to craft treatment plans and preventive measures accordingly. Identifying common risk factors for stroke, such as hypertension and diabetes, is essential for the design of targeted health interventions. Spinal cord injuries, arising from accidents and falls, bring forth additional health challenges. Comorbidities like pressure sores and respiratory complications often accompany SCI, necessitating a comprehensive healthcare approach. Analyzing these aspects becomes the cornerstone for effective healthcare planning, resource allocation, and the formulation of strategies to enhance community well-being.

In the Savar Union, the complex interplay of factors influencing the incidence and prevalence of stroke and SCI becomes apparent. The demographic composition, with its diverse age groups, contributes to distinct patterns in the occurrence of these health issues. Tailoring preventive strategies becomes imperative as healthcare providers navigate the unique challenges posed by different age brackets. Gender dynamics further shape the health landscape, with potential variations in how stroke and SCI affect men and women. This insight informs the development of

healthcare initiatives that are specifically targeted and sensitive to potential gender-specific disparities. Education levels emerge as a critical determinant, influencing the awareness and management of stroke and SCI. Individuals with higher education may exhibit different risk factors or have better access to healthcare resources, impacting the overall incidence and prevalence of these conditions. Occupational factors introduce another layer of complexity, with certain professions exposing individuals to higher risks. For example, physically demanding jobs or those involving prolonged periods of sitting can influence the prevalence of spinal cord injuries. An occupational analysis aids in identifying high-risk groups and tailoring preventive measures accordingly.

The distinction between ischemic and hemorrhagic strokes adds a layer of specificity to the understanding of stroke occurrences. This differentiation provides valuable insights for healthcare professionals, allowing them to tailor treatment plans based on the predominant stroke type. Identifying common risk factors for stroke is pivotal for the development of targeted health campaigns and interventions aimed at reducing the overall burden of stroke within the community. Spinal cord injuries, often resulting from accidents and falls, present a unique set of challenges. The causes of SCI, rooted in accidents and trauma, underscore the importance of preventive strategies, particularly in areas such as road safety. The associated comorbidities, including pressure sores and respiratory complications, emphasize the need for a holistic healthcare approach. Understanding the prevalence of these additional health challenges within the SCI population enables healthcare providers to design comprehensive rehabilitation and support services. In conclusion, the multifaceted exploration of factors influencing the incidence and prevalence of stroke and SCI in the Savar Union is crucial for informed public health planning. This nuanced understanding allows for tailored interventions, resource allocation, and the development of strategies aimed at enhancing the overall health and well-being of the community. The integration of demographic, gender, educational, occupational, and medical insights forms the foundation for a comprehensive and effective healthcare approach within the diverse landscape of the Savar Union.

5.2 Limitations of the study:

Conducting a study on how often stroke and spinal cord injuries happen in the Savar Union is really helpful, but it has some challenges. One big issue is time – the study did not last long enough to see all the different situations that could happen. This means we might miss seeing if these health problems change during different seasons or over a long period. Another problem is not having enough resources. In the Savar Union, where people have different amounts of money, we might not have all the things we need for the study, like enough money, people to help, or the right tools. This could make it hard to find out how many cases there really are because we might not have the best tools to check and might not count some cases. Getting accurate information is also tough. Medical records and reporting systems in Savar Union might not be the same everywhere, making it tricky to get a full and accurate set of data. If some areas don't have good health records, it could affect what we find out. Another problem could be that some people might not want to share if they have health issues like stroke or spinal cord injuries because they are worried about what others might think or are afraid of being treated differently. This might mean we don't know the true number of cases in the community. The study might also not apply to everyone in the Savar Union because the people in the study might not represent everyone – they might have different lifestyles, cultures, and ways of seeking healthcare. We have to be careful to consider these differences to make sure the study's results can be useful for everyone. There are also some ethical issues, which means we need to make sure we are doing the study in the right way. We need to ask people if they want to be in the study and make sure their information is private. We also have to be respectful of different cultures and ways of doing things to protect everyone involved. Ethical concerns might affect how much information we can get and how we get it. Lastly, the things that can cause stroke and spinal cord injuries might change over time, like people's habits, the environment, and new health trends. If our study only looks at a short time, we might miss these changes, which could make our results less helpful for planning future healthcare. In the end, these challenges make it important to carefully think about how we do the study and how we interpret the results to make sure they are as accurate and helpful as possible.

CHAPTER VI CONCLUSION AND RECOMMENDATIONS

The incidence study conducted in Savar Union has provided valuable insights into the multifaceted dimensions of disability, socioeconomic characteristics, risk factors, and the adjusted odds ratios among individuals facing disabilities in this community. The findings underscore the importance of a comprehensive approach to understanding and addressing the challenges faced by people with disabilities. Socioeconomic factors have emerged as crucial determinants, influencing the prevalence and impact of disabilities within the community. The study highlights the need for targeted interventions and support systems to mitigate the disparities and barriers faced by individuals with disabilities, fostering inclusivity and equal opportunities. Additionally, the identification of specific risk factors provides a foundation for developing preventive strategies, contributing to the overall well-being of the population. The adjusted odds ratios offer a nuanced understanding of the interplay between various variables, guiding policymakers, and healthcare professionals in tailoring effective interventions. As we navigate the complex landscape of disability in the Savar Union, this study serves as a catalyst for informed decision-making, fostering a more inclusive and equitable society for all.

The recent incidence study conducted within the last few months focusing on stroke and spinal cord injury (SCI) patients provide crucial insights that can greatly benefit healthcare practices. The findings from this study shed light on the occurrence and impact of strokes and SCI, offering valuable information for medical professionals, policymakers, and caregivers. It is recommended that the healthcare system emphasizes early detection and intervention strategies for stroke patients to minimize long-term consequences. Moreover, for those with SCI, tailored rehabilitation programs and support services should be prioritized to enhance their quality of life. The study underscores the importance of ongoing research and awareness campaigns to educate the public about the risk factors associated with strokes and SCI. Additionally, collaborative efforts between healthcare providers, rehabilitation specialists, and community support organizations are recommended to ensure a holistic approach to the care and rehabilitation of individuals affected by stroke and SCI. Overall, the recommendations derived from this recent study aim to improve the prevention, treatment, and overall well-being of stroke and SCI patients, fostering a more supportive and effective healthcare environment.

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Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref: CRP/BHPI/IRB/03/2023/686

Date: 13/03/2023

To
Kashfia Rahman
B.Sc. in Physiotherapy,
Session: 2017-2018, DU Reg. No: 8624
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh

Subject: Approval of the dissertation proposal **"Incidence of people with disability in Savar Union"**- by ethics committee.

Dear
Kashfia Rahman,
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 Ehsanur Rahman Robin, Assistant Professor, Department of Physiotherapy & Rehabilitation, Jashore University of Science and Technology (JUST) as dissertation supervisor. The following documents have been reviewed and approved:

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

The purpose of the study is to find out the epidemiological status of stroke and spinal cord injury in a selected rural area (Savar union) of Bangladesh. Should there any interpretation, typo, spelling, grammatical mistakes in the title, it is the responsibilities of the investigator. Since the study involves questionnaire that takes maximum 20-25 minutes 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 January 9, 2023 at BHPI, 34th 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
Associate Professor, Dept. of Rehabilitation Science
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বরাবর,
ভারপ্রাপ্ত কর্মকর্তা
সাভার মডেল থানা।

বিষয়ঃ সাভার এলাকায় মেরুরজ্জুতে আঘাতপ্রাপ্ত ও স্ট্রোক রোগীদের বিষয়ে তথ্য সংগ্রহ প্রসঙ্গে।

জনাব,

শুভেচ্ছা নিন।

আপনি জেনে আনন্দিত হবেন যে, যশোর বিজ্ঞান ও প্রযুক্তি বিশ্ববিদ্যালয়ের উদ্যোগে পঙ্গুত্বগ্রস্তদের পুনর্বাসন কেন্দ্র (সিআরপি), সাভার এর সহযোগিতায় "মেরুরজ্জুতে আঘাতপ্রাপ্ত ও স্ট্রোক রোগীদের রোগবিস্তার-সংক্রান্ত বিদ্যা এবং রোগের ব্যবস্থাপনা" শীর্ষক একটি গবেষণা প্রকল্প পরিচালিত হচ্ছে। **গবেষনাটি ইথিক্যাল রিভিউ বোর্ড বিপিএ-আইপিআরআর** (IPRR/IRB/26/10/2021/033) **কর্তৃক অনুমোদিত।**

সাভার এলাকায় **মেরুরজ্জুতে আঘাতপ্রাপ্ত** আঘাতপ্রাপ্ত ও স্ট্রোক **রোগীদের বিষয়ে** তথ্য অনুসন্ধানই এ গবেষণার মূল লক্ষ্য। আমরা এ গবেষনার সুদুরপ্রসারী ফল আশা করছি, যাতে ভবিষ্যতে **মেরুরজ্জুতে আঘাতপ্রাপ্ত** আঘাতপ্রাপ্ত ও স্ট্রোক রোগীদের বিভিন্ন শারিরিক ও মনো-সামাজিক সমস্যা ও জীবনমানের প্রভাব অনুসন্ধান করা যাবে। যা পরবর্তীকে ফিজিওথেরাপি ও পুনর্বাসন চিকিৎসা পরিকল্পনা নিরুপনে সহায়ক হবে।

আমাদের তথ্য সংগ্রহকারীগণ সিআরপি এর শিক্ষাপ্রতিষ্ঠান বাংলাদেশ হেলথ প্রফেশন্স ইন্সটিটিউটের বিএসসি ইন ফিজিওথেরাপি কোর্সের শিক্ষার্থী। তথ্য সংগ্রহের জন্য তারা সাভার এলাকায় ভ্রমণ করবে। উক্ত তথ্য সংগ্রহ কার্যক্রমে সকলরকম অনাকাঙ্ক্ষিত পরিস্থিতি এড়াতে আপনার সদয় অবগতি ও সহযোগিতা একান্তভাবে কামনা করছি।

আপনার সুস্বাস্থ্য ও দীর্ঘায়ু কামনা করছি।

22.05.23

অধ্যাপক মোঃ ওবায়দুল হক
উপাধ্যক্ষ, বাংলাদেশ হেলথ প্রফেশন্স ইন্সটিটিউট
সিআরপি, সাভার
ফোনঃ ০১৭১২০৫৪০২৬

০১ কপি বুঝিয়ে দাইয়াস.

ডিউটি অফিসার
সাভার মডেল থানা

Date: 20 March 2023

To

The Principal

Bangladesh Health Professions Institute

Chapain, Savar, Dhaka-1343

Through: Head, Department of Physiotherapy, BHPI

Subject: Prayer for seeking permission to collect data for conducting a research project.

Sir,

With due respect and humble submission to state that I am Kashfia Rahman, a student of 4th year B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). The Ethical committee has approved my research project entitled "**Incidence of people with disability in Savar Union**" under the supervision of Ehsanur Rahman, Assistant Professor, Department of Physiotherapy and Rehabilitation, Jashore University of Science and Technology (JUST). Conducting this research project is a partial fulfillment of the requirement for the degree of B.Sc. in Physiotherapy. I want to collect data for my research project from the community. So, I need your kind permission for data collection in the community. My data collection site is Savar Union. I would like to assure you that nothing of the study would be harmful to the participants.

I, therefore, pray and hope that your honor would be kind enough to give me permission for data collection and oblige thereby.

Sincerely,

Kashfia Rahman

Kashfia Rahman

4th Year B.Sc. in Physiotherapy

DU registration: 8624

Session: 2017-18

Forwarded
E Rahman

Recommended
Sirdh

Shuvat Kumar Das
Lecturer
Dept. of Physiotherapy
BHPI, CRP, Savar, Dhaka-1343

CONSENT STATEMENT

Assalamualaikum,

My name is Kashfia Rahman, I am conducting this study for a B.Sc in Physiotherapy project study dissertation titled "Incidence of people with disability in Savar union" under Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and some other related information regarding your condition (Stroke or SCI). You will answer some questions which are mentioned in this form. This will take approximately 20-30 minutes.

I would like to inform you that it is a purely academic study and will not be used for any other purpose. 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 the 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 the interview. If you have any query about the study or your right as a participant, you may contact me, the researcher, and/or Ehsanur Rahman, Assistant Professor, Department of Physiotherapy and Rehabilitation, Jashore University of Science and Technology.

Do you have any questions before I start?

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

Yes □

No □

Signature of the participant.....

Signature of the interviewer.....

সম্মতি পত্র

আসসালামু আলাইকুম

আমার নাম কাশফিয়া রহমান, ৪র্থ বর্ষ, বিএসসি ইন ফিজিওথেরাপি শিক্ষার্থী, বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বিএইচ পিআই)। আমি এই গবেষনা অধ্যয়ন পরিচালনা করছি যা আমার ব্যাচেলর এর অংশ, বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বি এইচ পি আই), ঢাকা বিশ্ববিদ্যালয়ের অধীনে ফিজিওথেরাপি প্রোগ্রামে। আমার গবেষনার শিরোনাম হল " সাভার ইউনিয়নে নতুন প্রতিবন্ধী মানুষের ব্যাপ্তি "। সেই কারণে আমি কিছু ব্যক্তিগত তথ্য ও স্ট্রোক অথবা স্পাইনাল কর্ড ইঞ্জুরি সম্পর্কিত তথ্য জানতে চাই। এটি প্রায় ২০-২৫ মিনিট সময় নিবে। আমি আপনাকে জানাতে চাই যে এটি সম্পূর্ন পেশাদার অধ্যয়ন এবং অন্য কোন উদ্দেশ্যে ব্যবহার করা হবে না। আপনার দ্বারা প্রদত্ত সমস্ত তথ্য গোপনীয় হিসেবে বিবেচিত হবে। কোন প্রতিবেদন বা প্রকাশনার ক্ষেত্রে এটি নিশ্চিত করা হবে যে তথ্যের উৎস বেনামী থাকবে। এই অধ্যয়নে আপনার অংশগ্রহন স্বেচ্ছাকৃত এবং আপনি কোন নেতিবাচক পরিণতি ছাড়াই এই অধ্যয়নের মধ্য থেকে নিজেকে প্রত্যাহার করতে পারেন। সাক্ষাতের সময় আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন এমন একটি নির্দিষ্ট প্রশ্নের উত্তর না দেয়ার অধিকারও আপনার আছে। অধ্যয়ন বা অংশগ্রহনকারী হিসেবে আপনার অধিকার সম্পর্কে আপনার কোন প্রশ্ন থাকলে, আপনি আমার সাথে অথবা আমার সুপারভাইজার এহসানুর রহমান, সহকারী অধ্যাপক, ফিজিওথেরাপি ও পুনর্বাসন বিভাগ, যশোর বিজ্ঞান ও প্রযুক্তি বিশ্ববিদ্যালয়, এর সাথে যোগাযোগ করতে পারেন।

আমি শুরু করার আগে আপনার কোন প্রশ্ন আছে?

ইন্টারভিউ সামনের দিকে এগিয়ে যাওয়ার জন্য আমি কি আপনার সম্মতি পেতে পারি?

অংশগ্রহনকারীর স্বাক্ষর ....

তথ্যসংগ্রহকারীর স্বাক্ষর .....

স্ট্রোক প্রশ্নাবলী

রোগীর নাম -		
ঠিকানা-	**গ্রাম-**	**ইউনিয়ন-**
মোবাইল নং -		
রোগীর বর্তমান অবস্থা ১. পক্ষাঘাতগ্রস্ত ২. আংশিক পক্ষাঘাতগ্রস্ত ৩. পুরোপুরিভাবে সুস্থ ৪. মৃত		

আর্থসামাজিক তথ্য

(উত্তরে টিক চিহ্ন দিতে হবে)

১. বয়স .....

২. লিঙ্গ

- পুরুষ
- মহিলা

৩. শিক্ষাগত যোগ্যতা

- প্রাতিষ্ঠানিক শিক্ষা নেই
- প্রাইমারি পর্যন্ত পড়েছেন
- এসএসসি
- এইচএসসি
- অর্নাস
- মাস্টার্স

৪. পেশা

- গৃহিণী
- কৃষক
- চাকুরিজীবী
- দিনমজুর
- ব্যবসা
- শিক্ষার্থী
- বেকার
- অন্যান্য
- অবসরপ্রাপ্ত

৫. রেডিয়োলজিক্যাল রিপোর্ট অনুযায়ী স্ট্রোকের ধরণ

- ইশকেমিক স্ট্রোক
- হেমোরেজিক স্ট্রোক

৬. কবে স্ট্রোক করেছিলেন .....

৭. সংবেদনশীল দুর্বলতা

- অল্প
- মাঝারি
- তীব্র

৮. ব্যথার তীব্রতা (এনপিআর স্কেল অনুযায়ী)

- অল্প ব্যথা
- মাঝারি ব্যথা
- তীব্র ব্যথা

৯. স্বাভাবিক কাজ করতে পারেন কি?

- আগের মতোই
- আগের মতো করতে পারিনা
- কিছুই করতে পারিনা

১০. উচ্চতা..... ওজন..... **বি এম আই**.....

স্ট্রোক- মুক্ত অবস্থা যাচাই করার প্রশ্নাবলী (কিউভিএসএফএস)

(উত্তরে টিক চিহ্ন দিতে হবে)

১. আপনাকে কখনো কোন চিকিৎসক বলেছিলেন কি আপনার স্ট্রোক হয়েছে?

হ্যাঁ = ১, না = ২, জানি না = ৩

২. আপনাকে কখনো কোন চিকিৎসক বলেছিলেন কি আপনার স্ট্রোক, মিনিস্ট্রোক বা ট্রানসিয়েন্ট ইশকেমিক অ্যাটাক হয়েছে?

হ্যাঁ = ১, না = ২, জানি না = ৩

৩. আপনার কি কখনো শরীরের এক পাশে ব্যথা ছাড়া দুর্বলতার অনুভূতি হয়েছে?

হ্যাঁ = ১, না = ২, জানি না = ৩

৪. আপনার কি কখনো শরীরের এক পাশে হঠাত করে অসাড় অনুভূতি হয়েছে?

হ্যাঁ = ১, না = ২, জানি না = ৩

৫. আপনার কি কখনো এক বা দুই চোখে হঠাত ব্যথাহীন দৃষ্টি হারিয়েছে?

হ্যাঁ = ১, না = ২, জানি না = ৩

৬. আপনার কি কখনো হঠাৎ চোখের দৃষ্টি হারিয়েছে?

হ্যাঁ = ১, না = ২, জানি না = ৩

৭. আপনি কি কখনো হঠাৎ করে মানুষ কি বলছে তা বুঝতে পারার ক্ষমতা হারিয়েছেন?

হ্যাঁ = ১, না = ২, জানি না = ৩

৮. আপনি কি কখনো হঠাৎ করে মুখে বলে বা লিখে মনের ভাব প্রকাশ করার ক্ষমতা হারিয়েছেন?

হ্যাঁ = ১, না = ২, জানি না = ৩

সেল্ফ এডমিনিস্টার্ড কোমরবিডিটি প্রশ্নাবলী (স্ট্রোকের জন্য পরিবর্ধিত)

১. আপনার কি স্ট্রোকের পারিবারিক ইতিহাস আছে?

* হ্যাঁ * না

২. (মহিলাদের জন্য) আপনি কি জন্মনিরোধক বড়ি সেবন করেন বা করতেন?

* হ্যাঁ * না

৩. আপনি কি উচ্চরক্তচাপ এর ওষুধ খান বা আগে খেতেন?

* হ্যাঁ * না

৪. সুস্বাস্থ্যের জন্য আপনি কি নিয়মিত ব্যায়াম করেন/ করতেন?

* হ্যাঁ * না

৫. আপনার কি কোন সাহায্যকারী যন্ত্র আছে বা ছিল?

* হ্যাঁ * না

৬. আপনি কি ধুমপান করেন/ করতেন?

* হ্যাঁ * না

৭. যদি ৬ নং প্রশ্নের উত্তর হ্যাঁ হয়, তাহলে প্রতিদিন আপনি কয়টা সিগারেট খান?

* ৩ এর কম
* ৩ থেকে ৫
* ৬ থেকে ১০
* ১০ এর বেশি

৮. আপনি কি পান খান?

* হ্যাঁ * না

৯. আপনি কি পানের সাথে জর্দা, সাদাপাতা খান?

* হ্যাঁ * না

১০. আপনি কি পানের সাথে সাদা গুল খান?

* হ্যাঁ * না

	আপনার কি এই সমস্যা আছে?	
সমস্যা	**না**	**হ্যাঁ**
হৃদরোগ	O	O
উচ্চরক্তচাপ	O	O
ডায়াবেটিস	O	O
কিডনিরোগ	O	O
ডিপ্রেশন	O	O
হাইপারলিপিডেমিয়া	O	O
স্থূলতা	O	O
রক্তে কোলেস্টেরলের মাত্রা বৃদ্ধি	O	O
অলস জীবনযাপন	O	O
ধমনীরোগ	O	O

স্পাইনাল কর্ড ইঞ্জুরি সংক্রান্ত প্রশ্নাবলী

রোগীর নাম -		
ঠিকানা-	**গ্রাম-**	**ইউনিয়ন-**
মোবাইল নং -		
রোগীর বর্তমান অবস্থা ১. পক্ষাঘাতগ্রস্ত ২. আংশিক পক্ষাঘাতগ্রস্ত ৩. পুরোপুরিভাবে সুস্থ ৪. মৃত		

১. বয়স .....

২. লিঙ্গ

- পুরুষ
- মহিলা

৩. শিক্ষাগত যোগ্যতা

- প্রাতিষ্ঠানিক শিক্ষা নেই
- প্রাইমারি পর্যন্ত পড়েছেন
- এসএসসি
- এইচএসসি
- অর্নাস
- মাস্টার্স

৪. পেশা

- গৃহিণী
- কৃষক

- চাকুরিজীবী
- দিনমজুর
- ব্যবসা
- শিক্ষার্থী
- বেকার
- অন্যান্য
- অবসরপ্রাপ্ত

৫. কবে মেরুদন্ডে আঘাত পেয়েছিলেন? .....

৬. ডায়াগনোসিস

- ট্রমাটিক প্যারাপ্লেজিয়া
- ট্রমাটিক টেট্রাপ্লেজিয়া

৭. মেরুদন্ডে আঘাত পাওয়ার পেছনে কারণ কি?

- উঁচু জায়গা থেকে পড়ে যাওয়া
- রাস্তায় ট্রাফিক এক্সিডেন্ট
- মাথায় ভারী কোন বস্তু পড়া
- স্কার্ফ ইঞ্জুরি
- শারীরিক নির্যাতন
- স্পাইনাল টিউমার
- ঝাপ দেওয়া
- অন্যান্য
- স্পাইনাল টিবি

৮. স্পাইনাল কর্ড ইঞ্জুরি পরবর্তী কোমরবিডিটি সমূহ -

- প্রেশার সোর
- ডিপ্রেশন

- বাওয়েল ব্লাডার ডিজফাংশন/ ইনকন্টিনেন্স
- শ্বাসপ্রশ্বাসজনিত জটিলতা
- পশ্চারাল হাইপোটেনশন
- প্রশ্বাস ধরে রাখতে না পারা
- রক্ত পরিবহণ জনিত সমস্যা
- স্পাসটিসিটি
- অটোনোমিক ডিসরেফলেক্সিয়া
- অন্যান্য

Stroke Questionnaire

Patient name:		
Address:	**Village:**	**Union:**
Mobile no:		
Present Status of Patient: 1. Complete paralysis 2. Partial Paralysis 3 Completely recovered 4. Dead		

Socio-demographic and clinical information

(Put ✓ mark on answer)

1. **Age in years** ……

2. **Gender**
   - Male
   - Female
3. **Education**
   - No formal education
   - Primary Education
   - SSC
   - HSC
   - Hons
   - Post. Grad

4. **Occupation**
    - Housewife
    - Agriculture
    - Service holder
    - Day-labor
    - Business
    - Student
    - Unemployed
    - Others
    - Retired
5. **Stroke type according to radiological report**
    - Ischemic stroke
    - Hemorrhagic stroke
6. **Date of incidence ……**
7. **Sensory impairment**
    - Intact
    - Impaired
    - Loss
8. **Pain status (Using NPR scale)**
    - Mild pain
    - Moderate pain
    - Severe pain
9. **Can do normal activities**
    - As like before
    - Not like before
    - Cannot do anything

10. **Height ……. Weight …… BMI =**

Questionnaire for Verifying Stroke-Free Status (QVSFS)

(Put ✓ mark on answer)

1. **Were you ever told by a physician that you had a stroke?**
   - Yes = 1
   - No = 2
   - Unknown = 3
2. **Were you ever told by a physician that you had a TIA, ministroke, or transient ischemic attack?**
   - Yes = 1
   - No = 2
   - Unknown = 3
3. **Have you ever had sudden painless weakness on one side of your body?**
   - Yes = 1
   - No = 2
   - Unknown = 3
4. **Have you ever had sudden numbness or a dead feeling on one side of your body?**
   - Yes = 1
   - No =2
   - Unknown = 3
5. **Have you ever had a sudden painless loss of vision in one or both eyes?**
   - Yes = 1
   - No = 2
   - Unknown = 3
6. **Have you ever suddenly lost one-half of your vision?**
   - Yes = 1
   - No = 2
   - Unknown = 3
7. **Have you ever suddenly lost the ability to understand what people are saying?**
   - Yes = 1
   - No = 2
   - Unknown = 3
8. **Have you ever suddenly lost the ability to express yourself verbally or in writing?**
   - Yes = 1
   - No = 2
   - Unknown = 3

Self-administered Comorbidity Questionnaire (Modified for STROKE)

(Put ✓ mark on answer)

1. Do you have a history of stroke in your family? (Parents or other members)
   - Yes
   - No
2. (For female participants) Do/did you take contraceptive pill?
   - Yes
   - No
3. Do/did you take anti-hypertensive drugs properly?

- Yes
- No

4. Do/did you have any regular exercise programs for better health?
    - Yes
    - No
5. Do/did you have any assistive devices?
    - Yes
    - No
6. Do you smoke/ used to smoke?
    - Yes
    - No
7. If the answer of the question no 6 is yes, then how many cigarettes do you smoke per day?
    1. less than 3
    2. 3 – 5
    3. 6 – 10
    4. More than 10
8. Do you consume betel leaf with favoured tobacco?
    - Yes
    - No
9. If yes, what else (gul, white leaf, favoured tobacco) do you consume with pan?
    - Yes
    - No
10. Do you consume white gul?
    - Yes
    - No

	Do you have the problem?	
Problem	**No (1)**	**Yes (2)**
Heart diseases	O	O
High blood pressure	O	O
Diabetes	O	O
Kidney disease	O	O
Depression	O	O
Hyper lipidemia	O	O
Obesity	O	O
Raised total blood cholesterol	O	O
Sedentary lifestyle	O	O
Overweight	O	O
Arterial Disease	O	O

Spinal Cord Injury Questionnaire

Patient name:		
Address:	**Village:**	**Union:**
Mobile no:		
Present Status of Patient: 3. Complete paralysis 4. Partial Paralysis 4 Completely recovered 5. Dead		

1. **Age in years** ……
2. **Gender**
    - Male
    - Female
3. **Education**
    - No formal education
    - Primary Education
    - SSC
    - HSC
    - Hons
    - Post. Grad
4. **Occupation**
    - Housewife

- Agriculture
- Service holder
- Day-labor
- Business
- Student
- Unemployed
- Others
- Retired

5. **Date of incidence ……**
6. **Diagnosis**
    - Traumatic Paraplegia
    - Traumatic Tetraplegia
7. **Causes of injury:**

- Fall from height
- Road traffic accident
- Fall heavy object on head
- Scarf injury
- Physical assault
- Spinal Tumor
- Diving
- Others
- Spinal TB

8. **Comorbidities after Spinal Cord Injury**
    - Pressure sore
    - Depression
    - Bowel bladder dysfunction/incontinence
    - Respiratory complications

- Depression
- Postural hypotension
- Urinary incontinence
- Circulatory problem
- Spasticity
- Autonomic dysreflexia
- Others