INDEPENDENCE MEASUREMENT OF PARAPLEGIC SPINAL CORD INJURY PATIENTS IN RE-INTEGRATION PHASE AT CRP

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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

INDEPENDENCE MEASUREMENT OF PARAPLEGIC SPINAL CORD INJURY PATIENTS IN RE-INTEGRATION PHASE AT CRP

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DECLARATION

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that any publication, presentation or dissemination of information of the study. I would oblige to take consent from the department of Physiotherapy of Bangladesh Health Profession Institute (BHPI).

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Contents

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Acronyms

ADLs: Activity of Daily Livings

ASIA: American Spinal Injury Association

BHPI: Bangladesh Health Professions Institute

CRP: Centre for the Rehabilitation of the Paralyzed

ICF: International Classification of Functioning

IRB: Institutional Review Board

LOS: Length of Stay

QOL: Quality of life

SCIM: Spinal Cord Independence Measure

SCI: Spinal Cord Injury

SPSS: Statistical Package of Social Science

US: United States

WHO: World Health Organization

List of Tables

List of Figures

Abstract

Purpose: The aim of this study was to measure the independency of paraplegic SCI patients in their re-integration period. *Objectives:* The objectives were to find out the independence measurement of a group of paraplegic patients with spinal cord injury being achieved in re-integration period at CRP and to assess the socio-demographic characteristics, self-care ability, mobility getting along with paraplegic SCI patients. *Methodology:* The study design was cross-sectional study. 51 samples were conveniently selected from re-integration phase at CRP who are transferred half way hostel from June 2021 to October 2021. Among them 90.2% (n=46) were male and 9.8% (n=5) wee female. Data was collected by SCIM scale and it was analyzed by SPSS software version 20.0. *Result:* After analyzing data result was found the recovery level of functions. The study shows that out of 51 respondents, 33.3% were in the adolescent group ranging from 11 to 20 years. The number of male respondents are higher than females. The major cause of SCI of the study was traumatic. In this study, 86.3% male and 9.8% female did not need any assistance for feeding in re-integration phase. But this study didn't find any statistically significant between sex and recovery self- care activities. Maximum participants' age range was 11-20 years (33.3%) who became independent in feeding in re-integration unit. 23.5% people became independent in re-integration phase of 21-30 years aged people. On the other hand, between 31-60 years of people, little amount of people became full independent in feeding in re-integration phase. *Conclusion:* SCI is a consequence which may impact a person's whole life. The results of this study provide more insight into the functional independents of a group of patients with spinal cord injury.

Key words: Spinal cord injury, functional recovery, activity of daily livings.

CHAPTER – I INTRODUCTION

1.1 Background

The spinal cord is the major passageway in where motor and sensory information migrates between brain and body. The spinal cord contains spinal tracts (white matter) which is longitudinally oriented that surrounding central zones (gray matter) where most spinal neuronal cell bodies are found.

Sensory information is received by each root from skin areas called dermatomes. Additionally a group of muscles are innervated in each root called a myotome. Whereas dermatome generally represents a contiguous and discrete skin area, in there most roots innervate more than one muscle and most muscles are innervated by more than one root. Spinal cord injury (SCI) influences conduction of sensory and motor signals over the location of injury. By systemically analyzing the dematomes and myotomes, one can decide the cord fragments influenced by spinal cord injury (Maynord et al, 2020).

The spinal cord is accountable for conducting afferent and efferent stimuli between the brain and periphery. When any of these organ is damaged, organic structures and functions are lessened, resulting in impediments to perform activities of daily living (Franca et al., 2011).

Neural elements of the spinal canal which contains spinal cord, cauda equina and spinal cord injury (SCI) which causes permanent impairment of motor, sensory and/or autonomic function (Krishblum et al., 2011). SCI is categorized by high morbidity, high cost, and young aged patient and it often indicates to severe permanent disability (Van den Berg et al., 2010).

Spinal cord injury (SCI) will be a catastrophic damage associated with critical practical reduction corresponding with the seriousness of injury (Silver et al., 2012). More than 100 creating nations in the world is lived by more than 80% spinal cord injury patients in

where there will be absence of epidemiological data in regards SCI (Rathore, 2010). SCI is caused by traumatic or non- traumatic event that results in disabilities whose are great burden to the therapeutic world to the individuals, their family and society as well as whole affected (Van den Berg et al., 2010).

In both developing and developed countries SCI is one of the major causes of locomotors disabilities that disturbances in daily living activities (Arango et al., 2011). The cause may vary from individual to individual due to variant age, sex, race and socio-culture activities in SCI (Chen et al., 2013; Nwankwo and Uche, 2013).In America and Nigeria, motor vehicle accidents and fall from height are the most common causes of traumatic SCI (Mothe and Tator, 2013; Nwankwo and Uche, 2013; Spinal Cord Injury (SCI) Facts and Figures at a Glance, 2016). In America ,Violence is the third most frequent cause of SCI (Spinal Cord Injury (SCI) Facts and Figures at a Glance, 2016). In Bangladesh, most of the SCI happened due to accidental fall while carrying load (47.5%) (Islam et al., 2016). Road traffic accidents (41.3%), falling from a height (27.3%), sports (7.9%) and others (8.5%) such as fall of heavy objects onto the head or neck, bull attack and driving into shallow water are the other common causes of the SCI in Bangladesh (Hoque et al.,2011).

Spinal cord injury become a vital problem in Asia as well as Bangladesh. Progressively increase the number of SCI individuals as well as infirmity in Bangladesh (Islam et al., 2011).

In Asia, the incidence amounts of SCI range from 12.06- 61.6 per million, while the average age range of affected persons is 26.8- 56.6 years (Chen et al., 2013). In United States (U.S) , the incidence of traumatic SCI is 54 cases per million annually or 17,000 new cases each year (Spinal Cord Injury (SCI) Facts and Figures at a Glance, 2016). Globally, the incidence rates of SCI is 10.4 and 83 per million per year and 33 years is the mean age (Hoque et al., 2011). As stated by the World Health Organization (WHO),

20-40 individual per million of population attain spinal cord injury per year. Approximately 60% of cases happened in individual 16-40 years of age (Fehlings et al.,2014).

According to the World Health Organization, in Bangladesh 10% of the population are disabled. Disability in Bangladesh (2002) statistics that the total number of disability is gradually increasing with population aging and growth. It is actual phenomenon of our country that disabled people are exceptionally frequently denied of their opportunity and their rights.

As a result of SCI, the participation of indoor and outdoor activity ability can change and diminish. The ability to participate in work, sporting activities and leisure activities greatly decreased with an additional increase in time spent on individual home based occupation that leads to social isolation (Barclay et al., 2015).

Motor and sensory loss, impairments of bowel, bladder and sexual function are the most important physical consequences of a SCI. Extensive disabilities of daily life is its result . Self care recovery skills of paraplegic SCI patients is quicker than tetraplegia (Mueller et al., 2013).

In Bangladesh, the patients of spinal cord lesion do not persist after their injury or cannot access therapeutic care (Momin, 2003). For getting treatment, the SCI patients are going different hospital. But there has no enough facilities in every hospital about the SCI treatment. In Bangladesh , CRP is only one non –governmental organization which has realized the importance of conducting the rehabilitation program for these SCI patients through which can improve their lifestyle and functional independency after disability.

1.2 Rational

In Bangladesh, spinal cord injury is carrying a high rate of morbidity and mortality which is caused by neurological damage, is a vital health problem. In our country, the common type of spinal cord injury is paraplegia. Due to spinal cord injury or spinal cord lesion, about 4.6 % people are disabled in Bangladesh. The incidence of SCI people in Bangladesh has been estimated as 2.5 cases per million. Among total population, SCI became one of the most important causes of disability in our country. Due to lack of awareness, the number of affecting people is increasing day by day. We are unconscious about spinal cord injury in our country. Spinal cord injury can destroy not only one's life but also his whole family. The patients who can survive with full struggle, life is so much challenging to them. As Bangladesh is a developing country and now trying to developed health care system, so that SCI patients who need a specialized and comprehensive rehabilitation care to continue their activities of daily livings in the community.

The researcher is interested to know the independence rate of paraplegic SCI patients in re-integration unit. If people of SCI from every corner of the Bangladesh are aware about their independency then they can perform their activity independently as smoothly as possible.

1.2 Research Question

What are the measurement of independency of paraplegic SCI patients in re-integration phase at CRP?

1.3 Objectives

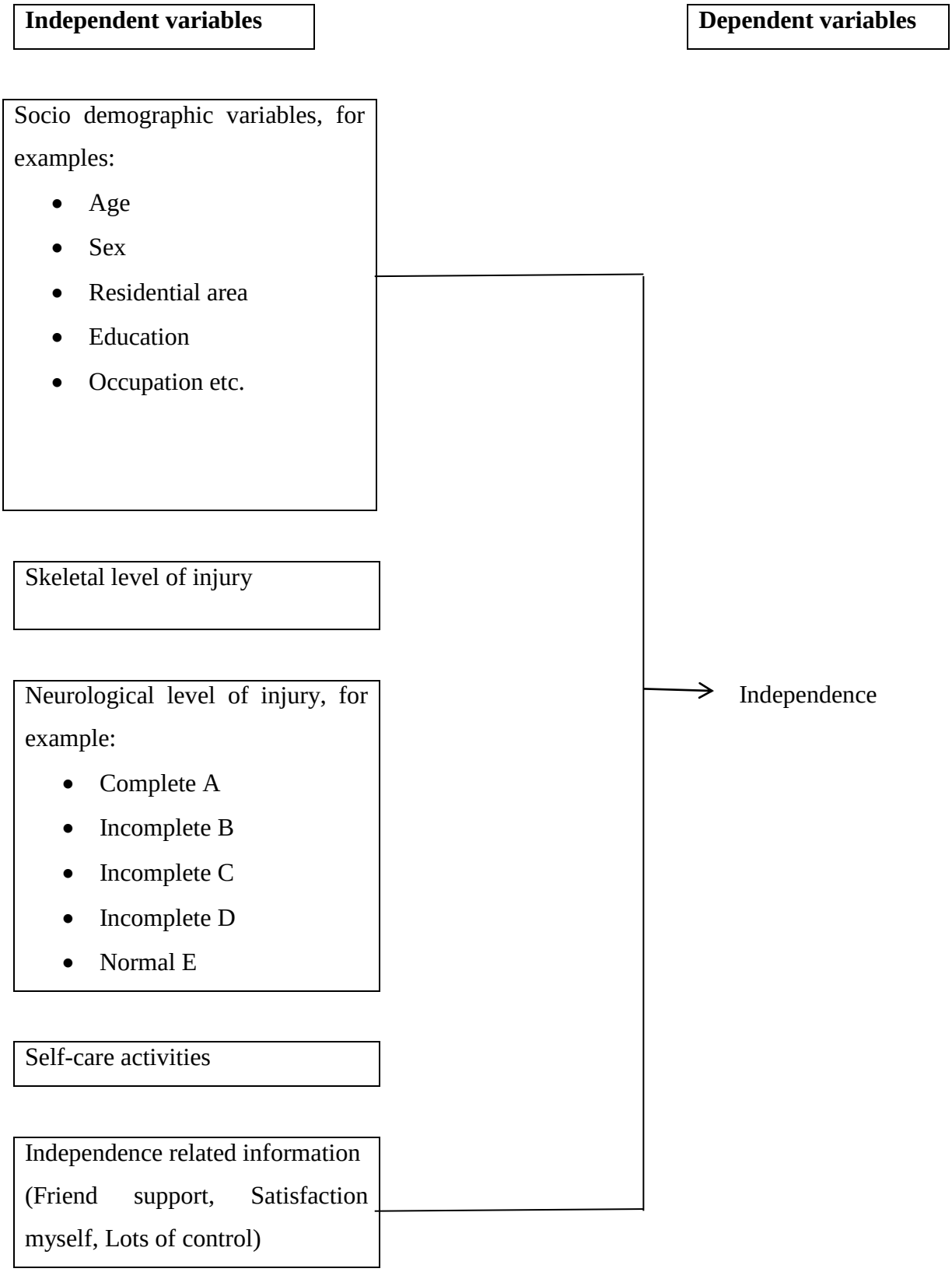
1.4.1 General objective

To find out the independence measurement of paraplegic patient in re-integration phase at CRP.

1.4.2 Specific objectives

I. To find out the socio demographic information among paraplegic patients.
II. To differentiate the independence rate among male and female.
III. To find out the impact of treatment duration on functional recovery.

1.5 Conceptual framework



1.6 Operational definition

Spinal cord injury:

When the spinal cord is damaged following trauma to the spine or disease process than it is called spinal cord injury which resulting in either temporary or permanent damage in its normal motor, sensory or autonomic functions.

Paraplegia:

This term refers to impairment or loss of motor and/or sensory function in the thoracic, lumber or sacral (but not cervical) segments of the spinal cord, secondary to damage of neural elements within the spinal canal. The term is used in referring to cauda equina and conus medullaris injuries but not to lumbo-sacral plexus lesions or injury to peripheral nerves outside the neural canal.

Complete injury:

Complete injury is used when there is an absence of sensory and motor function in the lowest sacral segment.

Incomplete injury:

If partial preservation of sensory and/or motor function is found below the neurological level and includes the lowest sacral segment, the injury is defined as incomplete. Sacral sensation includes sensation at the anal mucocutaneous junction as well as deep anal sensation. The test of motor function is the presence of voluntary contraction of the external anal sphincter upon digital examination.

Skeletal level of injury:

Skeletal level of injury refers to the level of injury at which, by radio-graphic examination, the greatest vertebral damage is found.

Independence:

This is the capacity of an individual person's functional ability in daily living activities.

CHAPTER – II LITERATURE REVIEW

A spinal cord injury (SCI) influences the conduction of sensorimotor signals which is causing temporary or permanent alterations (Leemhuis et al., 2019) on portability or autonomic function beneath the level of the injury, so that the more cranial the injury, the more serious it is. This leads to a critical restriction within the functional outcomes and patient's activities of daily living (ADL), and a loss of quality of life (QOL) (Dimbwadyo Terrer et al., 2016; Yoon et al., 2020). Expanded survival after traumatic SCI has come about a prevalence over the past 20 years.

Spinal cord injury (SCI) has overwhelming consequences for not only the individuals, but also their family and their community. Through non-systematic and fragmented process, a huge number of SCI around the world are still managed. Only some developed countries, all high income, provide comprehensive systems of co -ordinated care from acute phase to life- long follow up (Divanoglou and Goergiou, 2007).

Spinal Cord Injury (SCI) could be a devastating and debilitating conditions that influences all regions of the world (Wyndaele and Wyndaele, 2006). About one million individuals are living with SCI within the United States at present, with yearly costs for the intense treatment and chronic care of these patients totaling four billion dollars (Christopher and Dana Reeve Foundation, 2011). In spite of the immense affect of SCI at an individual and societal level, comprehensive treatment procedures pointed at decreasing the starting degree of neurologic injury and improving patient functional capacity are lacking (Howryluk et al., 2008; Rowland et al., 2008).

From an ancient text, firstly paralysis of SCI was described " an ailment not to be treated" and until the mid 20^{th} century still predestined a generally shortened life expectancy. A traumatic or non-traumatic SCI person loses their ability to move, feel, bowel and bladder control and other possible problems. Traumatic SCI are at higher risk than non- traumatic SCI. Traumatic SCI patients stay hospital for longer periods of time

rather than non-traumatic patients. A specialized team of health care professionals are the best to have periodic reviews for anyone with SCI. To prevent and treat complication of SCI, it help to achieve the best possible outcomes for health and well-being (Spinal Hub, 2017).

About 2.1 million individuals in Canada and United States are right now living with either a traumatic or non-traumatic spinal cord injury (SCI) (Christopher and Dana Reeve Foundation, 2012; Rick Hansen Institute, 2010). Each year about 16,200 people sustain a SCI with the most prominent incidence being among young adults in North America (National Spinal Cord Injury Statistical Center, 2011; Rick Hansen Institute, 2010).

The incidence of SCI ranges universally from 10.4 to 83 cases per million per year (Wyndaele and Wyndaele, 2006; Tang et al., 2007). About 15-17 cases per million each year over the past decade the age adjusted incidence rate of TSCI in adult aged, 15 years has remained at and older surviving to reach hospital. In currently, 11.9 cases per million per year ,adults are the incidence in Victoria in Australia (New and Sundararajan, 2008). The incidence of SCI in Serbia is unknown since there is no registry of patients with these injuries in our country.

The incidence of SCI ranges in Japan from 19-88/100,000 annually. The incidence of spinal cord injury is 15-50 per million per year. The prevalence of SCI is 480- 813 per million .In Pakistan there has no exact incidence due to lack of demographics of spinal injuries (Qureshi et al., 2010).

Trauma, vascular disorders, tumors of both malignant and benign etiology, infections and developmental disorders are the causes of the SCI (Wyndaele and Wyndaele, 2006).

Literature reviews have supported the affiliation between physical activity participation and improved health (Fernhall et al., 2008), physical capacity (Hicks et al,. 2011), subjective well being (Martin Ginis et al., 2010), and quality of life (Tomasone et al., 2013) among individual with Spinal Cord Injury (SCI).

There is a pressing unmet have to be precisely prognosticate, early after SCI, patient functional result. During the first few days after SCI, definitive treatment methodologies are formulated, which frequently incorporate forceful surgical decompression of the spinal cord. Typically too the time of most prominent anguish for an injured patient and their family as they face critical prognostic uncertainty. From a investigate viewpoint, it is difficult to definitively analyze the viability of novel interventions without characterizing homogeneous subgroups.

Unfortunately, physicians and researchers have small to scientifically direct their expectation of outcome following SCI. The few existing considers regularly utilize factors collected exterior of the initial injury period, and are in this manner less valuable as intense clinical prediction tools (Van Middendorp et al., 2011; Zorner et al., 2010).

The high prevalence of a sedentary lifestyle implies a arrangement of related conditions such as heart disease, deep vein thrombosis, urinary tract infection, diabetes, hypertension, muscle spasm, pressure ulcers and obesity, making an person more vulnerable to the require for well being related care. This arrangement of problem related with a sedentary way of life contains a coordinate impact on the subjective investigation of quality of life and especially on the freedom of individuals with physical incapacities, particularly those who have spinal cord injury.

A person with SCI may dependent on caregivers. Assistive technology is also required to facilitate mobility, self -care, communications or domestic activities. The impact of SCI is depending upon level and degree of impairment. Usually, the impairment depends on the difficulties in all area of activity such as grooming, oral hygiene, eating, bathing, dressing, toileting etc. For these activity, he or she may need a significant amount of assistance for another person or assistive device or others.

Spinal cord injury can be described as one of the foremost extreme forms of disabling syndrome (Gianini et al., 2006), and it has gotten to be progressively common in Brazil (Brasil-Ministerio da Saude, 2012). This is often basically due to the increase in urban violence, although automobile accidents, falls and gunshot wound are the foremost common causes of spinal cord injury (Bampi et al, 2008; Koch et al, 2007).

Spinal cord injury is a further cause of mortality and it causes in a high level of people disability, which is reflected in radical changes in lifestyle (Defino, 1999; De Vivo and Richards, 1992; Middleton et al., 2007; Price et al., 2004; Schmitz, 2004).In spite of the potential health complications that come secondary to a SCI such as obesity cardiovascular disease, pressure sores, and infections of the skin, bladder and respiratory systems (Anson and Shephard, 1996), advances in therapeutic medications and inovations in later decades have expanded the life expectancy of olders with SCI (Rick Hansen Institute, 2010).

According to Mello (2009), the regular practice of physical movement ought to be seen as a instrument for the help of the reintegration of individuals with spinal cord injury, who confront physical, social, and mental challenges by improving patterns of functional independence. In this context, positive encounters with in the different domains that contain quality of life empower people to more optimistically confront their life (Noce et al., 2009).

Returning to a healthy life style, health professionals often focus on a person's disability rather than individual as one who needs appropriate counseling. Many patients think that their physicians not encourage them to participate in fitness program so that it may affect their emotional well -being also. Those people who are disable , physical activity is a crucial component and it is the barrier for their mental and physical well-being (Scelza et al., 2016).

The literature on individuals with spinal cord injury has, in common, centered on the potential advantageous impacts of administered physical exercise on the parameters of quality of life and functional independence, not tending to other regular exercise that will contribute to an active way of life (Devillard et al, 2007).Other studies about have described functional independence taking after SCI, (Post et al., 2005; Dahlberg et al., 2003; Lugo et al,, 2007), and detailed on affiliations with physical capacity.

In these studies about patients shown they felt that inadequate muscle strength and a low endurance capacity threatened their functional independence (Price et al., 2004; Carpenter and Forwell, 2007). Furthermore, data appeared that a low physical capacity was related with functional limitations (Post et al., 2005; Dallmeijer and van der woude, 2001; Post et al., 1998; Kilkens et al., 2004). This physical reconditioning causes or contributes to lifelong therapeutic complications such as accelerated cardiovascular disease, insulin resistance, osteopenia, visceral obesity, immune system dysfunction and accelerated aging (Bloomfield et al., 1996; Demirel et al., 1998; Shields, 2002; Hjeltnes and Jansen, 1990; Kocina, 1997; Gerhart et al., 1993; Baumen et al., 1999; Nash, 1997; Segatore, 1995; Nash, 2000).

Following the definitions set down by the World Health Organization in 1980, the philosophy of rehabilitation is to reduce disabilities and handicaps resulting from impairments caused by trauma or disease (WHO, 1980).

Spinal cord injury (SCI) could be a obliterating conditions that requires seriously and specialized clinical rehabilitation. C6 and C7 are basic levels for accomplishing independence in daily activities (Welch et al, 1995). Most authors agree that patients with paraplegia can accomplish independence in self care skills. Rehabilitation ought to add life to years by encouraging individuals with SCI as much as possible to operate independently and to form conditions for social reintegration (Wade and de Jong, 2000)
Since SCI is endemic to a more younger population who are living longer lives, a basic concern is how to maintain independence with activities of daily living (ADL) and functional mobility (transfers and wheelchair propulsion) over time. The ability of people

with SCI to securely transfer from a wheelchair depends upon protecting upper extremity joint and function integrity (Nyland et al, 2000).

According to the International Classification of Functioning; Disability and Health (ICF), the functional outcome can be described in three dimensions, namely functions and anatomical structures, activities and participation (Anderson et al., 2008). Health care professionals work with these dimensions of ICF to recover the functions and well-being of the patients. It will also help them to ensure maximum functional independence of the patients. It will help to provide correct information about the rehabilitation process to the patients and caregivers. So that health care professionals should be about these three dimensions as the functional outcome in functional ability during rehabilitation reflects the effectiveness of rehabilitation.

However, rehabilitation in SCI and training can offer assistance patients return rapidly to ADL and keep up an satisfactory level of fitness. A few sorts of training program for SCI have been investigated. Personalized exercise program are considered profoundly successful to progress and maintain capacity for physical activity. In spite of lack of consensus about specific recommendations for training (type , intensity, or frequency), endurance training appears of advantages for SCI patients (Rimaud et al, 2005).

Evidence of the benefits of therapeutic rehabilitation is recorded typically by the lessening in inability of people getting inpatient recovery and by the length of stay (LOS). Functional results or reflects the viability of clinical restoration, and LOS is regularly utilized as a degree of its efficiency.

CHAPTER – III METHODOLOGY

Methodology is a vital part of a research project, which helps the researchers how to follow principles of a research and what types of procedure to be followed in conduction the research smoothly. The methodological procedure of a research includes research design, selection of study area, sampling procedure, data collection technique and how to analyse collection data from the field . The aim of this chapter is to explore the research design according to the nature of this research purpose.

3.1 Study design:

A cross sectional study was chosen to conduct the study and as appropriate to achieve the aims. Cross-sectional study is a descriptive study in which disease and exposure status is measured simultaneously in a given population. Cross-sectional studies can be thought of a providing a "snapshot" of the frequency and characteristics of a disease in a population at a particular point in time (Vu, 2015). All the measurements on each person are made at one point in time. The most important advantages of cross sectional study is quick and cheap. As there is no follow up, less resource are required to run the study. The quantitative methods are appropriate if the issue is known about relatively simple.

3.2 Study site:

The research will be conducted in Centre for the Rehabilitation of the Paralysed (CRP). The Spinal Cord Injury (SCI) half way hostel at the CRP in Savar which is the largest SCI rehabilitation centre for the patient with SCI. At first the standard questionnaire was developed and then collected data from SCI re-integration unit.

3.3 Study population:

In most studies, study population will be a specific one that comprises of components which adjust to a few assigned set of details. These details give clear direction to which components are to be included within the population and which are to be excluded (Kenneth, 2005).

In order to prepare a appropriate description of a population it is fundamental to recognize between the population for which the results are ideally required, the desired target population and the population which is really considered, the defined population. An perfect circumstance, in which the analyst had total control over the inquire of these populations containing the same components.

In this study the population is the paraplegic patients of Spinal Cord Injury who are transferred in re-integration unit at CRP. A sample is a specific portion of statistical population whose properties are examined to pick up data almost the whole (Werner et al., 2005). When dealing with people, it can be characterized as a larger population for the population purpose of survey.

3.4 Sampling technique:

Purposive sampling technique was used for sample selection. Purposive sampling starts with a purpose in mind and the sample is thus selected to include people of interest and exclude those who do not suit the purpose. The sample reflects the characteristics of the population from which it is drown.

3.5 Inclusion criteria:

1. Both male and female patients will be selected.

2. All aged patient's data will be included.

3. Both complete and incomplete paraplegia SCI patients will be included in this study.

4. Educational qualification: all level.

3.6 Exclusion criteria:

1. Tetraplegic patient will be excluded.

2. Unwillingness patients will be excluded.

3. Incomplete document due to lack of information will be excluded.

3.7 Sampling procedure:

The study was conducted by utilizing the convenience sampling method's since it was the most effortless, cheapest and faster strategy of sample selection. It will be simple to induce those subjects according to the criteria concerned with the study purpose through the convenience sampling procedure.

3.8 Sample size:

The equation of sample size calculation are given below

$$n= \frac{z^2\, p(1-p)}{d^2} = 66$$

Here’

n = sample

Z = 1.96 (95% confidential interval)

P = .78 (p = prevalence) (Yarkony , 1985)

d = .1 (precision)

The actual sample size for this study was calculated as 66.

Actual sample size for the study was 66. As it is an educational research and the study is cross-sectional survey the number of the study sample was 51.

3.9 Data collection method:

The researcher used standardized questionnaire to collect data. Researcher collected the data independently. Researcher took permission from ethical committee at CRP for conducting study. The researcher had been taken permission for data collection from the SCI unit at Savar, CRP and the Head of the Department of Physiotherapy department. Before data collection, the researcher selected a place where able to give adequate attention during collect data. In this study data was collected by Spinal Cord Independence Measure (SCIM) scale questionnaire. Following that the investigator went to half way hostel to take permission for data collection of re-integration phases patients. Firstly, the investigator introduced her and the research project as well as its purpose. Then investigator took data from those documents.

3.10 Data collection tool:

Data was collected by using SCIM scale, pen,pencil, scale, file and consent paper.

Spinal Cord Independence Measurement (SCIM):

The SCIM has been designed specifically for individuals with SCI and measures the ability of performing routine daily tasks (Ackerman et al., 2009). The SCIM was administered by physical therapists, occupational therapists, and nursing staff on admission and discharge. Each discipline assessed, by observation , specific SCIM items in which they had the most expertise: physical therapist scored all mobility components; occupational therapists scored feeding, bathing, dressing, grooming, sphincter management, and use of toilet and nurses scored respiration (Wirth et al.,2007).

Sub –items and maximal scores of the SCIM

Area	Sub-item	Maximal score
Self-care	Feeding	3
	Bathing upper body	3
	Bathing lower body	3
	Dressing upper body	4
	Dressing lower body	4
	Grooming	3
Total score of area		20
Respiration and sphincter	Respiration	10
Management	Bladder management	15
	Bowel management	10

	Use of toilet	5
Total score of area		40
Mobility	Bed mobility	6
	Transfer bed-wheelchair	2
	Transfer wheelchair-toilet tub	2
	Mobility indoors	8
	Mobility for moderate distance (10-100m)	8
	Mobility outdoors	8
	Stairs management	3
	Transfer wheelchair-car	2
	Transfer ground-wheelchair	1
Total score of area		40
Total score of SCIM		100

3.11 Data management and analysis:

The data was collected by using SCIM scale. The data that was analyzed is descriptive data. The graph technique was used for analyzing data, calculated as percentage and presented this using bar and pie charts by SPSS (Statistical Package of Social Science) software version 20.0. SPSS is a comprehensive and flexible statistical analysis and data management solution. SPSS can taken data from almost any type of file and use them to generate tabulated reports, charts, and plots of distributions and trends, descriptive statistics and conduct complex statistical analyses.

3.12 Inform consent:

At first, the aim and objectives of this study was informed to the subjects in a descriptive verbal way. The consent forms was delivered to the subject and it was ensured that they understood it properly. The subjects had the rights to withdraw themselves from the research whenever they want to. It was assured to the participants that their name or address would not be used. It was also be assured to the participants that their information might be shared in any normal presentation or seminar or writing but they would not be identified. The participants were informed by the researcher that the result would not be harmful for them. Ensuring the confidentiality of participant's information, no information has been shared without the research supervisor. At any time the researcher was available to answer any additional question regard to the study.

3.13 Ethical consideration:

The proposal of the study was submitted , prepared to the Institutional Review Board (IRB) and Bangladesh Health Profession Institute (BHPI) and approved was obtained from the board. The study had done by following guideline given by local ethical committee of CRP. Researcher maintained the confidentiality and all the interviews were taken in a confidential to maximize the participant's comfort and feelings of security. It should be assured that participants that his or her name or address would not be used. These materials will be destroyed of after completion of the research project. Collected data will be destroyed after six months following the study. The participants were also informed that the research result would not be harmful for them.

CHAPTER – IV RESULTS

Socio-demographic characteristics of the respondents (n=51):

4.1 Age Group (n=51):

The study shows that most of the respondents were adolescents. People can be affected by SCI in any age . The bar chart shows that out of 51 respondents , 17 (33.3%) were in the adolescent group ranging from 11 to 20 years, followed by 12 (23.5%) were in the group of young adult ranging from 21 to 30 years, 10 (19.6%) were ranging from 31 to 40 years, 9(17.6%) were ranging from 41 to 50 years , and 3(5.9%) were ranging from 51 to 60 years of age .The mean ages of the patients were 30 years with standard deviation (± 1.282). This study points out that large number of adolescent and young adults are living with SCI and they are more vulnerable for SCI.

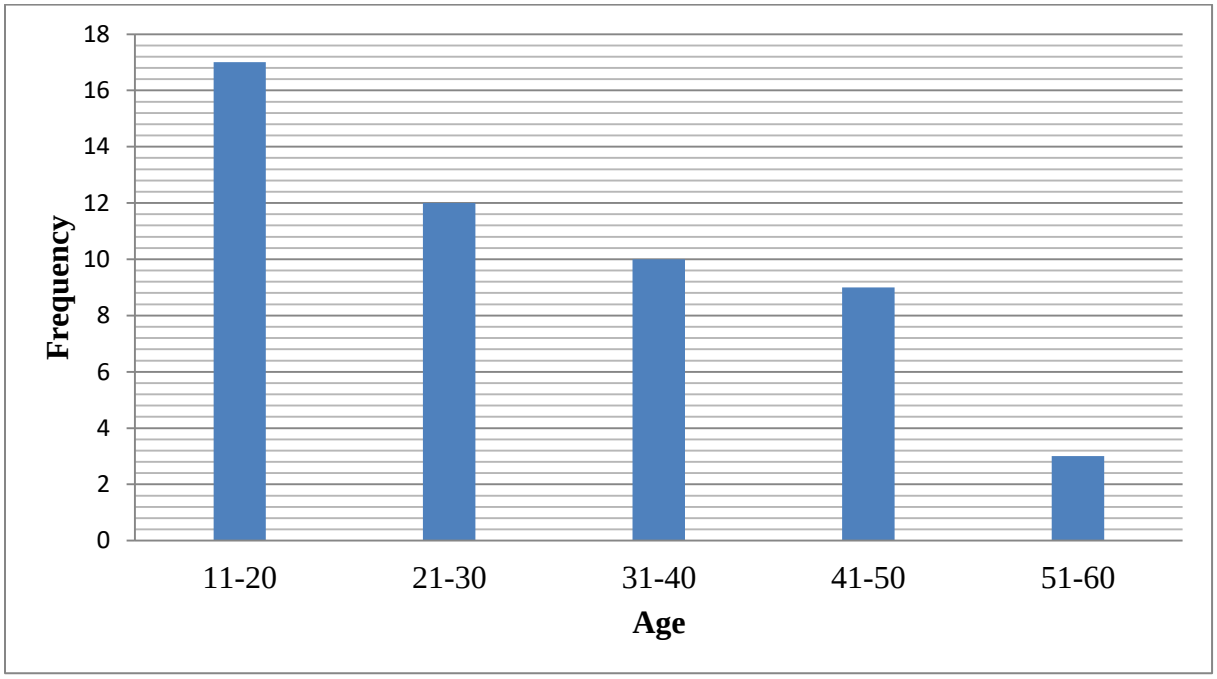


Figure 1: Age Group

4.2 Gender of the respondents (n=51):

The study shows that out of 51 respondents 46(90.2%) were male and remaining 5(9.8%) were female . The number of male respondents are higher than female.

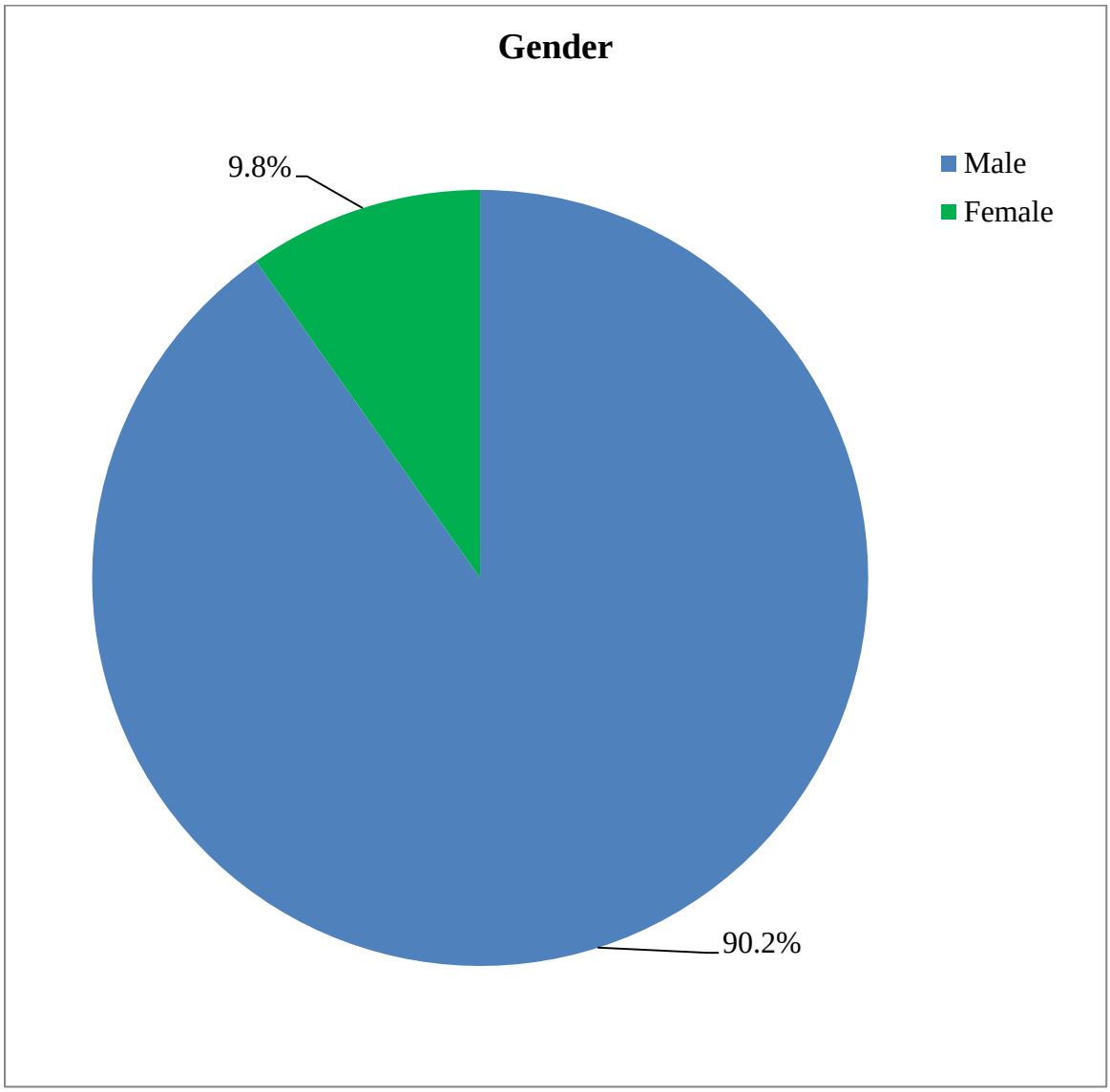


Figure 2: Gender of the respondents

4.3 Marital status of the respondents (n=51):

The study shows that most of the respondents were married . The bar chart shows that out of 51 respondents , 28 (54.9%) were married ,20 (39.2%) were unmarried , 2(3.9%) were divorced and 1 (2.0%) were separated.

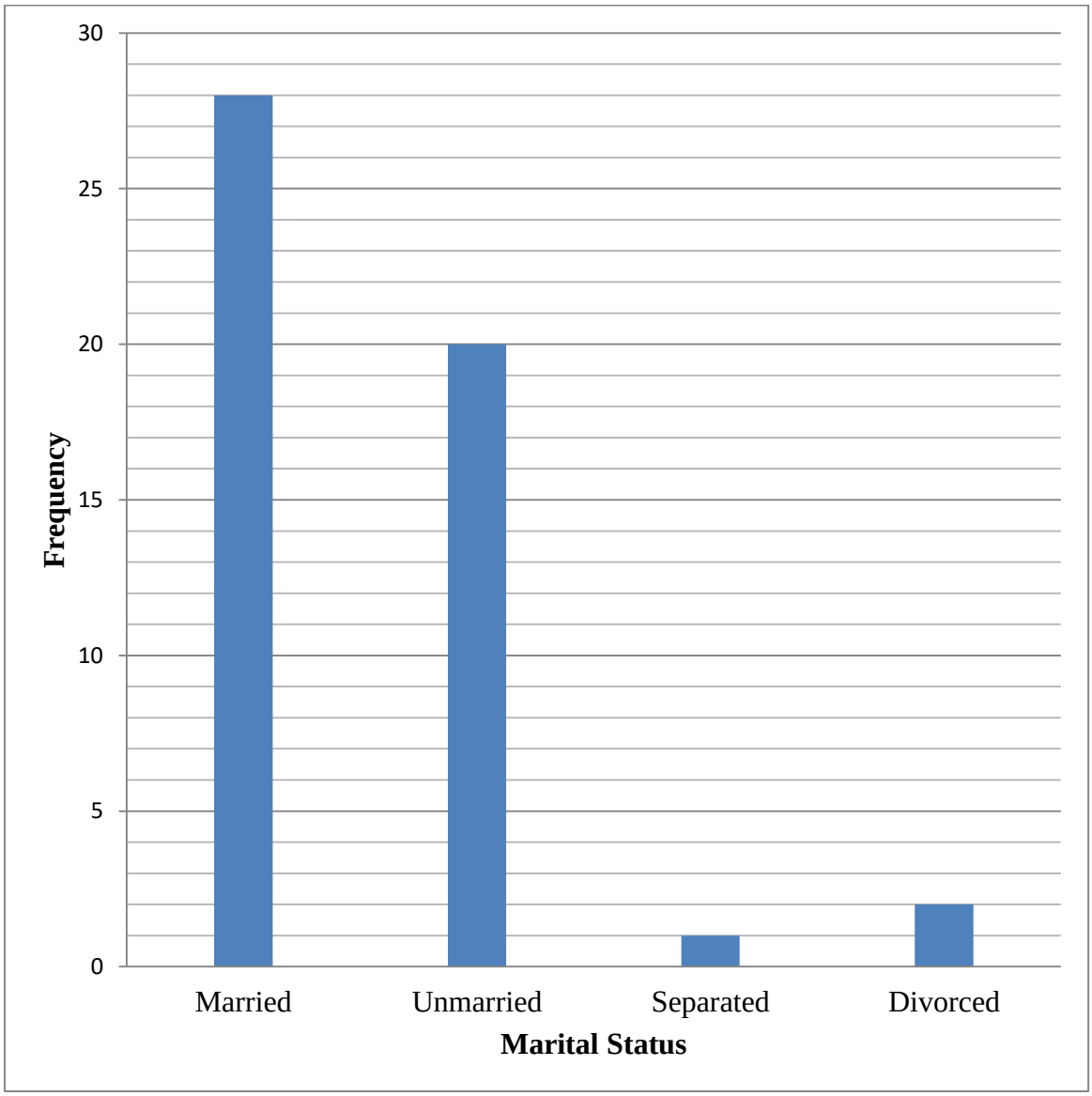


Figure 3: Marital Status

4.4 Level of education of the respondents (n=51):

The table shows that higher rate of the SCI peoples, 18 (35.3%) had only secondary education . This study also shows that 10 (19.6%) people had primary education and S.Sc completed. H.Sc completed 5 (9.8%), 3(5.9%) people were illiterate, 2(3.9%) people can sign only and masters completed and degree completed were 1(2.0%).

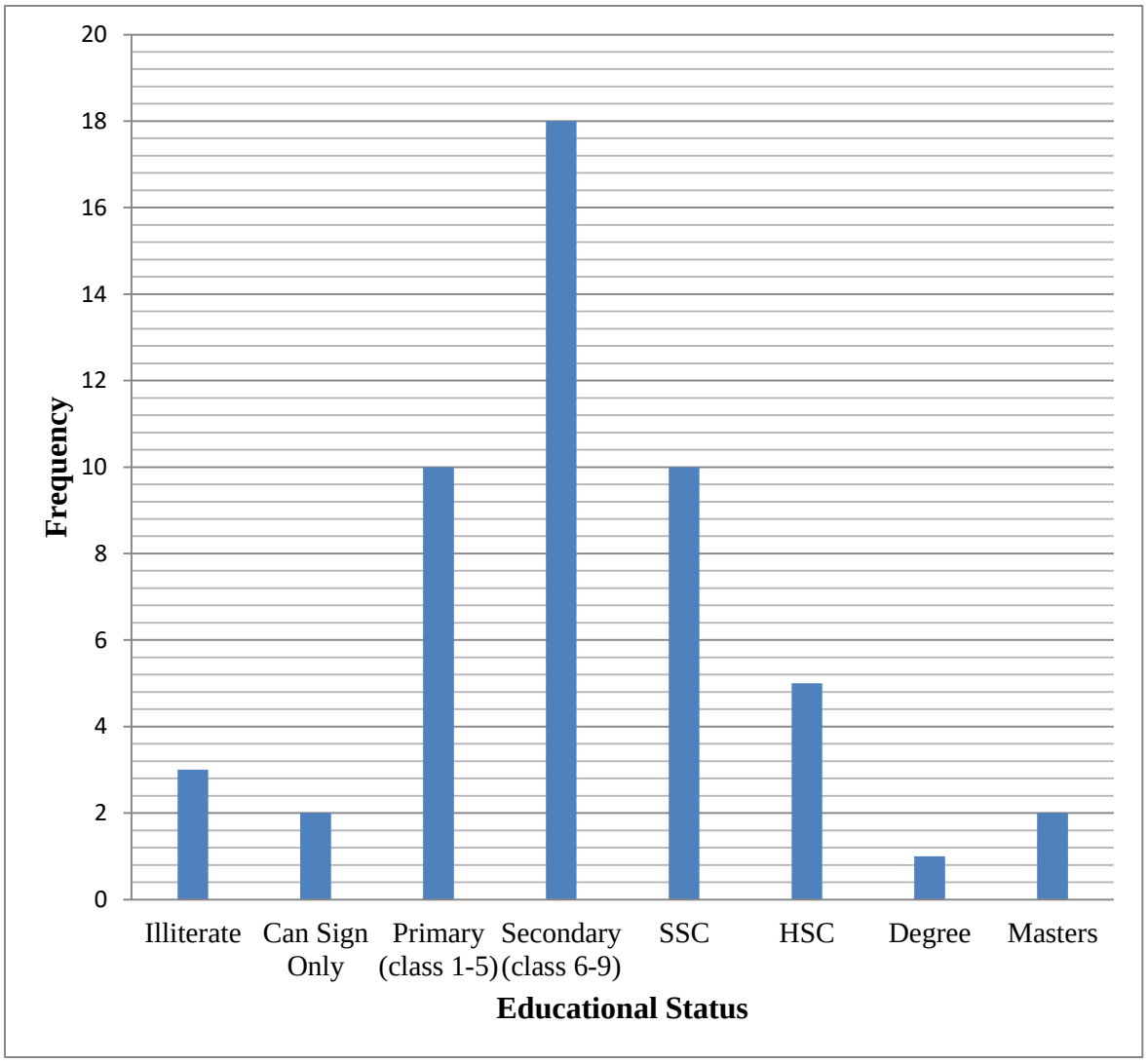


Figure 4: Educational status

4.5 Occupation (n=51):

Out of the total respondents ,most of them were students 15 (29.4%), businessman were 10 (19.6%), farmers were 8 (15.7%), daily labours and others were 5 (9.8%), service holders were 4 (7.8%) , housewife and garments workers were 2 (3.9%).The mean number is 4.55 with standard deviation 1.932.

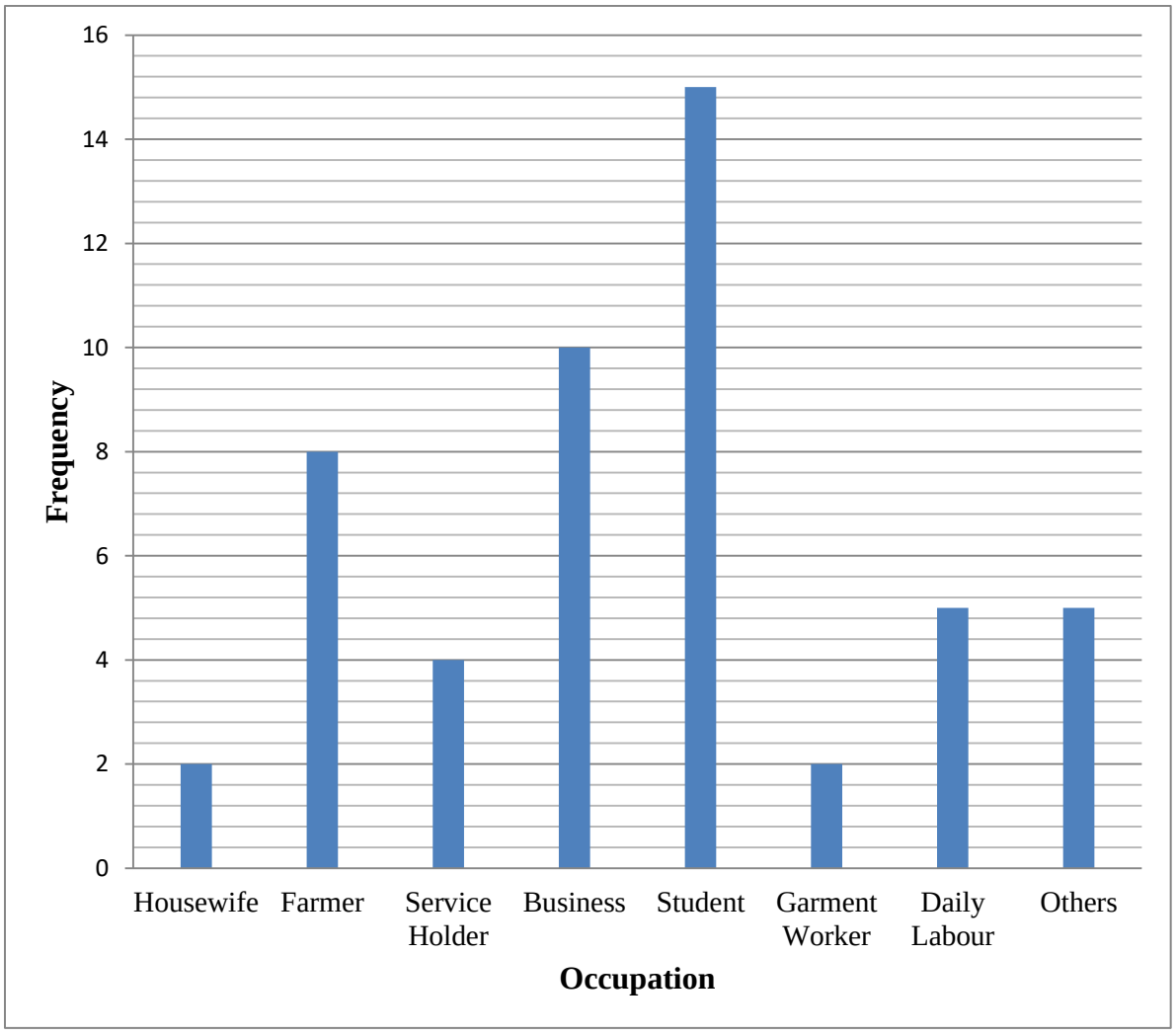


Figure 5: Occupation

4.6 Residential Area (n=51):

The study shows that, most of the SCI sufferers came from rural area .Among 51 people with SCI 29 (56.9%) came from rural area ,14 (27.5%) came from urban area and 8 (15.7%) from semi urban area.

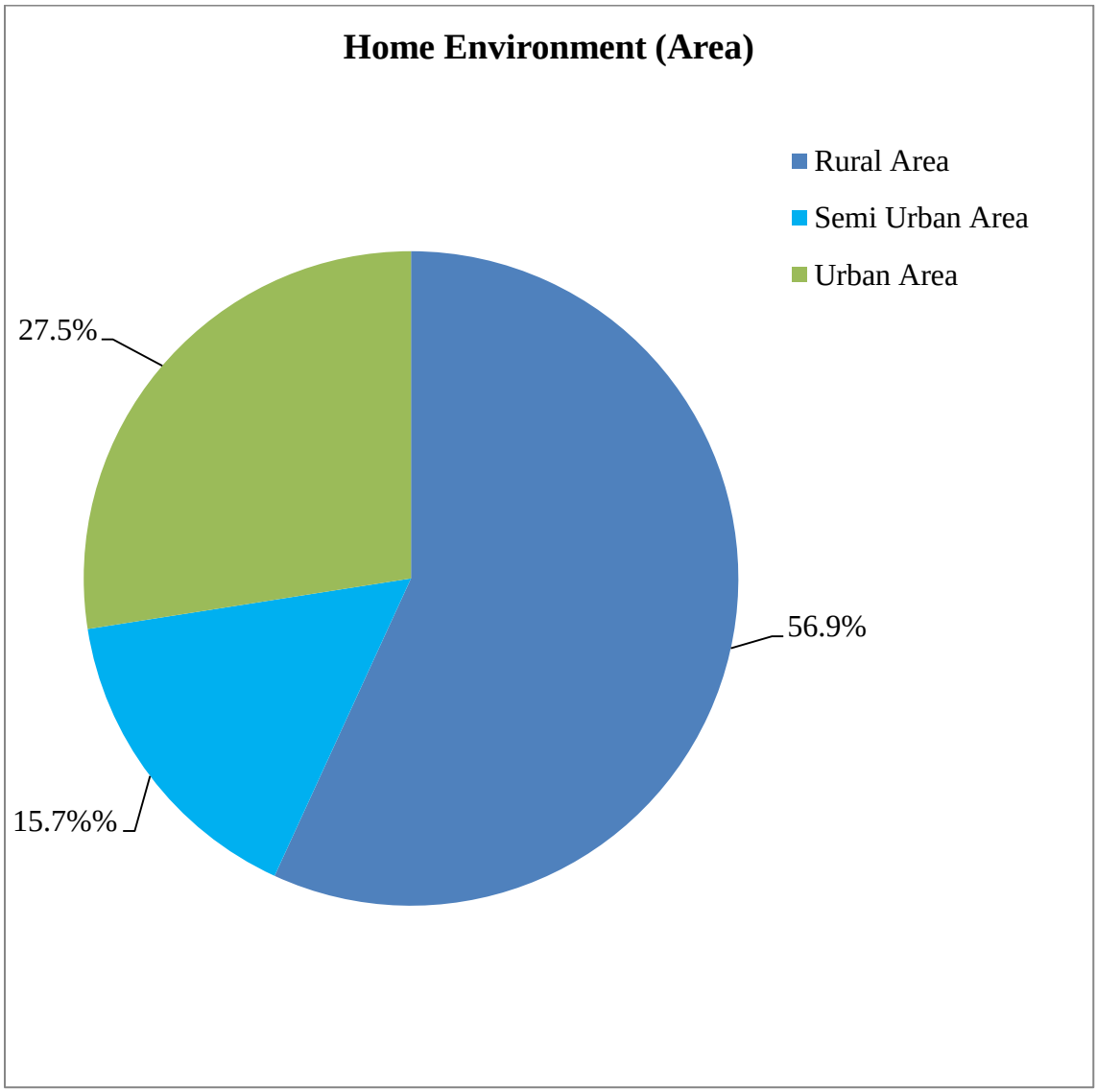


Figure 6: Residential Area

4.7 Road Type (n=51):

The study shows that, most of the access road type of the respondents was brick 21(41.2%), 16 (31.4%) was mud and 14 (27.5%) was tarmac.

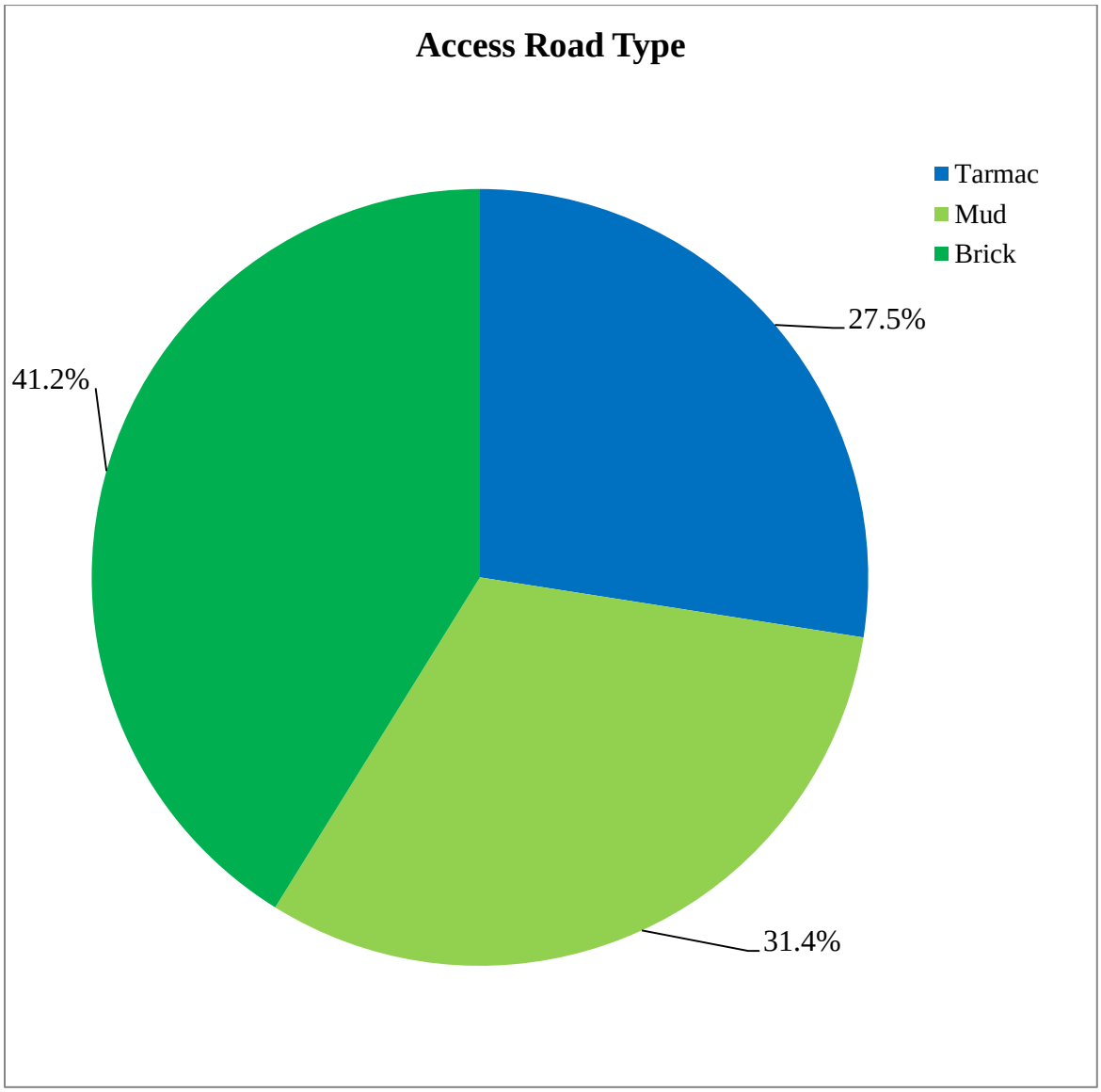


Figure 7: Road Type

4.8 Stairs for Entering the Room (n=51):

The study shows that, among 51 people with SCI , 31 (60.8 %) had stairs and 20 (39.2%) had no stairs for entering the room in their house.

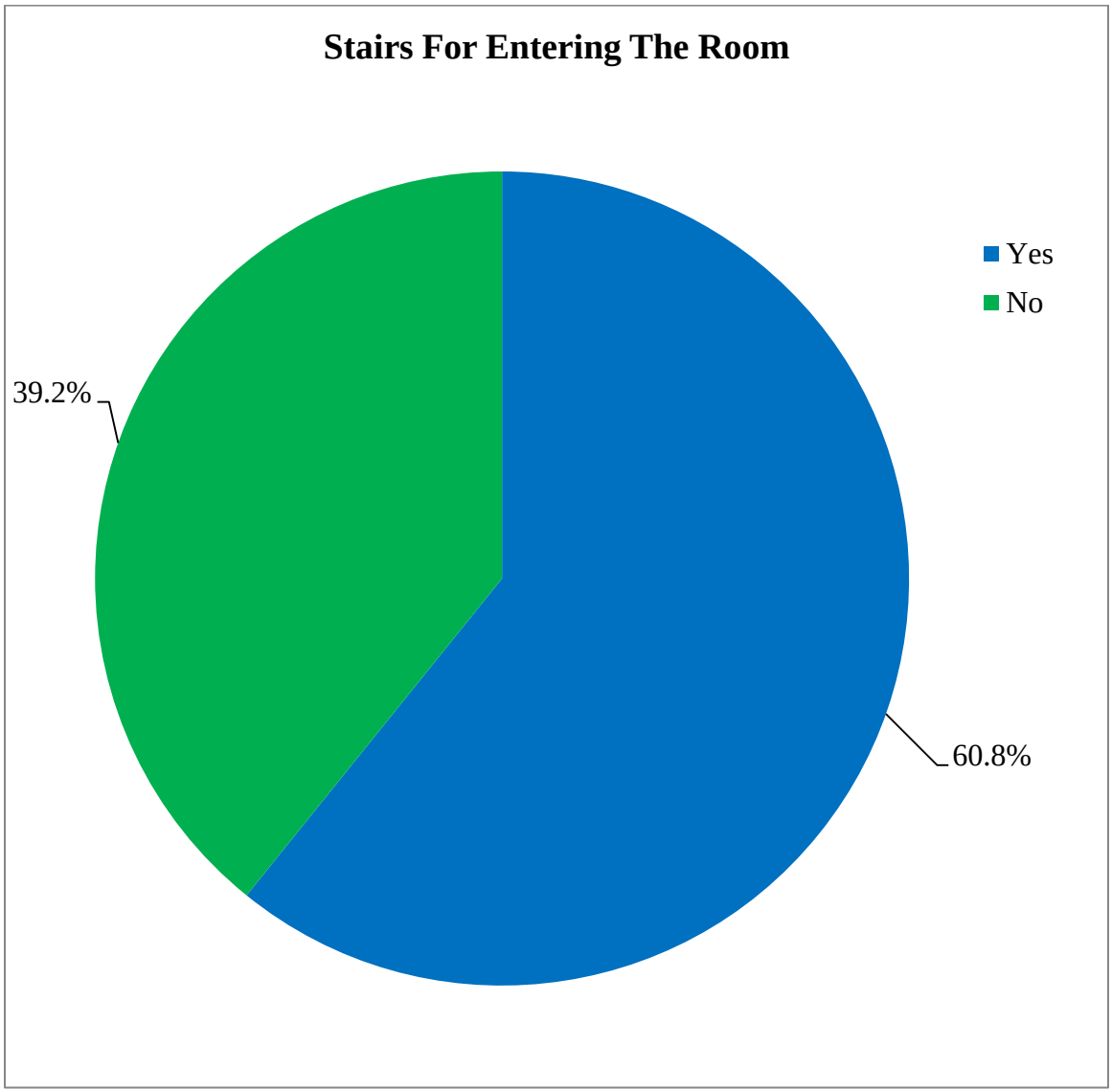


Figure 8: Stairs for Entering the Room

4.9 Varanda (n=51):

The study shows that ,among 51 people with SCI , 33(64.7%) people had varanda and 18 (35.3%) had no varanda in their house.

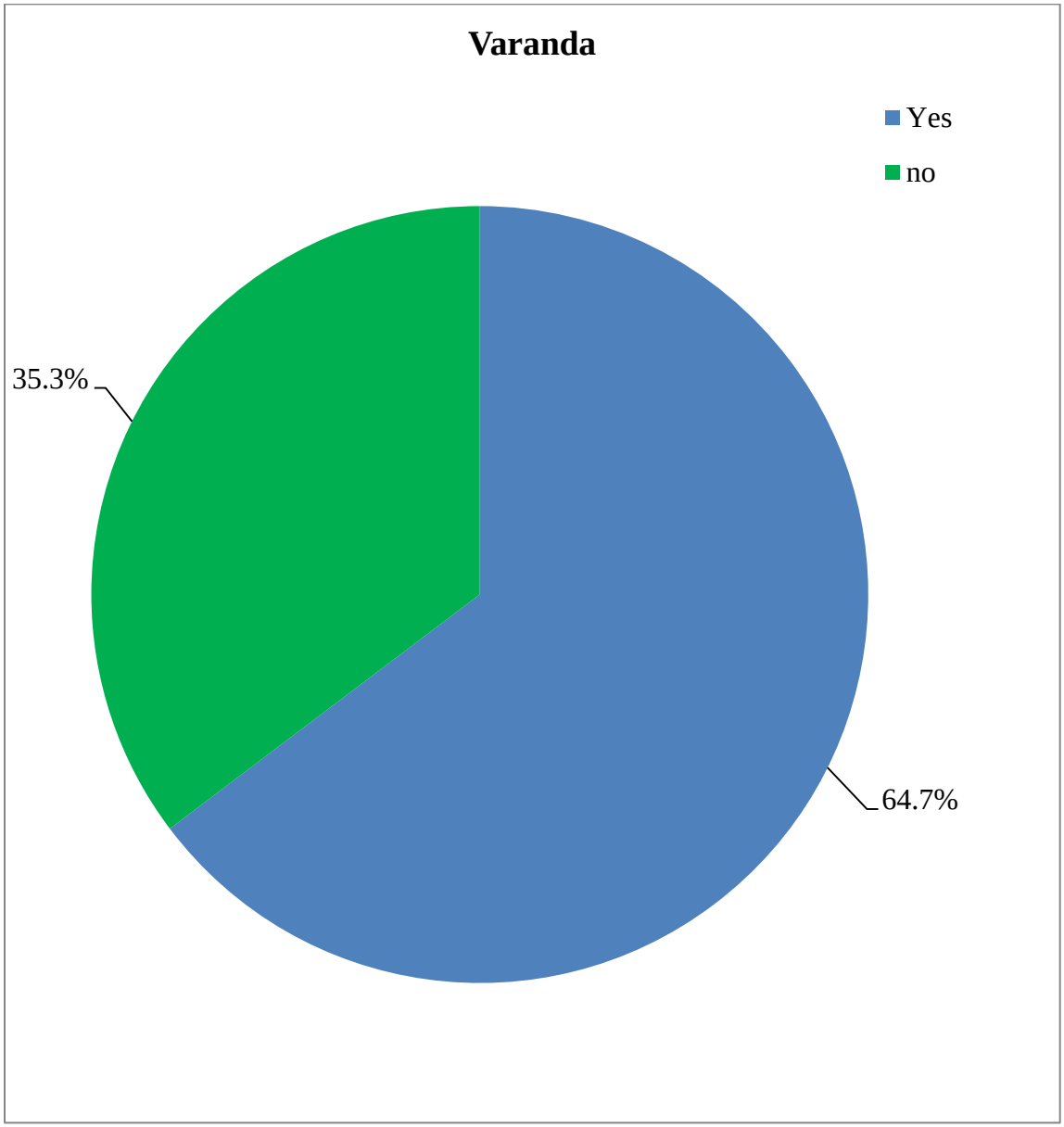


Figure 9: Varanda

4.10 Location of Toilet (n=51):

The study shows that, among 51 people of SCI , 42 (82.4 %) peoples toilet was situated in outside of house.

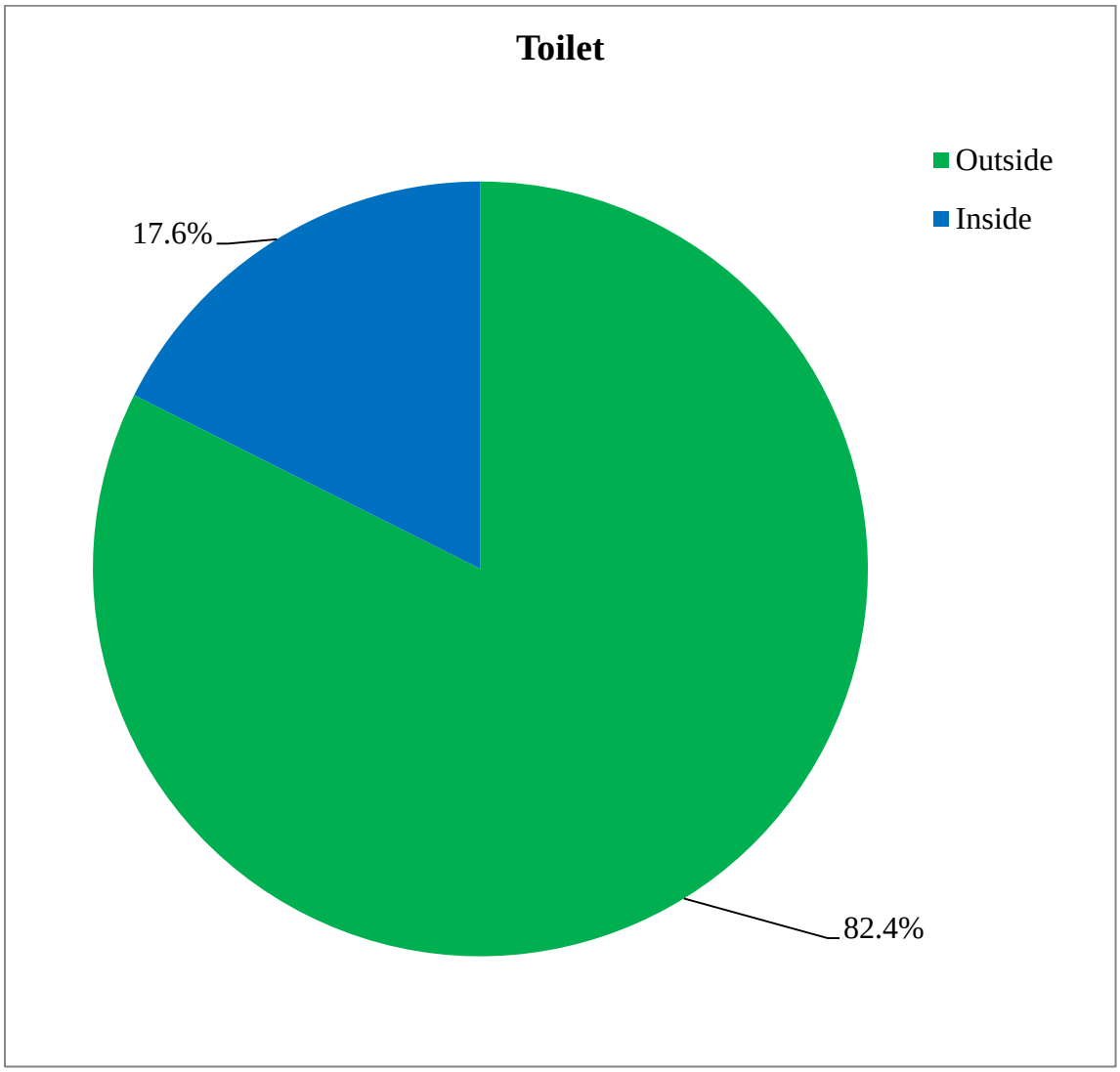


Figure 10: Location of toilet

4.11 Toilet Type (n=51):

Among 51 people with SCI 48 (94.1%) use Asian and 3 (5.9%) use Western toilet in their house.

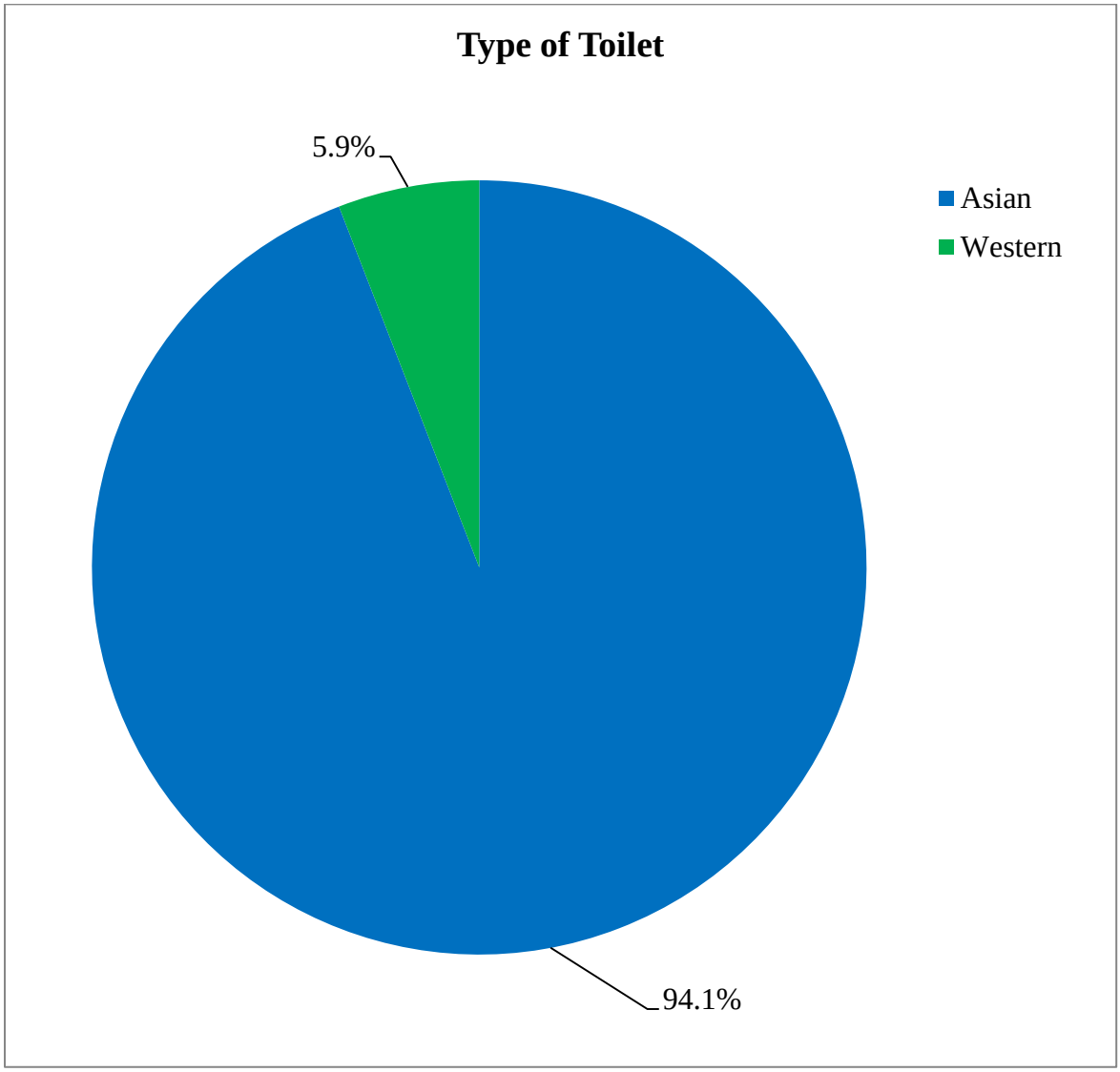


Figure 11: Toilet Type

4.12 Water source (n=51):

Most of the participants 32 (62.7%) drink water from tube well, 17 (33.3%) drinks water from tap and 2 (3.9 %) drinks water from pond.

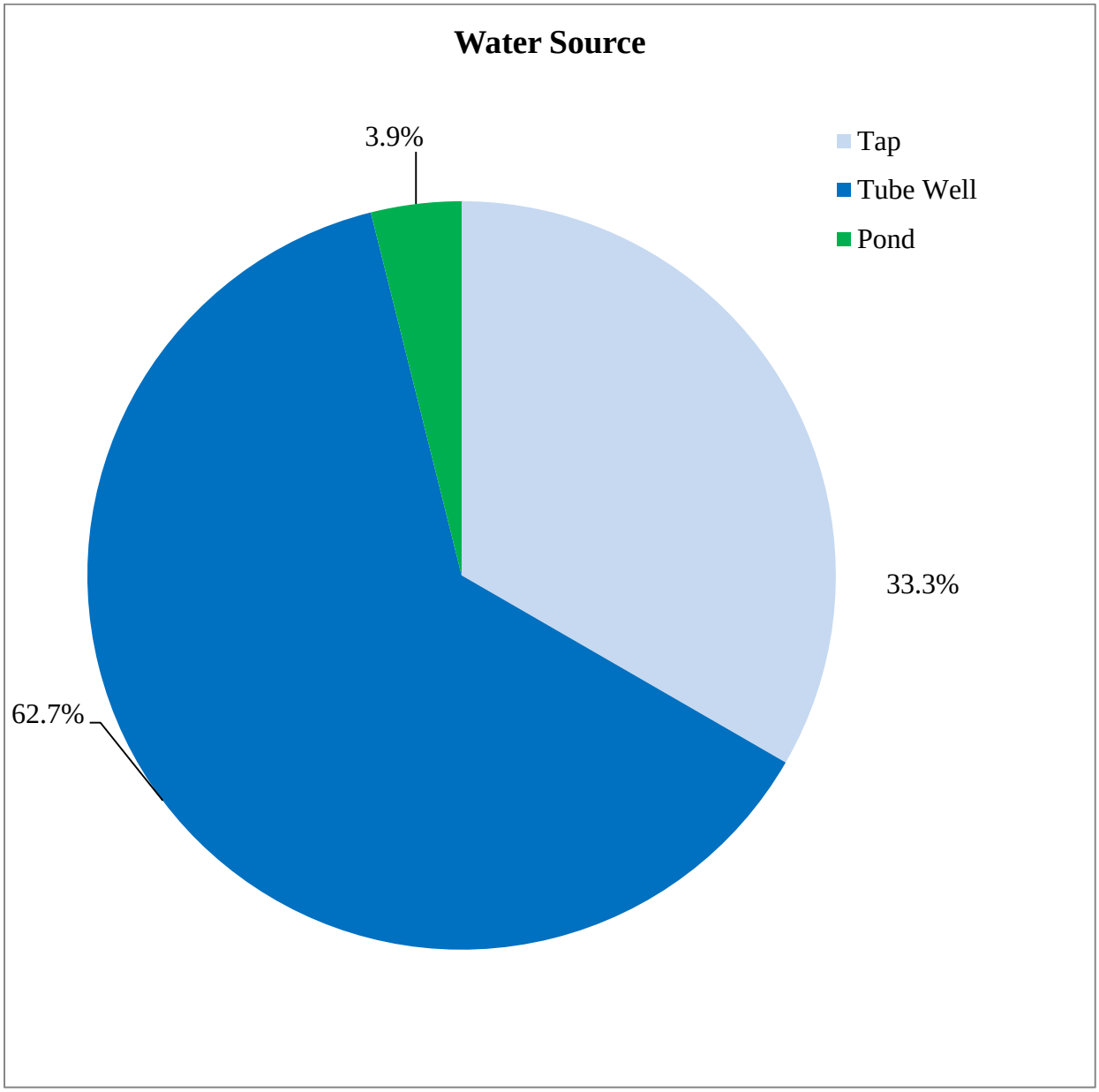


Figure 12: Water source

4.13 Types of the Injury of the participants (n=51):

The table shows that, among total participants 37 (72.5 %) had complete paraplegia and 14 (27.5%) had incomplete paraplegia.

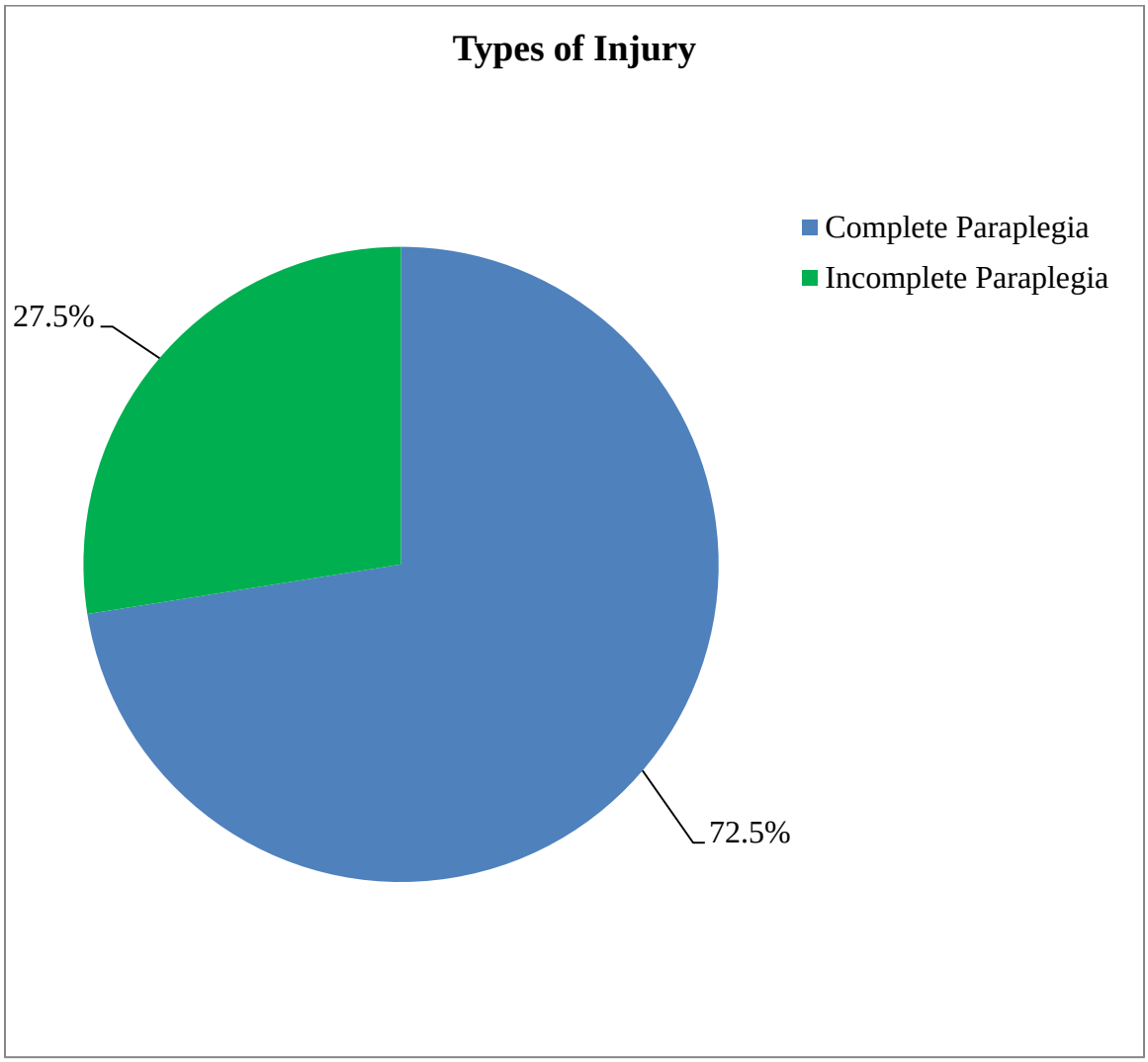


Figure 13: Types of Injury

4.14 Cause of Injury (n=51):

The major cause of SCI of the study was traumatic 51 (100%).

Cause of Injury	Frequency	Percent (%)
Traumatic	51	100.0

Table 1: Cause of Injury

4.15 Skeletal level of Injury (n=51):

Among the participants, the skeletal level of thoracic were 43 (84.3%) and lumber were 8 (15.7%).

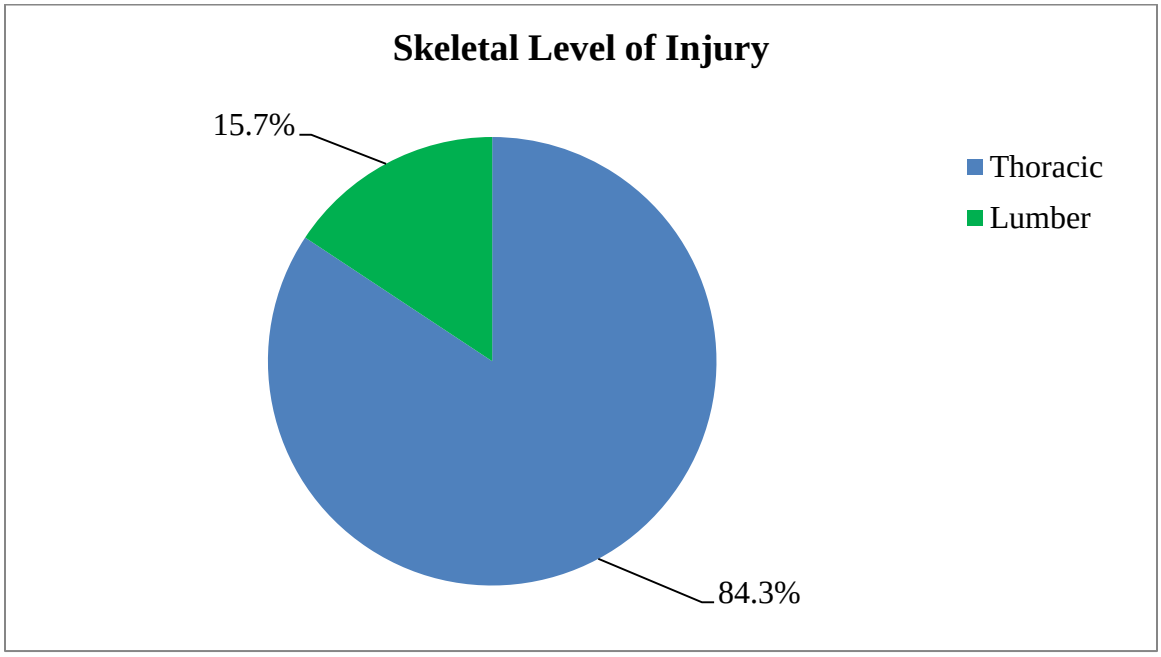


Figure 14: Skeletal level of Injury

4.16 Neurological level of Injury (n=51):

Out of 51 patients the impairment grading in ASIA scale A were 38 (74.5%), ASIA scale B were 1 (2.0%), ASIA scale C were 3 (5.9%), ASIA scale D were 7 (13.7%) and ASIA scale E were 2 (3.9%).

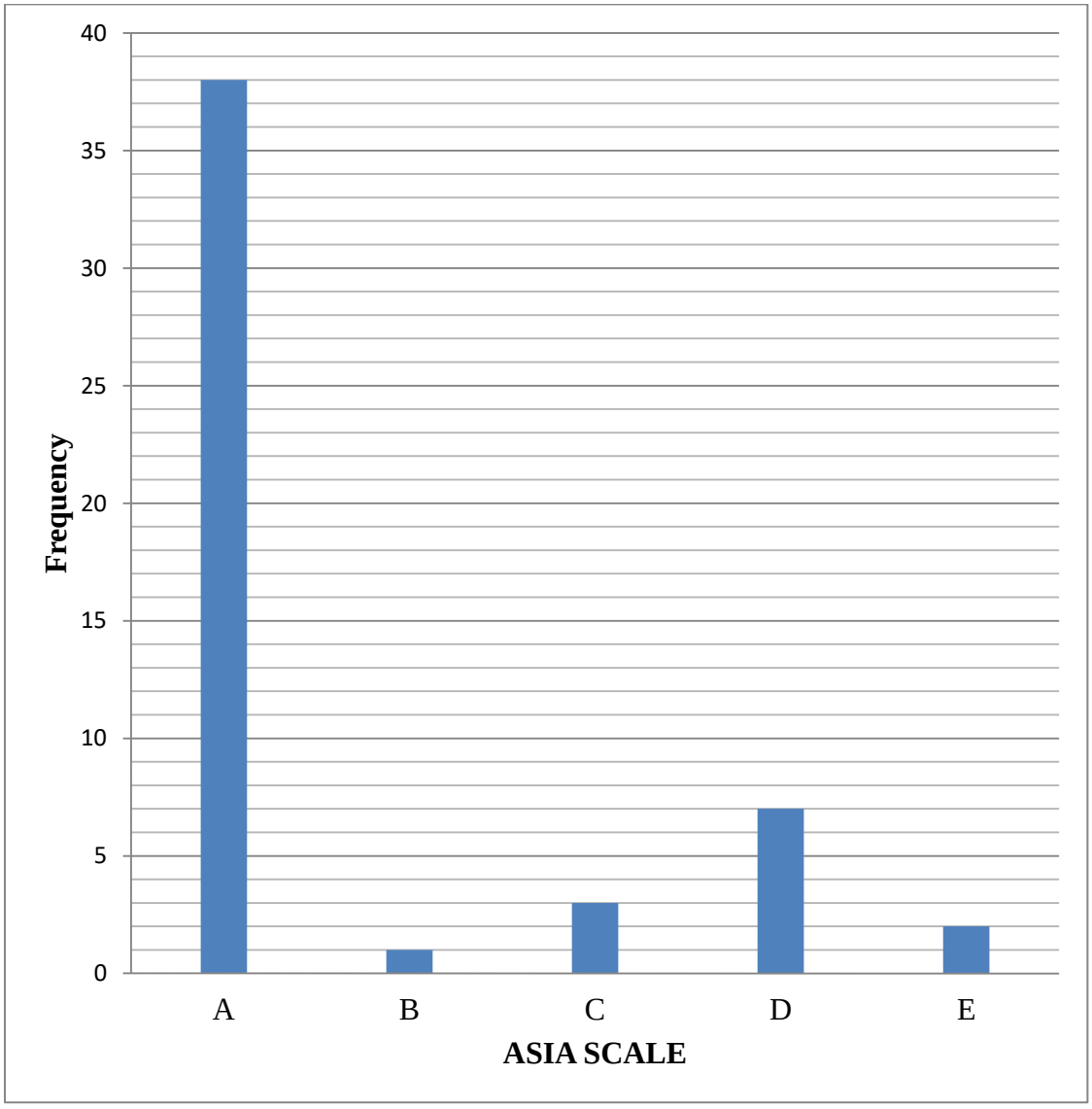


Figure 15: Neurological Level of Injury

4.17 Use of adaptive device (n=51):

The study shows that, among total participants 40(78.4%) participants uses wheelchair , 5 (9.8%) uses walking sticks , 3(5.9%) uses walking frame and others adaptive devices.

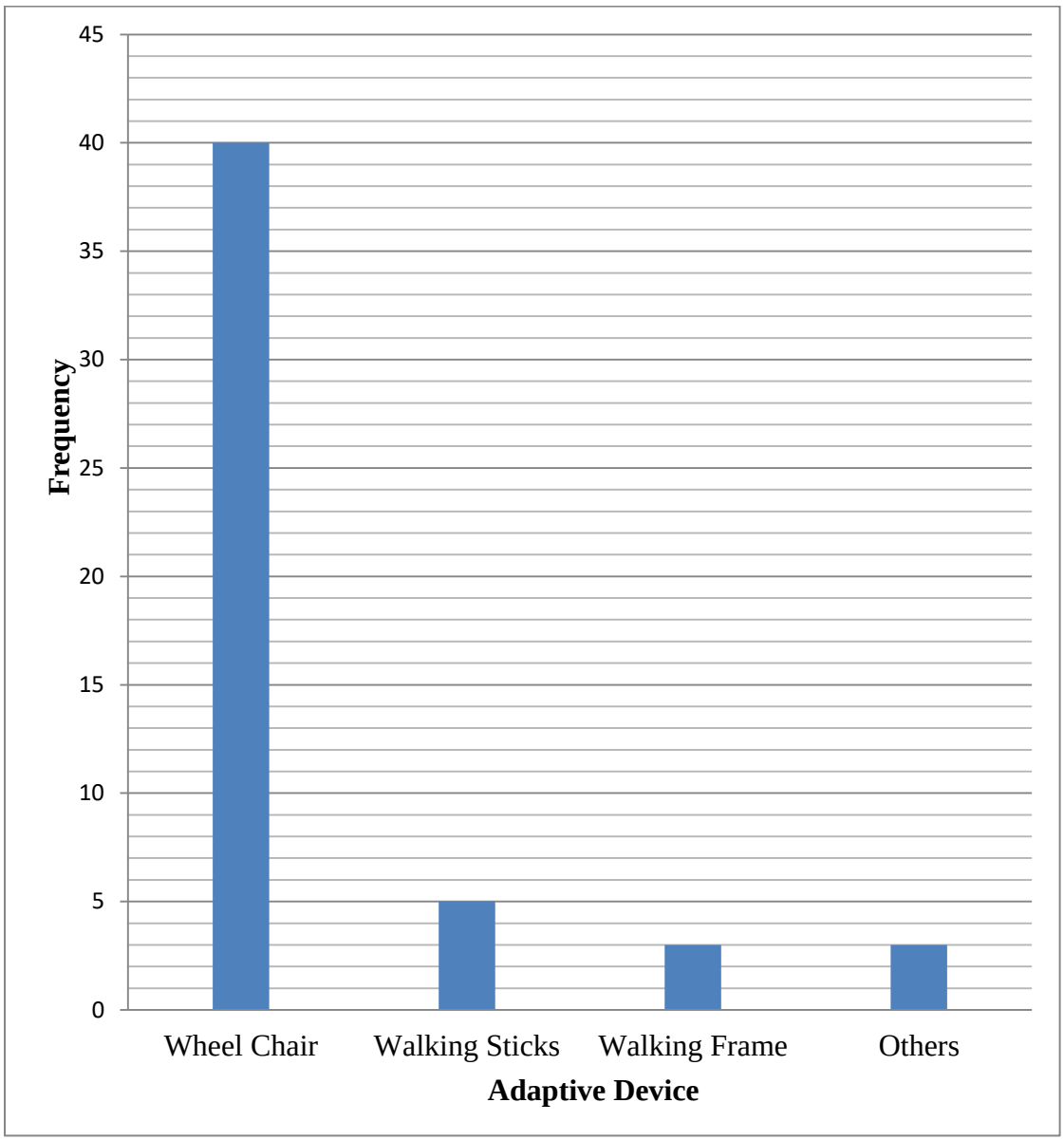


Figure 16: Use of Adaptive device

4.18 Physical Status:

Oedema (n=51):

The study shows that, among total participants only 39.2% has oedema.

Contracture (n=51):

The study shows that, among total participants only 2.0% has contracture.

Muscle wasting (n=51):

The study shows that, among total participants only 31.4% has muscle wasting.

Pressure sore (n=51):

The study shows that, among total participants only 2.0% has pressure sore.

Pain (n=51):

The study shows that, among total participants 62.7% has pain.

	Physical status(n%)				
	Oedema	**Contracture**	**Muscle wasting**	**Pressure sore**	**Pain**
Yes	20 (39.2%)	1 (2.0%)	16 (31.4%)	1 (2.0%)	32 (62.7%)
No	31 (60.8%)	50 (98%)	35 (68.6%)	50 (98%)	19 (37.3%)
Total	51 (100.0%)	51 (100.0%)	51 (100.0%)	51 (100.0%)	51 (100.0%)

Table 2: Physical Status

4.19 Feeding (cutting, opening containers, pouring , bringing food to mouth, holding cup with fluid) (n=51):

The study shows that, among total participants 49 (96.1%) were eats and drinks independently and 2 (3.9%) were eats independently but they need adaptive or assistance only for cutting food and/or pouring and/or opening containers.

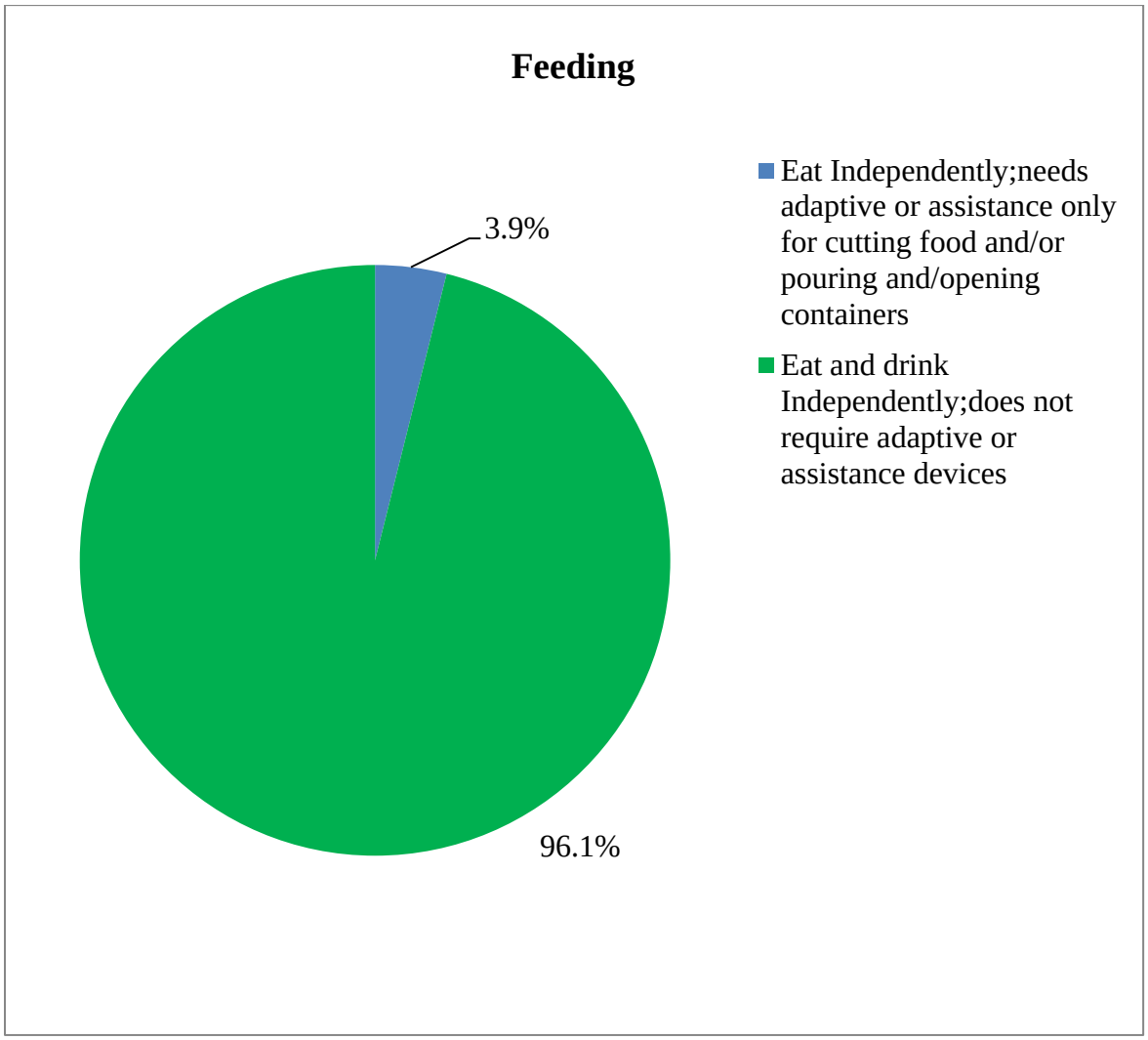


Figure 17: Feeding

4.20 Bathing: Upper body and Lower body (soaping, washing, drying body and head , manipulating water tap) (n=51):

The study shows that, among the total participants 98% people washes themselves independently and 2% people washes independently with adaptive device or in a specific setting both upper body and lower body.

	Bathing (%)	
	Upper Body	**Lower Body**
Washes independently with adaptive device or in a specific setting	1 (2.0%)	1 (2.0%)
Independently	50 (98%)	50 (98%)
Total	51 (100.0%)	51 (100.0%)

Table 3: Bathing

4.21 Dressing: Upper body and Lower body (clothes , shoes and permanent orthosis, dressing, wearing, undressing) (n=51):

The study shows that, among total participants , 2% people need assistance but independent with cwobzl and 98% people are total independent for upper body dressing, and 2% are independent with cwobzl, need adaptive device ,3.9% are independent with cwobzl, needs assistance and 94.1% are total independent for lower body dressing.

	Dressing (%)	
	Upper body	**Lower body**
Independent with cwobzl , need adaptive device	0 (0%)	1 (2.0%)
Independent with cwobzl, needs assistance	1 (2.0%)	2 (3.9%)
Total independent	50 (98%)	48 (94.1%)
Total	51 (100.0%)	51 (100.0%)

Table 4: Dressing

4.23 Respiration (n=51):

The study shows that , among 51 participants, 100.0% people breath independently without assistance or device.

Respiration	Frequency	Percent (%)
Breathes independently without assistance or device	51	100.0

Table 5: Respiration

4.22 Grooming (washing hands and face, brushing teeth, combing hair , shaving, applying make- up) (n=51):

The study shows that, among the total participants 49 (96.1%) people were independent without adaptive device and 2 (3.9 %) people were independent with adaptive device for grooming themselves.

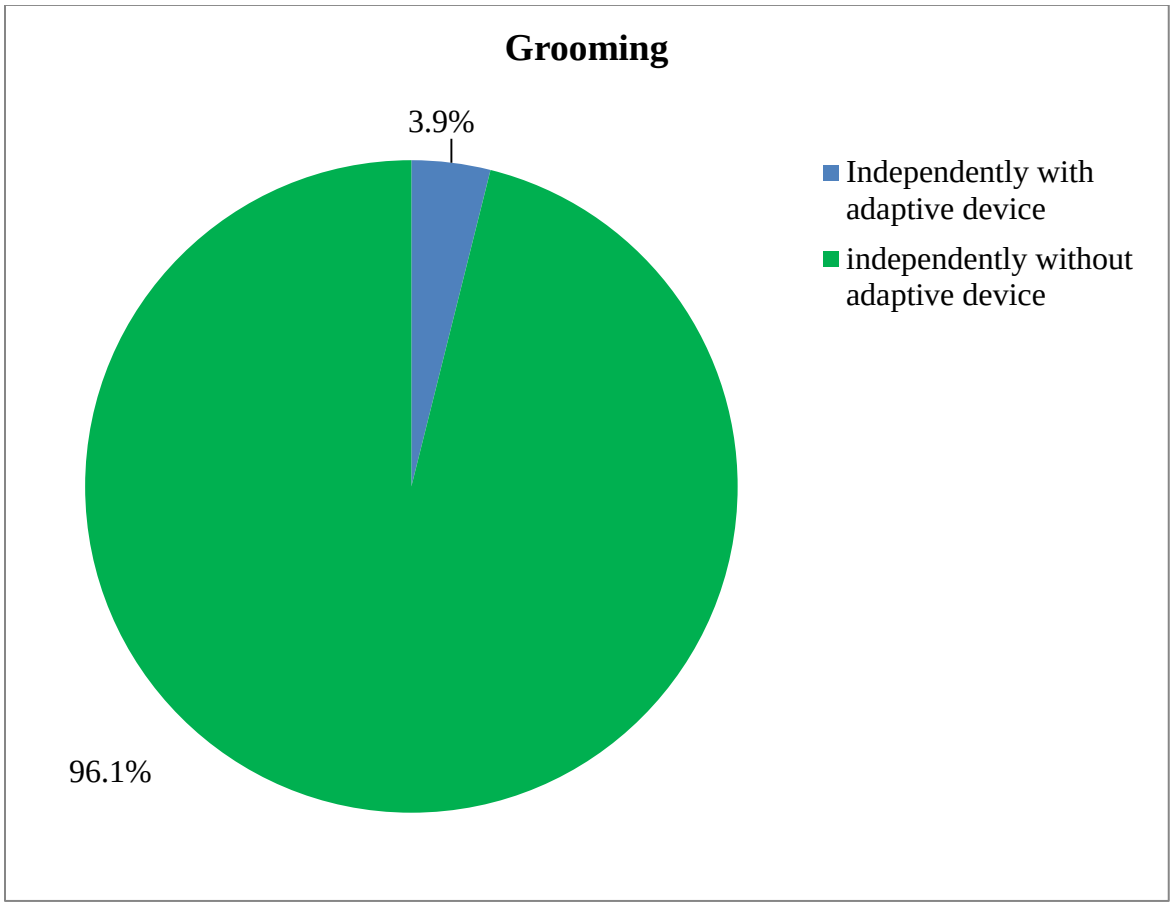


Figure 18: Grooming

4.24 Sphincter management –Bladder (n=51):

The study shows that , among 51 participants ,76.5% people uses indwelling catheter, 9.8% people has intermittent self- catheterization , needs assistance for applying drainage instrument and does not use external drainage instrument, 2.0% has intermittent self - catheterization who uses external drainage and does not use external drainage.The mean of the study was 2.45 with standard deviation 4.9.

Bladder	Frequency	Percent (%)
Indwelling catheter	39	76.5
RUV<100cc or intermittent self- catheterization;needs assistance for applying drainage instrument	5	9.8
Intermittent self - catheterization ; uses external drainage instrument ;does not need assistance for applying	1	2.0
Intermittent self - catheterization; continent between catheterization does not use external instrument	1	2.0
RUV<100cc; continent does not use external drainage instrument	5	9.8
Total	51	100.0

Table 6: Sphincter management -Bladder

4.25 Sphincter management – Bowel (n=51):

The study shows that, among 51 participants of SCI , 92.2% people has regular bowel movements, without assistance :no accident , 5.9% has regular timing, but requires assistance (e.g. for applying suppository); rare accident (less than twice a month), 2% has regular bowel movement , without assistance ;rare accidents (less than twice a months).The mean of this study was 9.67 with standard deviation 1.211.

Bowel	Frequency	Percent (%)
Regular timing , but requires assistance (e.g. for applying suppository): rare accidents (less than twice a month)	3	5.9
Regular Bowel movements without assistance ;rare accidents (less than twice a month)	1	2.0
Regular bowel movements without assistance ; no accidents	47	92.2
Total	51	100.0

Table 7: Sphincter management –Bowel

4.26 Use of toilet (perineal hygine , adjustment of clothes before /after ,use of napkins or diapers) (n=51):

The study shows that, among total participants of SCI, 36(70.6%) people used toilet independently,12(23.5%) used toilets independently in all tasks but needs adaptive devices or special setting (e.g. bars) and 5.9% needed partial assistance , cleans self independently.

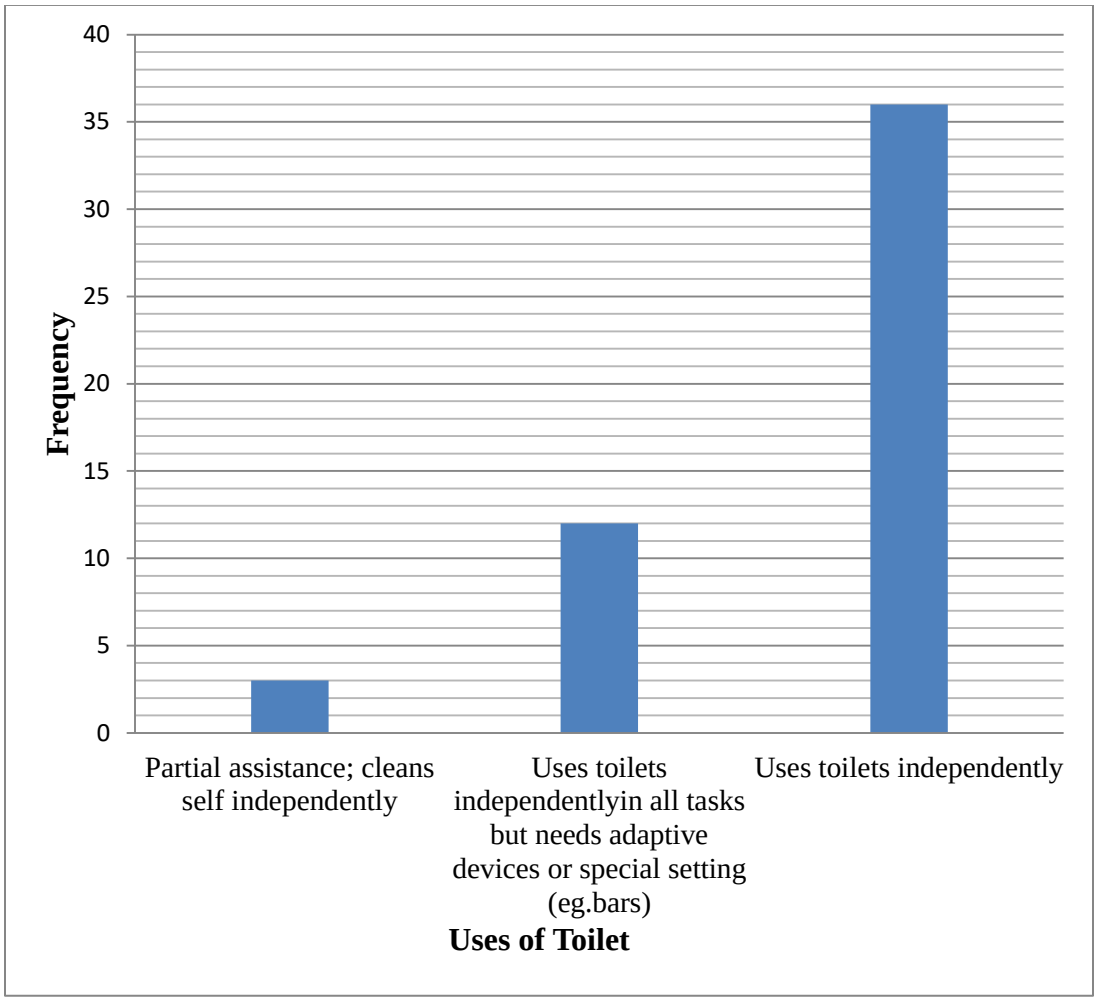


Figure 19: Uses of toilet

4.27 Mobility in Bed and Action to prevent pressure sore (n=51):

The study shows that, most of the participants 47(92.2%) performs all the bed mobilities and pressure release activities independently and 4(7.8%) performs two or three of the activities without assistance.

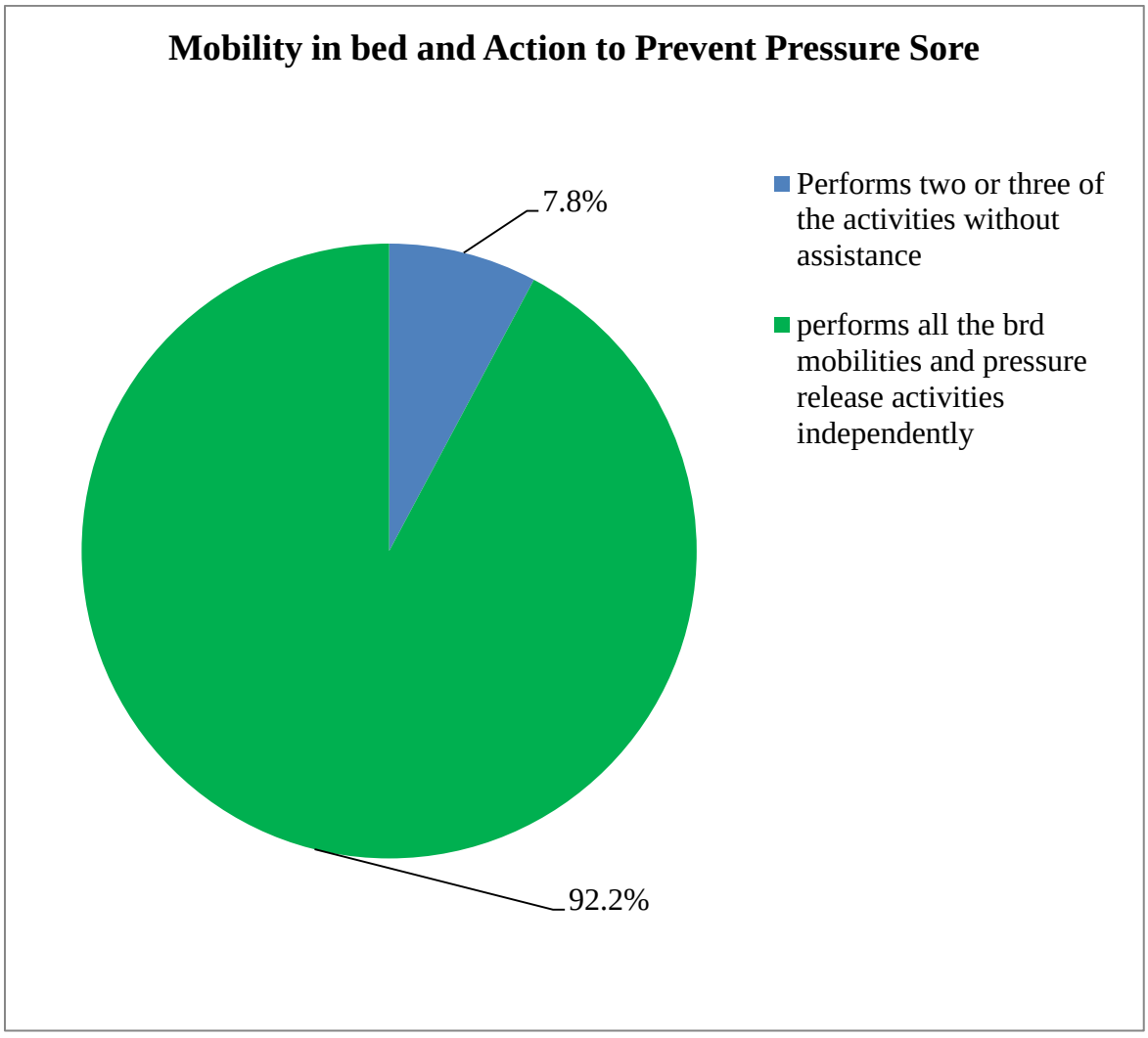


Figure 20: Mobility in Bed and Action to prevent pressure sore

4.28 Transfers: bed-wheelchair (locking wheelchair, lifting footrest, removing and adjusting arm rests, transferring, lifting feet) (n=51):

The study shows that, among 51 participants, 43(84.3%) people were independent and 8 (15.7%) needed partial assistance or supervision or adaptive device to transfer from bed to wheelchair.

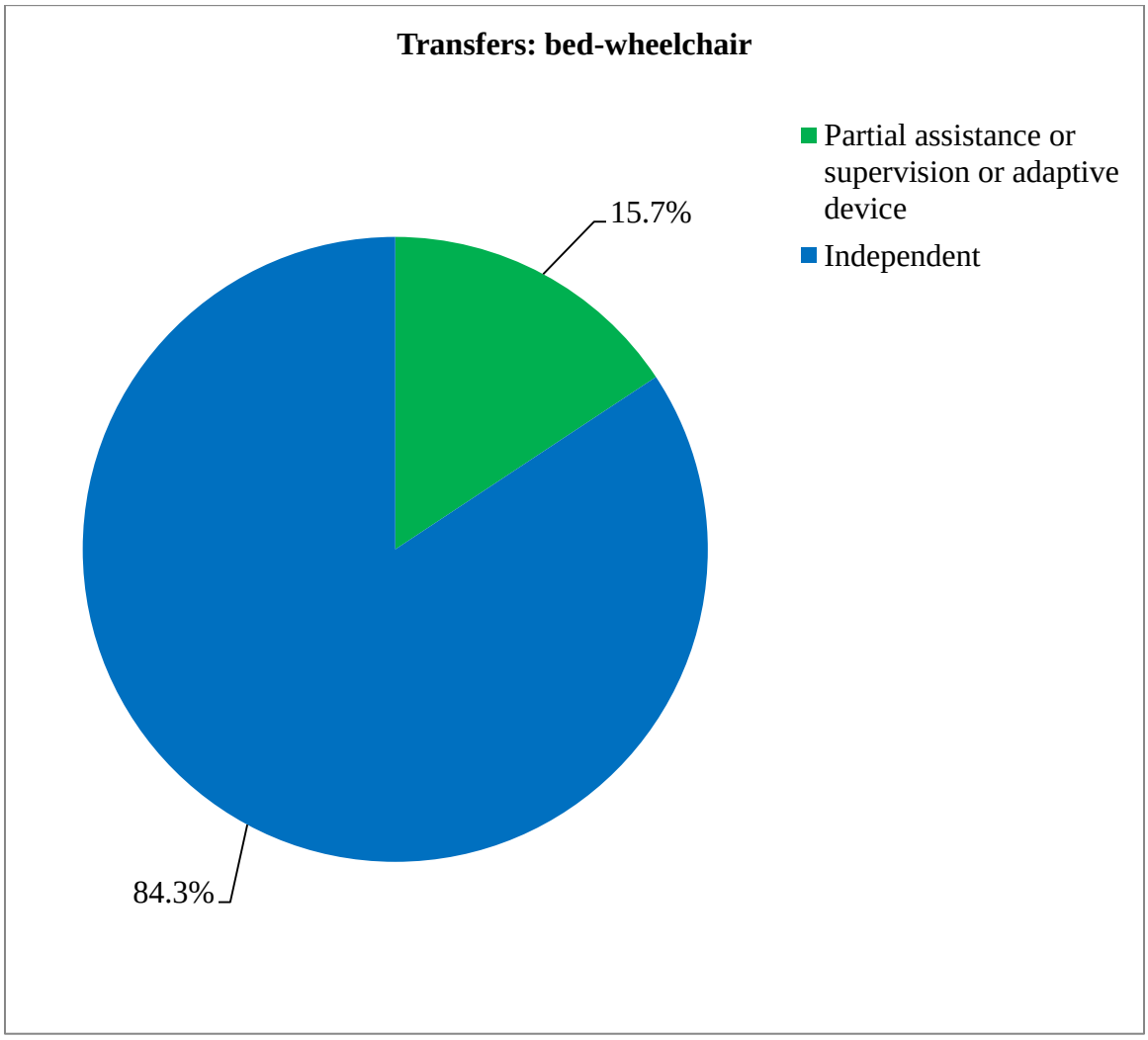


Figure 21: Transfer: bed-wheelchair

4.29 Transfers: wheelchair – toilet tub (if uses toilets wheelchair: transfers to and from ;if uses regular wheelchair ; locking wheelchair , lifting footrest , removing and adjusting armrests, transferring, lifting feet) (n=51):

The study shows that, among 51 participants, 31(60.8%) people were independent and 20(39.2%) needed partial assistance or supervision or adaptive device to transfer from wheelchair to toilet tub.

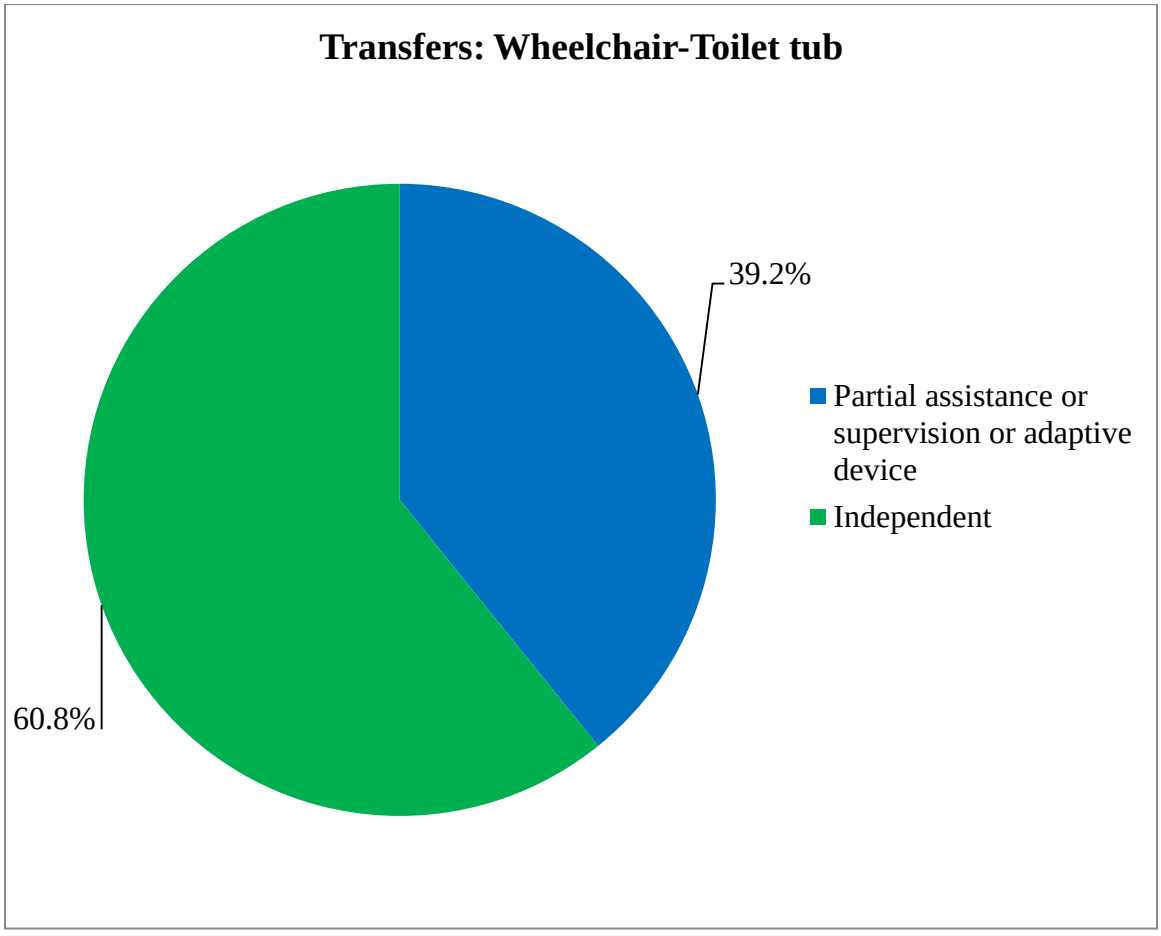


Figure 22: Transfers: wheelchair- toilet tub

4.30 Mobility (Indoor ,Moderate distance, Outdoor) (n=51):

The study shows that , among total participants ,3.9% people move indoor and moderate distance and 5.9% people move outdoor with the help of electric wheelchair or partial assistance to operate the manual wheelchair, 74.5% people move indoor and moderate distance and 72.5% people move outdoor independently in manual wheelchair, 5.9% people walk indoor, moderate distance and outdoor by using a walking frame or crutches,2.0% walks with two cane,7.8% walks with one cane and 5.9 % walks without walking aids.

Mobility	Indoor	Moderate distance(10-100 meters)	Outdoor (more than 100 meters)
Needs electric wheelchair or partial assistance to operate manual wheelchair	2 (3.9%)	2 (3.9%)	3 (5.9%)
Moves independently in manual wheelchair	38 (74.5%)	38 (74.5%)	37 (72.5%)
Walks with a walking frame or crutches	3 (5.9%)	3 (5.9%)	3(5.9%)
Walks with two cane	1 (2.0%)	1 (2.0%)	1 (2.0%)
Walks with one cane	4 (7.8%)	4 (7.8%)	4 (7.8%)
Walks without walking aids	3 (5.9%)	3 (5.9%)	3 (5.9%)
Total	51 (100.0%)	51 (100.0%)	51 (100.0%)

Table 8: Mobility

4.31 Stairs Management (n=51)

The study shows that ,among 51 participants,74.5 % people ascend and descend at least 3 steps with support or supervision of another person,15.7% people ascend and descend at least 3 steps with support of handrail and/or crutch or cane, 5.9 % people are unable to ascend or descend stairs and 3.9% people ascend and descend at least 3 steps without any support or supervision.

Stairs management	Frequency	Percent (%)
Unable to ascend or descend stairs	3	5.9
Ascends and descends at least 3 steps with support or supervision of another person	38	74.5
Ascends and descends at least 3 steps with support of handrail and/or crutch or cane	8	15.7
Ascends and descends at least 3 steps without any support or supervision	2	3.9
Total	51	100.0

Table 9: Stairs Management

4.32 Transfers: wheelchair- car (approaching car locking wheelchair, removing arm and footrests, transferring to and from car bringing wheelchair into and out of car) (n=51):

The study shows that , among total participants , 82.4% people need partial assistance and/or supervision and/or adaptive devices, 11.8% people need total assistance and 5.9 % people transfer independently from wheelchair to car. They do not require adaptive device or do not require wheelchair.

Transfers (wheelchair - car)	Frequency	Percent (%)
Total assistance	6	11.8
Partial assistance and/or supervision and/or adaptive devices	42	82.4
Transfers independent: does not require adaptive devices (or does not require wheelchair)	3	5.9
Total	51	100.0

Table 10: Transfers : wheelchair - car

4.33 Transfers: ground – wheelchair (n=51):

The study shows that, among 51 participants, 35 (68.6%) needed total assistance and 16 (31.4%) transferred independently from ground to wheelchair with or without adaptive devices (or did not require wheelchair).

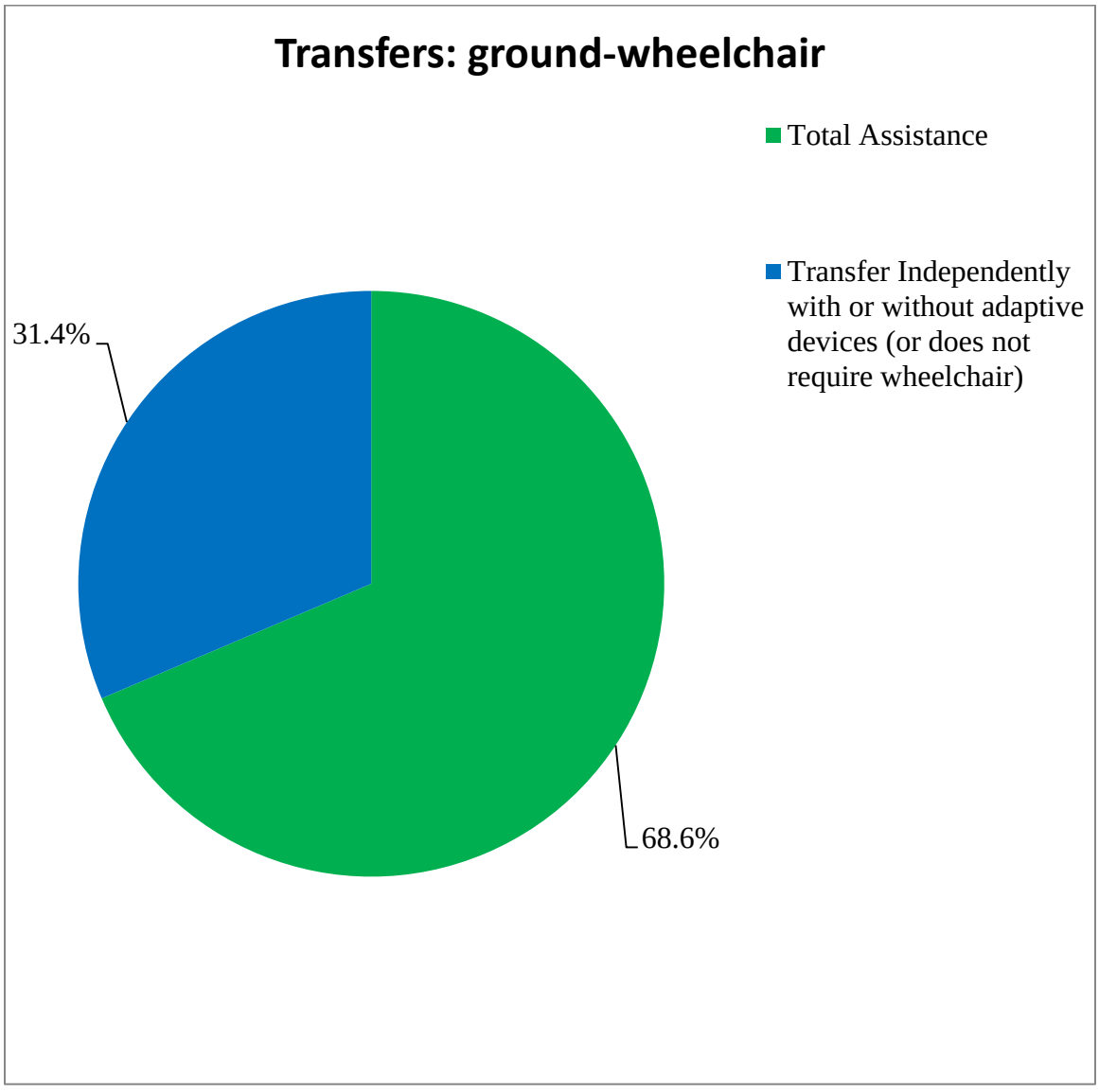


Figure 23: Transfers: ground - wheelchair

4.34 Association between Sex and recovery in Self- care activities (Feeding):

Sex	**Self- care – Feeding**		**Total (51)**	**P-value (p<0.05)**
	Eat independently, needs adaptive or assistance only for cutting food and/or pouring and/or opening container	Eats and drinks independently, does not require assistance or adaptive device		
Male	2 (3.9%)	44 (86.3%)	46 (90.2%)	.642
Female	0 (0%)	5 (9.8%)	5 (9.8%)	

Table 11: **Association between Sex and recovery in Self-care activities (Feeding)**

The table shows that ,among 51 participants, 90.2% were male and 9.8% were female. 3.9% male needed assistance only to cut food, 86.3% male and 9.8% female did not need any assistance for feeding in re-integration phase. This study found that , statistically there was no significantly difference between sex and recovery self-are activities ($p<0.05$).

4.35 Association between Sex and recovery in Self- care activities – Bathing (Upper body):

Sex	Self- care – bathing –A		Total (51)	P- value (p<0.05)
	Washes independently with adaptive devices or in a specific setting (e.g. bars, chairs)	Washes independently ;does not require adaptive devices or specific setting (not customary for healthy people)		
Male	1 (1.96%)	45 (88.24%)	46 (90.2%)	.745
Female	0 (0%)	5 (9.8%)	5 (9.8%)	

Table 12: Association between Sex and recovery in Self-care activities – Bathing (upper body)

The table shows that among 90.2% male and 9.8% female ,1.96% male needed specific setting or adaptive devices to wash themselves independently, 88.24 % male and 9.8% female did not need any assistance for bathing (upper body) in re- integration phase. This study found that, statistically there was no significantly difference between sex and recovery self-care activities ($p<0.05$).

4,36 Association between Sex and recovery in Self -care activities –Bathing (Lower body):

Sex	Self- care – bathing –B		Total (51)	P- value (p<0.05)
	Washes independently with adaptive devices or in a specific setting (e.g. bars, chairs)	Washes independently ;does not require adaptive devices or specific setting (not customary for healthy people)		
Male	1 (1.96%)	45 (88.24%)	46 (90.2%)	.745
Female	0 (0%)	5 (9.8%)	5 (9.8%)	

Table 13: Association between Sex and recovery in Self- care activities –Bathing (Lower body)

The table shows that 1.96 % male needed specific setting or adaptive device to wash themselves independently, 88.24% male and 9 .8 % female did not need any assistance for bathing (lower body) in re-integration phase. This was found to be a statistically non-significant difference between two areas ($p<0.05$) such as sex and recovery self-care activities (bathing lower body).

4.37 Association between Sex and recovery in Self-care activities – Dressing (upper body):

Sex	Self-care – Dressing-A		Total (51)	P- value (p<0.05)
	Independent with cwobzl; needs assistance	Dresses (any cloth) independently; does not require adaptive devices or special setting		
Male	1 (1.96%)	45 (88.24%)	46 (90.2%)	.745
Female	0 (0%)	5 (9.8%)	5 (9.8%)	

Table 14: Association between Sex and recovery in Self-care activities – Dressing (upper body)

The table shows that 1.96% male needed assistive device and 88.24% male and 9.8% female did not need any assistance for dressing upper body in re-integration phase. This is found to be a statistically non-significant difference between two areas ($p<0.05$) such as sex and recovery self-care activities (dressing upper body).

4.38 Association between Sex and recovery in Self-care activities – Dressing (lower body):

Sex	Self-are Dressing- B			Total (51)	P-value (p<0.05)
	Independent with cwobzl ;requires adaptive devices and/or specific setting	Independent with cwobzl; needs assistance	Dresses (any cloth) independently; does not require adaptive devices or special setting		
Male	1 (1.96%)	2 (3.92%)	43 (84.31%)	46 (90.2%)	.589
Female	0 (0%)	0 (0%)	5 (9.8%)	5 (9.8%)	

Table 15: Association between Sex and recovery in Self-care activities – Dressing (lower body)

The table shows that 1.96% male needed specific setting, 3.92% male needed assistive device, 84.31% male and 9.8% female did not need any assistive device for lower body dressing in re-integration phase. This was found to be a statistically non-significant difference between two areas ($p<0.05$) such as sex and recovery self-care activities (dressing lower body).

4.39 Association between Sex and recovery in Self-care activities – grooming:

Sex	Self-care – Grooming		Total (51)	P- value (p<0.05)
	Grooms independently with adaptive devices	Grooms independently without adaptive devices		
Male	2 (3.9%)	44 (86.3%)	46 (90.2%)	.642
Female	0 (0%)	5 (9.8%)	5 (9.8%)	

Table 16: Association between Sex and recovery in Self-care activities – grooming

The table shows that 3.9% male needed adaptive device, 86.3% male and 9.8% female did not need any adaptive device for grooming in re-integration phase. Study result found that, there is no significantly difference ($p<0.05$) between two areas like sex and self care activities (grooming).

4.40 Association between Sex and recovery in Toilet use activities:

Sex	Toilet use			Total (51)	P-value (p<0.05)
	Requires partial assistance ;cleans self independently	Uses toilet independently in all tasks but needs adaptive devices or special setting (e.g. bars)	Uses toilet independently; does not require adaptive devices or special setting		
Male	2 (3.92%)	11 (21.6%)	33 (64.71%)	46 (90.2%)	.245
Female	1 (1.96%)	1 (1.96%)	3 (5.9%)	5 (9.8%)	

Table 17: Association between Sex and recovery in Toilet use activities

The table shows that 3.92% male and 1.96% female needed partial assistance and clean self, 21.6% male and 1.96% female needed adaptive devices, 64.71% male and 5.9% female did not need any adaptive devices for toilet use in re-integration phase. Study result found that there is no significantly difference ($p<0.05$) between two areas like sex and self-care activities (toilet use).

4.41 Association between Age and recovery in Self-care activities (Feeding):

Age	Self-care -Feeding		Total (51)	P-value (p<0.05)
	Eats independently ;needs adaptive or assistance only for cutting food and/or pouring and/or opening containers	Eats and drinks independently; does not require assistance or adaptive devices		
11 - 20 years	1 (1.96%)	16 (31.4%)	17 (33.3%)	.663
21- 30 years	0 (0%)	12 (23.5%)	12 (23.5%)	
31 - 40 years	1 (1.96%)	9 (17.7%)	10 (19.6%)	
41- 50 years	0 (0%)	9 (17.7%)	9 (17.7%)	
51- 60 years	0 (0%)	3 (5.9%)	3 (5.9%)	

Table 18: Association between Age and recovery in Self-care activities (Feeding)

Among total participants (n=51), maximum participants age ranges was 11-20 years to this study . Among them 31.4% person became independent in feeding in re-integration phase whose age ranges was 11-20 years and 1.96% needed adaptive device. The second most participants of this study aged between 21-30 years, 23.5% people became independent in re-integration phase of this aged people. On the other hand , between 31-50 years of people, 17.7% people became independent in re-integration phase. After statistically test, this study found to be non-significant relationship between two groups like age and recovery in self-care activities (Feeding).

4.42 Association between Age and recovery of Self-care activities (Grooming):

Age	Self-care grooming		Total (n=51)	P-value (p<0.05)
	Grooms independently with adaptive devices	Grooms independently without adaptive devices		
11-20 years	1 (1.96%)	16 (31.4%)	17 (33.3%)	.320
21-30 years	1 (1.96%)	11 (21.6%)	12 (23.5%)	
31-40 years	0 (0%)	10 (19.6%)	10 (19.6%)	
41-50 years	0 (0%)	9 (17.7%)	9 (17.7%)	
51-60 years	0 (0%)	3 (5.9%)	3 (5.9%)	

Table 19: Association between Age and recovery of Self-care activities (Grooming)

Among total participants (n=51), maximum participants age ranges was 11-20 years to this study. Among them 31.4% became independent and 1.96% needed adaptive devices in re-integration phase whose range was 11-20 years. The second most participants of this study aged in between 21-30 years.21.6% became independent and 1.96% needed adaptive devices in re-integration phase of this aged people. On the other hand, between 31-60 years of age people, little amount of people became fully independent in re-integration phase. This study shows that , statistically there is no significant relationship ($p<0.05$) between age and recovery in self-care activity (grooming)

CHAPTER – V DISCUSSION

The aim of this study was to assess the independence measurement of patients with SCI who transfer in re-integration phase into CRP from June to October , 2021. Total 51 paraplegic patients were taken in this in study period. The study population consisted of 46 (90.2%) male and 5 (9.8%) female. According to Razzak (2011) established that , amongst 56 participants 84% were male and 16.0% were female (Razzak et al., 2011). Anderson et al, (2007) suggested that among 231 participants male were 63% and female were 37% resulting SCI (Anderson et al., 2007). An epidemiological in Southeast Nigeria established that the male and female ratio was 4.3:1 and more frequently affected age group was the 31-45 year.

In the present study, the age range from 11 to 20 years of the participants. In this study the mean age of the patients were 30 years with standard deviation (±1.282). In other study conduct in Brazil, the mean age was 30.3 with standard deviation (±1.1) (Islam et al,.2016). Another study found that, the mean age was 40.8 years with standard deviation (±14.1) (De Groot et al., 2006) .In study of USA found that the mean age was 29.7 years (Ning et al., 2016). The study of Pakistan established that, the mean age was 28.3 years with standard deviation ±12.4 (De Groot et al.,2006). In India , another study found that the mean age was 34.3 years (Chhabra and Arora, 2012).

The majority of the patients were aged between 11 to 20 years. Similarly other study found that among 849 participants 15% was 25 to 49 age group (Lidal et al., 2007).

Most of the patients were adolescence age . among 51 patients ,100% had traumatic SCI. On the hand in Netharland, 75% was traumatic cause (De Groot et al., 2006).

Out of total respondents, most of them were students (29.4%), businessman were 19.6%, farmers were 15.7%, daily labours and others were 9.8%, service holders were 4% and housewives and garments workers were 2%. Similarly, around 27% of the respondents were farmers ,in where daily labourers were 22% , service holders were 18% , businessman were 11% , garment workers were 4%, housewives 9% , rickshaw puller and students were 4 % also (Arango et al., 2011). This differs from the Nigerian study , where it was showed that farmers were the fifth most common occupation group who suffered from SCI. In that study students, farmers, service holders were 20%, 12.9% and 14% respectively (Nwankwo and Uche, 2013). The study of China established that ,among 34 participants , 57.2% were farmers, 13.3% were daily labour, 2.6% were students, 3.4% were service holder and 12.4% were involved in other occupation (Wang et al., 2013).

In the present study, among total participants 72.5% have complete paraplegia and 27.5% have incomplete paraplegia. In Pakistan, a study showed that 46% patients had incomplete paraplegia and 43.3% had complete paraplegia, 4.8% had incomplete tetraplegia and 5.9% had no neurological deficit (Rathore et al., 2007).

In this study , thoracic injury was 84.3% and lumber injury was 15.7%. The study of China, cervical injury was 46.3%, 20.4% was thoracic injury and 33.3% was lumber injury (Wang et al., 2013).

Out of 51 patients the impairment grading in ASIA scale A were 74.5%, ASIA scale B were 2.0%, ASIA scale C were 5.9%, ASIA scale D were 13.7%, ASIS scale E were 3.9%. In Pakistan, a study showed that there was no case of ASIA A, ASIA B were 46%, ASIA C were 41% and ASIA D were 8% (Rathore et al., 2007). In China study, according to the grading scale 74.2% were ASIA A, 5.4% were ASIA B, 5.9% were ASIA C and 13.4% were ASIA D (Wang et al.,2013)

This study found that, statistically there was no significantly difference between swx and recovery self-care activities ($p<0.05$). Similarly, a study of Australia ,there is no correlation between patient's gender and their in function (p-0.24) (New and Epi, 2007).

CHAPTER – VI CONCLUSION AND RECOMMENDATION

6.1 Conclusions:

Spinal cord injury is one of the overwhelming conditions in human life. SCI is a conditions which can occur due to traumatic or non- traumatic cause. In every year , millions of people face spinal cord injury. The number of spinal cord injury patient is increasing day by day in Bangladesh and paraplegia is more common than tetraplegia. Due to lack of information and proper database about spinal cord injury, there is no estimating number of spinal cord lesion people in Bangladesh. As Bangladesh is a developing country, most of them live with low economic level and poor educational level. So that there is lack of awareness about injury specially spinal cord injury. SCI can hamper a person's whole life at any age. After spinal cord lesion, the sufferers survive their full life. They become helpless and hopeless. They think that they are burden of their own life and society because of their disability and functional impairment. They lost confidence to involve them in activities.

This study provides a common metric of the spinal cord injury in terms of functioning of ADLS. Overall in this dissertation shows that the self- care activity and mobility limitation among SCI people in the community is greater than all domains. Male are more affected than female because of their working status. This study makes possible to design and monitor the impact of health and health related intervention in case of spinal cord injury. It should be considered that it is necessary to provide more information during the re-integration period. This study makes it possible to focus directly on functioning and disability and allows the assessment of functioning separately from the spinal cord injury.

6.2 Recommendation:

In this study, the researcher takes information from the participants through a standard questionnaire to identify the independence measurement of paraplegic SCI patients. Though the research has some limitations but it identified some further step that might be taken for the better accomplishment of further study. To ensure the generalizability of further research it is recommended to investigate a large sample. In these study, researcher investigate only paraplegic patients. So researcher is strongly recommended to include both paraplegic and tetraplegic patients for further research. In this study, no comparison was done with standard functional expectations guideline. So for further study researcher strongly recommended to compare the functional outcome of each level of injury with standard functional expectation guideline. If the researcher will take long term study , the result will more significant. This research has been performed with 51 samples from the Center for the Rehabilitation of the Paralyzed. It is finally recommended that researcher for further study should take high number of population .

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APPENDIX

মৌখিক সম্মতিপত্র

আসসালামু আলাইকুম/ আদাব,

আমি তানজিবা সুলতানা সুস্মিতা। আমি এই গবেষণা প্রকল্পটি করছি যা আমার ফিজিওথেরাপি স্নাতক কার্যক্রম এর অংশ। যার শিরোনাম **'সি আর পি তে রি ইন্টিগ্রেশন পর্যায়ে প্যারাপ্লেজিক এস সি আই রোগীদের স্বাধীণভাবে কার্যক্রমের পরিমাপ'** এতে মোটামুটি ১৫ – ২০ মিনিট লাগবে।

আমি আপনাকে অবহিত করতে চাই যে, এটি একটি সম্পূর্ণ একাডেমিক গবেষণা এবং অন্য কোন উদ্দেশ্যের জন্য এটি ব্যবহার করা হবে না। আপনার প্রদত্ত সমস্ত তথ্য গোপন থাকবে এবং কোন রিপোর্ট বা প্রকাশনার ক্ষেত্রে এর উৎস গোপন থাকবে।

এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছাধীন এবং আপনি কোন নেতিবাচক প্রশ্ন ছাড়াই যে কোন সময় এই গবেষণা থেকে নিজেকে প্রত্যাহার করে নিতে পারবেন। আপনার অধিকার আছে কোন প্রশ্নের উত্তর না দেয়ার বা আপনার পছন্দ মত বা ইচ্ছেমত উত্তর দেয়ার।

যদি আপনার এই গবেষণা সম্পর্কে অথবা অংশগ্রহণকারী হিসেবে কিছু জানার থাকে তবে, আপনি আমার সাথে অথবা আমার গবেষণা অধীক্ষক, মুহাম্মাদ মিল্লাত হোসাইন, সহযোগী অধ্যাপক, রিহ্যাবিলিটেসন সাইন্স বিভাগ, বাংলাদেশ হেলথ প্রফেসন্স ইন্সটিটিউট (বিএইচপিআই) এর সাথে যোগাযোগ করতে পারেন।

তানজিবা সুলতানা সুস্মিতা

৪র্থ বর্ষ

বি এস সি ইন ফিজিওথেরাপি

বি এইচ পি আই, সি আর পি

[মোবাইল নং ; ০১৭৯৩৯৬৬৯২৪]

আমি কি সাক্ষাৎকার শুরু করার জন্য আপনার সম্মতি পেলাম?

হ্যাঁ ∆ না ∆

অংশগ্রহণকারীর স্বাক্ষর এবং তারিখ .....

সাক্ষাৎকার গ্রহণকারীর স্বাক্ষর এবং তারিখ .....

প্রত্যক্ষদর্শীর স্বাক্ষর এবং তারিখ .....

Verbal Consent Statement

(Please read out to the participants)

Assalamualaikum/Namasker,

My name is Tanjiba Sultana Susmita , I am conducting this study as a part of my academic work of B. Sc. in Physiotherapy under Bangladesh Health Professions Institute (BHPI), which is affiliated to University of Dhaka. My study title is **—INDEPENDENCE MEASUREMENT OF PARAPLEGIC SPINAL CORD INJURY PATIENTS IN RE-INTEGRATION PHASE AT CRP.** I would like to know about some personal and other related information regarding Spinal cord injury. You will need to answer some questions which are mentioned in this form. It will take approximately 15-20 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. All information provided by you will keep in a locker as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous and also all information will be destroyed after completion of the study. Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview.

If you have any query about the study or your right as a participant, you may contact with me and/or Muhammad Millat Hossain , Assistant Professor of Rehabilitation Science, Bangladesh Health Professions Institute (BHPI), Savar, Dhaka.

Do you have any questions before I start?

Yes / No

So, may I have your consent to proceed with the interview or work?
Yes……. No……

Signature of the Participant and date _____

Signature of the Data collector and date _____

Signature of the researcher and date_____

প্রশ্নাবলী
তথ্য সংগ্রহের ফর্ম

রোগীর আই ডি নং : **কোড** | | | | **নং :**

রোগীর নাম :

ঠিকানা :

মোবাইল নাম্বার:

আঘাতের তারিখ :

ভর্তির তারিখ :

ছাড়পত্রের তারিখ :

সিরিয়াল নং	প্রশ্ন	কোডিং এর ধরন	কোড
১	বয়স	বছর	
২	লিঙ্গ	পুরুষ = ১ মহিলা= ২	
৩	বৈবাহিক অবস্থা	অবিবাহিত= ১ বিবাহিত= ২ আলাদা= ৩ তালাক প্রাপ্ত= ৪ বিধবা= ৫	
৪	মেরুদন্ডের কোন অংশে আঘাত পেয়েছেন	গ্রীবাসংবন্ধীয় অংশ= ১ বক্ষদেশীয় অংশ= ২ কটীদেশীয় অংশ= ৩ না= ৪	
৫	প্রারম্ভিক স্নায়ু তন্ত্রীয় অবস্থা (এশিয়ার স্কেল অনুযায়ী)	A= ১ B= ২ C= ৩ D= ৪ E= ৫	
৬	আঘাতের ধরন	সম্পূর্ণ প্যারাপ্লেজিয়া= ১ অসম্পূর্ণ প্যারাপ্লেজিয়া= ২ স্নায়বিক ঘাটতি ছাড়া স্নায়ুতন্ত্রের আঘাত = ৫ স্পাইনাল টিউমার = ৬	

৭	আঘাতের কারণ	আঘাত জনিত= ১ অআঘাত জনিত= ২	
৮	শারিরীক অবস্থা	ফোলা ; হ্যাঁ= ১ না= ২	
		সংকোচন; হ্যাঁ= ১ না= ২	
		মাংস পেশী ক্ষয়; হ্যাঁ= ১ না= ২	
		চাপ জনিত ঘা; হ্যাঁ= ১ না=২	
		ব্যথা; হ্যাঁ = ১ না= ২	
৯	অভিযোজিত যন্ত্র কোনটি ব্যবহার করেন	হুইলচেয়ার= ১ ক্র্যাচ= ২ ওয়াকিং স্টিক= ৩ ওয়াকিং ফ্রেম= ৪ অন্যান্য= ৫	
১০	পরিবারের সদস্য সংখ্যা কত জন		
১১	পরিবারে বর্তমানে কে আয় করেন	ছেলে= ১; স্ত্রী= ২; মেয়ে= ৩; ভাই= ৪; বাবা= ৫; মা=৬; অন্যান্য= ৭; কেউ নয়= ৮;	
১২	শিক্ষাগত যোগ্যতা	অশিক্ষিত= ১ স্বাক্ষর দিতে পারে= ২ প্রাথমিক(শ্রেণী ১-৫)= ৩ নিম্ন মাধ্যমিক (শ্রেণী ৬-৯)= ৪ এস. এস. সি.= ৫ এইস. এস. সি.= ৬ ডিগ্রি= ৭ মাস্টার্স= ৮ অন্যান্য= ৯	
১৩	পেশা	গৃহিণী= ১ কৃষক= ২ চাকুরীজীবি= ৩ ব্যবসায়ী= ৪ ছাত্র= ৫ গার্মেন্টস কর্মী = ৬ দিন মজুর= ৭	

		অন্যান্য= ৮	
১৪	বাড়ির পরিবেশ	স্থানঃ গ্রাম= ১ মফস্বল =২;শহর= ৩ অন্যান্য= ৪	
		রাস্তার অবস্থাঃ পিচ= ১ কর্দমাক্ত= ২ ইটবিছানো= ৩; অন্যান্য= ৪	
১৫	বাড়ির ধরন	সিড়ি ব্যবস্থাপনাঃ হ্যাঁ= ১ ; না= ২	
		বারান্দাঃ হ্যাঁ= ১; না= ২	
১৬	টয়লেট	ভিতরে= ১ বাহিরে= ২	
১৭	টয়লেটের ধরন	এশিয়ান= ১ পাশ্চাত্য ধরণ= ২ অন্যান্য= ৩	
১৮	পানির উৎস	ট্যাপ= ১ টিউবওয়েল= ২ পুকুর= ৩ অন্যান্য= ৪	

SCIM-SPINAL CORD INDEPENDENCE MEASURE

নিজের যত্ন	**নম্বর**
১। খাওয়া-দাওয়া (কাটা, পাত্র খোলা, ঢালা, মুখ পর্যন্ত খাবার নেয়া, তরল পূর্ণ কাপ ধরতে পারা) ০. প্যারেন্টারাল, গ্যাস্ট্রোস্টোমি বা সম্পূর্ণরূপে মৌখিক খাওয়ানো দরকার ১. খাওয়া এবং / বা পানীয়, বা অভিযোজক ডিভাইস পরার জন্য আংশিক সহায়তা প্রয়োজন ২. স্বাধীনভাবে খায়; কেবল খাদ্য কেটে এবং / অথবা ঢালা এবং / অথবা পাত্রে খোলার জন্য অভিযোজিত ডিভাইস বা সহায়তা প্রয়োজন ৩. খাওয়া-দাওয়া স্বাধীনভাবে; সহায়তা বা অভিযোজক ডিভাইসের প্রয়োজন হয় না	

২। গোসল করা (সাবান লাগানো, ধোয়া, দেহ ও মাথা শুকানো, পানির ট্যাপ ব্যবহার করা) **এ-উপরের শরীর; বি- নিচের শরীর** **এ।** ০. মোট সহায়তা প্রয়োজন ১. আংশিক সহায়তা প্রয়োজন ২. অভিযোজিত ডিভাইসগুলির সাথে বা নির্দিষ্ট সেটিংসে (যেমন, বার, চেয়ার) স্বাধীনভাবে ধুয়ে ফেলা হয় ৩. স্বাধীনভাবে ধোয়া; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংয়ের প্রয়োজন হয় না (স্বাস্থ্যকর মানুষের জন্য প্রথাগত নয়)	
বি। ০. মোট সহায়তা প্রয়োজন ১. আংশিক সহায়তা প্রয়োজন ২. অভিযোজিত ডিভাইসগুলির সাথে বা নির্দিষ্ট সেটিংসে (যেমন, বার, চেয়ার) স্বাধীনভাবে ধুয়ে ফেলা হয় ৩. স্বাধীনভাবে ধোয়া; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংয়ের প্রয়োজন হয় না (স্বাস্থ্যকর মানুষের জন্য প্রথাগত নয়)	
৩। ড্রেসিং (কাপড়, জুতা, চিরস্থায়ী অর্থোসিস- পরা এবনহ খুলে ফেলা). **এ-উপরের শরীর; বি- নিচের শরীর** **এ।** ০. মোট সহায়তা প্রয়োজন ১. বোতাম, জিপার বা লেইস ছাড়াই কাপড়ের সাথে আংশিক সহায়তা প্রয়োজন ২. পোশাক পরতে স্বতন্ত্র; অভিযোজিত ডিভাইস এবং / অথবা নির্দিষ্ট সেটিংস প্রয়োজন ৩. পোশাক দিয়ে স্বতন্ত্র; সহায়ক প্রয়োজন হয় না; কেবল cwobzl এর জন্য সহায়তা বা সহায়ক প্রয়োজন ৪. (যে কোনও কাপড়) স্বাধীনভাবে; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংসের প্রয়োজন হয় না	
বি। ০. মোট সহায়তা প্রয়োজন ১. বোতাম, জিপার বা লেইস ছাড়াই কাপড়ের সাথে আংশিক সহায়তা প্রয়োজন ২. পোশাক পরতে স্বতন্ত্র; অভিযোজিত ডিভাইস এবং / অথবা নির্দিষ্ট সেটিংস প্রয়োজন ৩. পোশাক দিয়ে স্বতন্ত্র; সহায়ক প্রয়োজন হয় না; কেবল cwobzl এর জন্য সহায়তা বা সহায়ক প্রয়োজন ৪. (যে কোনও কাপড়) স্বাধীনভাবে; অভিযোজিত ডিভাইস বা নির্দিষ্ট সেটিংসের প্রয়োজন হয় না	

৪. সাজ-গোজ করা (হাত ও মুখ ধোয়া, দাঁত ব্রাশ করা, চুল আঁচড়ানো, শেভ করা, মেকআপ প্রয়োগ করা) ০. মোট সহায়তা প্রয়োজন ১. আংশিক সহায়তা প্রয়োজন ২. অভিযোজিত ডিভাইসগুলির সাথে স্বতন্ত্রভাবে গ্রুম করে ৩. অভিযোজিত ডিভাইসগুলি ছাড়া স্বাধীনভাবে গ্রুম করে	
উপসমষ্টি (০-২০)	
রেস্পিরেশন এবং স্ফিংক্টার ব্যবস্থাপনা **৫**। রেস্পিরেশন ০. ট্রাকিয়াল টিউব অথবা চিরস্থায়ী বা ক্ষণস্থায়ী সাহায্যকারী ভেন্টিলেশন প্রয়োজন। ২. ট্রাকিয়াল টিউব দ্বারা স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে বা ট্রাকিয়াল টিউব ব্যবস্থাপনায় অনেক সাহায্য প্রয়োজন। ৪. ট্রাকিয়াল টিউব দ্বারা স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে বা ট্রাকিয়াল টিউব ব্যবস্থাপনায় অল্প সাহায্য প্রয়োজন। ৬. ট্রাকিয়াল টিউব দ্বারা স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে বা ট্রাকিয়াল টিউব ব্যবস্থাপনায় অনেক সাহায্য প্রয়োজন, (মাস্ক) বা আইপেপ। ৮. ট্রাকিয়াল টিউব ছাড়া স্বতন্ত্রভাবে শ্বাস নেয়; অক্সিজেন প্রয়োজন, কাশি দিতে অল্প সাহায্য প্রয়োজন। ১০. স্বতন্ত্রভাবে শ্বাস নেয় কোন ডিভাইস বা সাহায্য ছাড়া।	
৬। স্ফিংক্টার ব্যবস্থাপনা - ব্লাডার এ। ইনডুয়েলিং ক্যাথেটার এর ব্যবহার ০. হ্যা – (৭ এ প্রশ্নে যাও) ১. না – (৬ বি এবং ৬ সি প্রশ্নের উত্তর দাও)	
বি। মাঝে মাঝে ক্যথেটারাইজেশন ০. মোট সহায়তা প্রয়োজন ১. অন্যের সহায়তা নিয়ে নিজে নিজে করি (স্ব-ক্যাটেরাইজেশন) ২. অন্যের সহায়তা ছাড়া নিজে নিজে করি (স্ব-ক্যাটেরাইজেশন) ৩. ব্যাবহার করি না ।	
সি। বাহ্যিক প্রসাব নিষ্কাশন যন্ত্র ব্যাবহার (কনডম ক্যাথেটার, ডায়াপার, স্যানিটারি ন্যাপকিন) ০. ব্যাবহারের জন্য মোট সহায়তা প্রয়োজন ১. ব্যাবহারের জন্য আংশিক সহায়তা প্রয়োজন ২. ব্যাবহারের জন্য সহায়তার প্রয়োজন নেই। ৩. স্বতন্ত্র নিষ্কাশন। বাহ্যিক নিষ্কাশনের যন্ত্রের প্রয়োজন নেই।	

৭। স্ফিংক্টার ব্যবস্থাপনা – বাওয়েল এ। বাওয়েল নিয়ন্ত্রনের জন্য কি সহায়তা প্রয়োজন (সাপোসিটর প্রয়োগের জন্য)? ০. হ্যা ১. না	
বি। অন্ত্রের গতিবিধি ০. অনিয়মিত অথবা কম ফ্রিকোয়েন্সি (৩ দিনের মধ্যে একবারেরও কম) অন্ত্রের গতিবিধি ১. নিয়মিত (৩ দিনে একবার অথবা অতিরিক্ত)	
সি। অনিয়মত মল ত্যগ (দূর্ঘটনা) ০. এক মাসে ২ বার অথবা অতিরিক্ত ১. এক মাসে ১ বার ২. এক বার ও না।	
৮। টয়লেট ব্যবহার (পেরিনিয়াল হাইজিন, ন্যাপকিন বা ডায়াপার ব্যবহারের আগে / পরে কাপড়ের সমন্বয়) ০. সম্পুর্ণ সহায়তা প্রয়োজন ১. আংশিক সহায়তা প্রয়োজন; নিজেকে পরিষ্কার না ২. আংশিক সহায়তা প্রয়োজন; স্বতন্ত্রভাবে নিজেকে পরিষ্কার করে ৪. সমস্ত কাজে স্বতন্ত্রভাবে টয়লেট ব্যবহার করে তবে অভিযোজিত ডিভাইস বা বিশেষ সেটিং প্রয়োজন (যেমন, বার) ৫. টয়লেট স্বাধীনভাবে ব্যবহার করে; অভিযোজিত ডিভাইস বা বিশেষ সেটিং প্রয়োজন হয় না)	
উপসমষ্টি (০-৪০)	
মোবিলিটি (রুম এবং টয়লেট) বিছানায় এবং চাপ মুক্ত করনে মোবিলিটি	
৯। বিছানায় এবং চাপ মুক্ত করনে মোবিলিটি ০. সমস্ত ক্রিয়াকলাপে সহায়তার প্রয়োজন: বিছানায় উপরের দেহ ঘুরিয়ে দেওয়া, বিছানায় নীচের দেহ ঘুরিয়ে দেওয়া, বিছানায় বসে, হুইলচেয়ারে পুশ-আপ করা, অভিযোজিত ডিভাইসগুলির সাথে বা ছাড়াই, তবে বৈদ্যুতিক সহায়তায় ২. সহায়তা ছাড়াই একটি কার্যক্রম সম্পাদন করে ৪. সহায়তা ব্যতীত দুটি বা তিনটি কার্যক্রম সম্পাদন করে ৬. বিছানার সমস্ত গতিশীলতা এবং চাপ মুক্তির কার্যক্রম স্বাধীনভাবে সম্পাদন করে	

১০। ট্রান্সফার: বেড - হুইলচেয়ার (হুইলচেয়ার লক করা, পাদদেশ গ্রহণ), সরানো এবং আর্ম রিসেটগুলি সামঞ্জস্য করা, স্থানান্তরিত করা, পা তোলা। ০. সম্পুর্ণ সহায়তা প্রয়োজন ১. আংশিক সহায়তা এবং / বা তদারকি, এবং / অথবা অভিযোজিত ডিভাইসগুলির (যেমন, স্লাইডিং বোর্ড) প্রয়োজন। ২. স্বতন্ত্র (বা হুইলচেয়ারের প্রয়োজন নেই)	
১১। ট্রান্সফার: হুইলচেয়ার - টয়লেট- টাব (যদি টয়লেট হুইলচেয়ার ব্যবহার করে: এতে স্থানান্তরিত হয় যদি নিয়মিত হুইলচেয়ার ব্যবহার করা হয়: হুইলচেয়ার লক করা, পদক্ষেপ গ্রহণ, আর্মরেস্টস সরানো এবং সামঞ্জস্য করা, স্থানান্তর করা, পা তোলা) ০. সম্পুর্ণ সহায়তা প্রয়োজন ১. আংশিক সহায়তা এবং / বা তদারকি, এবং / অথবা অভিযোজিত ডিভাইসগুলির (যেমন, দখল - বার) প্রয়োজন ২. স্বতন্ত্র (বা হুইলচেয়ারের প্রয়োজন নেই)	
১২। মোবিলিট- ইন্ডোর ০. মোট সহায়তা প্রয়োজন ১. ম্যানুয়াল হুইলচেয়ার পরিচালনা করতে বৈদ্যুতিক হুইলচেয়ার বা আংশিক সহায়তা প্রয়োজন। ২. ম্যানুয়াল হুইলচেয়ারে স্বাধীনভাবে সরানো ৩. হাঁটার সময় তদারকির প্রয়োজন (ডিভাইস সহ বা ছাড়া) ৪. ওয়াকিং ফ্রেম বা ক্রাচগুলি (সুইং) নিয়ে হাঁটা ৫. ক্রাচ বা দুটি বেত (কেইন) নিয়ে হাঁটেন (পারস্পরিক পদচারণা) ৬. এক বেত (কেইন) নিয়ে হাঁটেন ৭. শুধুমাত্র লেগ অর্থোসিসের প্রয়োজন ৮. ডিভাইস ছাড়া হাঁটা	
১৪। মোবিলিটি আউটডোর (১০০ মিটারের বেশি) ০. মোট সহায়তা প্রয়োজন ১. ম্যানুয়াল হুইলচেয়ার পরিচালনা করতে বৈদ্যুতিক হুইলচেয়ার বা আংশিক সহায়তা প্রয়োজন। ২. ম্যানুয়াল হুইলচেয়ারে স্বাধীনভাবে সরানো ৩. হাঁটার সময় তদারকির প্রয়োজন (ডিভাইস সহ বা ছাড়া) ৪. ওয়াকিং ফ্রেম বা ক্রাচগুলি (সুইং) নিয়ে হাঁটা ৫. ক্রাচ বা দুটি বেত (কেইন) নিয়ে হাঁটেন (পারস্পরিক পদচারণা) ৬. এক বেত (কেইন) নিয়ে হাঁটেন ৭. শুধুমাত্র লেগ অর্থোসিসের প্রয়োজন ৮. ডিভাইস ছাড়া হাঁটা	

১৫। সিঁড়ি ব্যবস্থাপনা ০. সিঁড়ি বেয়ে উঠতে বা নামতে অক্ষম ১. অন্য ব্যক্তির সমর্থন বা তদারকি সহ কমপক্ষে ৩ পদক্ষেপে আরোহণ এবং অবতরণ ২. হ্যান্ড রেইল এবং / অথবা ক্রাচ বা বেতের সমর্থন সহ কমপক্ষে 3 টি পদক্ষেপে আরোহণ এবং উত্থান ৩. কোনও সমর্থন বা তদারকি ছাড়াই কমপক্ষে ৩ ধাপে আরোহণ এবং উত্থান	
১৬। ট্রান্সফারঃ হুইলচেয়ার-গাড়ি (গাড়ির কাছে পৌঁছানো, হুইলচেয়ার লক করা, আরমান্ডের পাদদেশগুলি সরিয়ে, গাড়িতে এবং গাড়িতে স্থানান্তর করা, হুইলচেয়ার গাড়িতে করে এবং বাইরে নিয়ে আসা) ০. মোট সহায়তা প্রয়োজন ১. আংশিক সহায়তা এবং / অথবা তদারকি এবং / অথবা অভিযোজিত ডিভাইসগুলির প্রয়োজন ২. স্বতন্ত্র স্থানান্তর; অভিযোজিত ডিভাইসগুলির প্রয়োজন নেই (বা হুইলচেয়ারের প্রয়োজন নেই)	
১৭। ট্রান্সফারঃ গ্রাউন্ড - হুইলচেয়ার ০. সাহায্য প্রয়োজন ১. অভিযোজিত ডিভাইসগুলির সাথে বা ছাড়াই স্বতন্ত্র স্থানান্তর (বা হুইলচেয়ারের প্রয়োজন নেই)	
উপসমষ্টি (০-৪০)	
মোট SCIM স্কোর (০-১০০)	

Questionnaire

Data Collection Form

Patient's ID No: Code No: | | | |

Patient's name:

Address:

Date of Injury:

Date of Admission:

Date of Discharge:

Serial No	Question	Type of Coding	Code
1	Age	…….. year	
2	Sex	Male= 1 Female= 2	
3	Marital status	Unmarried= 1 Married= 2 Separated= 3 Divorced= 4 Widow= 5	
4	Skeletal level of injury	Thoracic =1 Lumber = 2 Sacral = 3 Others= 5	
5	Neurological level	A= 1 B= 2 C= 3 D= 4 E= 5	

6	Type of injury	Complete Paraplegia= 1 Incomplete Paraplegia= 2 SCI without Neurological deficit= 5 Spinal tumour = 6	
7	Cause of injury	Traumatic =1 Non traumatic=2	
8	Physical status	Oedema: Yes=1 No=2	
		Contracture:Yes=1 No=2	
		Muscle wasting:Yes= 1 No=2	
		Pressure sore:Yes=1 No=2	
		Pain: Yes=1 No= 2	
9	Device	Wheelchair= 1 Crutch= 2 Walking stick=3 Walking frame=4 Others=5	
10	Number of family member		
11	Number of earning member	Son=1 Wife=2 Daughter=3 Brother=4 Father=5 Mother=6 Others=7 Nobody=8	
12	Educational level	Illiterate =1 Can sign only=2 Primary School=3 Secondary School=4 S.S.C=5 H.S.C=6	

		Degree=7 Masters=8 Other=9	
13	Occupation	House wife=1 Farmer=2 Service holder=3 Businessman=4 Student=5 Garments worker=6 Day labour=7 Others=8	
14	Environmental status	Area: Urban=1 Semi rural=2 Rural=3 Others=4	
		Road type: Tarmac=1 Muddy=2 Brick=3 Othes=4	
15	House type:	Stair: Yes=1 No=2	
		Varanda: Yes=1 No=2	
16	Toilet	Inside=1 Outside=2	
17	Type of toilet	Asian=1 Western=2 Others=3	
18	Water source	Tap=1 Tubewell=2 Pond=3 Others=4	

Self Care	Number
1. Feeding (cutting, opening containers, pouring, bringing food to mouth, holding cup with fluid) 0. Needs pare anal, gastrostomy, or fully assisted oral feeding 1. Needs partial assistance for eating and /or drinking, or for wearing adaptive devices 2. Eats independently; needs adaptive or assistance only for cutting food and/or pouring and/or opening containers 3. Eats and drinks independently; does not require assistance or adaptive devices	
2. Bathing (soaping, washing, drying body and head, manipulating water tap).A-upper body; B-lower body A. 0. Requires total assistance 1. Require partial assistance 2. Washes independently with adaptive devices or in a specific setting (e.g., bars,	

chair) 3. Washes independently; does not require adaptive devices or specific setting (not customary for healthy people)	
B. 0. Requires total assistance 1. Require partial assistance 2. Washes independently with adaptive devices or in a specific setting (e.g., bars, chair) 3. Washes independently; does not require adaptive devices or specific setting (not customary for healthy people)	
3. Dressing (clothes, shoes, and permanent orthoses: dressing, wearing, and undressing). A-upper body; B-lower body A. 0.requires total assistance 1. Requires partial with clothes without buttons, zippers or laces (cwobzl) 2. Independent with cwobzl; requires adaptive devices and/ or specific settings (adss)	

3. Independent with cwobzl; does not require adss; needs assistance or adss only for bzl 4. Dresses (any cloth) independently; does not require adaptive devices or specific setting	
B. 0.requires total assistance 1. Requires partial with clothes without buttons, zippers or laces (cwobzl) 2. Independent with cwobzl; requires adaptive devices and/ or specific settings (adss) 3. Independent with cwobzl; does not require adss; needs assistance or adss only for bzl 4. Dresses (any cloth) independently; does not require adaptive devices or specific setting	
4. Grooming (washing hands and face, brushing teeth, combing hair, shaving, applying makeup)	

0. Requires total assistance 1. Requires partial assistance 2. Grooms independently with adaptive devices 3. Grooms independently without adaptive devices	
SUB-TOTAL (0-20)	
Respiration and Sphincter Management 5. Respiration 0. Requires tracheal tube (TT) and permanent or intermittent assisted ventilation (IAV) 2. Breathes independently with TT; requires oxygen, much assistance in coughing or TT management 4. Breathes independently with TT; requites little assistance in coughing or TT management 6. Breathes independently without TT; requires oxygen, much assistance in coughing, a mask (e.g.,peep) or IAV (bipap)	

8. Breathes independently without TT; requires little assistance or stimulation for coughing 10. Breathes independently without assistance or device	
6. Sphincter Management- Bladder 0. Indwelling catheter 3. Residual urine volume (RUV)>100cc; no regular catheterization or assisted intermittent cathethrization 6. RUV<100cc or intermittent self-catheterization; needs assistance for applying drainage instrument 9. Intermittent self-catheterization; uses external drainage instrument; does not need assistance for applying 11. Intermittent self-catheterization; continent between catheterizations; does not use external insrtrument 13. RUV< 100cc; needs only external urine drainage; no	

assistance is required for drainage 15. RUV<100cc; continent; does not use external drainage instrument	
7. Sphincter Management – Bowel 0. Irregular timing or very low frequency (less than once in 3 days) of bowel movements 5. Regular timing, but requires assistance (e.g, for applying suppository); rare accidents (less than twice a month) 8. Regular bowel movements, without assistance; rare accidents (less than twice a monts) 10. Regular bowel movements, without assistance; no accidents	
8. Use of Toilet (perineal hygiene, adjustment of clothes before / after, use of napkins or diapers). 0. Requires total assistance 1. Requires partial assistance; does not clean self 2. requires partial assistance; cleans self independently 4. Uses toilet independently in all tasks but	

needs adaptive devices or special setting (e.g., bars) 5. Uses toilet independently; does not require adaptive devices or special setting	
SUB TOTLE(0-40)	
Mobility (room and toilet) 9. Mobility in Bed and Action to Prevent Pressure Sores 0. Needs assistance in all activities: turning upper body in bed, turning lower body in bed, sitting up in Bed, doing push-ups in wheelchair, with or without adaptive devices, but not electric aids 2. Performs one of the activities without assistance 4. Performs two or three of the activities without assistance 6. Performs all the bed mobility and pressure release activities independently	
10. Transfers: bed-wheelchair (locking wheelchair, lifting footrests, removing and adjusting arm rests, transferring, lifting feet). 0. Requires total assistance	

1. needs partial assistance and /or supervision, and/or adaptive devices (e.g., grab-bars) 2. Independent (or does not require wheelchair	
11. Transfers: wheelchair-toilet-tub (if uses toilet wheelchair: transfers to and from; if uses regular Wheelchair: locking wheelchair, lifting footrests, removing and adjusting armrests, transferring, lifting feet) 0. Requires total assistance 1. Needs partial assistance and /or supervision, and/or adaptive devices (e.g., grab bars) 2. Independent (or does not require wheelchair	
Mobility (indoors and outdoors, on even surface) 12. Mobility Indoors 0. Requires total assistance 1. Needs electric wheelchair or partial assistance to operate manual wheelchair 2. Moves independently in manual wheelchair 3. Requires supervision while while	

walking (with or without devices) 4. Walks with a walking frame or crutches (swing) 5. Walks with crutches or two canes (reciprocal walking) 6. Walks with one cane 7. Needs leg orthosis only 8. Walks without walking aids	
13. Mobility for Moderate Distances (10 – 100 meters) 0. Requires total assistance 1. Needs electric wheelchair or partial assistance to operate manual wheelchair 2. Moves independently in manual wheelchair 3. Requires supervision while walking (with or without devices) 4. Walks with a walking frame or crutches (swing) 5. Walks with crutches or two canes (reciprocal walking) 6. Walks with one cane 7. Needs leg orthosis only 8. Walks without walking aids	
14. Mobility Outdoors (more than 100 meters)	

0. Requires total assistance 1. Needs electric wheelchair or partial assistance to operate manual wheelchair 2. Moves independently in manual wheelchair 3. Requires supervision while walking (with or without devices) 4. Walks with a walking frame or crutches (swing) 5. Walks with crutches or two canes (reciprocal waking) 6. Walks with one cane 7. Needs leg orthosis only 8. Walks without walking aids	
15. Stair Management 0. Unable to ascend or descend stairs 1. Ascends and descends at least 3 steps with support or supervision of another person 2. Ascends and descends at least 3 steps with support of handrail and/ or crutch or cane 3. Ascends and descends at least 3 steps without any support or supervision	

16. Transfers: wheelchair-car (approaching car locking wheelchair, removing arm - and footrests, transferring to and from car bringing wheelchair into and out of car) 0. Requires total assistance 1. Needs partial assistance and/or supervision and/or adaptive devices 2. Transfers independent; does not require adaptive devices (or does not require wheelchair)	
17. Transfers: ground-wheelchair 0. Requires assistance 1. Transfer independent with or without adaptive devices (or does not require wheelchair	
SUB- TOTAL (0-40)	
TOTAL SCIM SCORE (0- 100)	

Permission Latter

Date: 15 june, 2021

Head

Department of Physiotherapy

Centre for the Rehabilitation of the Paralysed (CRP)

Chapain, Savar, Dhaka-1343

Through: Head, Department of Physiotherapy, BHPI.

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

Sir,

With due to respect and humble submission to state that I am Tanjiba Sultana Susmita, a student of 4th year B.Sc. in physiotherapy at Bangladesh Health Professions Institute (BHPI). The Ethical committee has approved my research project entitled:**"Independence measurement of paraplegic SCI patient in CRP in re-integration phase."** under the supervision ofMuhammadMillatHossain,, Assistant professor, Departmentt of Rehabilitation Science, BHPI. I want to collect data for my research project from the Department of Physiotherapy at CRP. So, I need permission for data collection from the Spinal Cord injury , Unit of Physiotherapy Department at CRP-Savar, Dhaka-1343. I would like to assure that anything of the study will not be harmful for the participants and the Department itself.

I, therefore pray and hope that you would be kind enough to grant my application and give me permission for data collection and oblige thereby.

Yours faithfully,

Tanjiba Sultana Susmita 15.06.21.

Tanjiba Sultana Susmita

4 th Year B.Sc. in Physiotherapy

Class Roll:52; Session: 2013-14

Bangladesh Health Professions Institute (BHPI) (An academic Institution of CRP) CRP-Chapain, Savar, Dhaka-1343.

Recommended & Forwarded Millathossain 16/6/2021

Muhammad Millat Hossain
Assistant Professor
Project & Course Coordinator
Dept. of Rehabilitation Science
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Recommended Shofiq 16.06.21

Md. Shofiqul Islam
Associate Professor & Head
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

Approved

MUHAMMAD ANWAR HOSSAIN
Senior Consultant
Head of Physiotherapy Dept
Associate Professor, BHPI
CRP Savar Dhaka-1343

Allow for data Collect at SCI unit. MHosen 21.621

MUZAFFOR HOSSAIN
Junior Consultant-Physiotherapy & Incharge
Spinal cord injury (SCI) Unit, Physiotherapy Department
CRP Chapain, Savar, Dhaka-1343

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

Ref: Date:

CRP/BHPI/IRB/06/2021/480

17/06/2021

To
Tanjiba Sultana Susmita
B.Sc. in Physiotherapy
Session: 2013-2014, Student ID: 112130194
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh

Subject: Approval of thesis proposal, "**Independence measurement of paraplegic SCI patient in CRP in re-integration phase**" by ethics committee.

Dear Tanjiba Sultana Susmita,

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. 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

Since the study involves questionnaire that takes maximum 15-20 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 8.30AM on 1 March, 2020 at BHPI (23rd IRB Meeting).

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

Best regards,

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