

PREVALENCE OF PRESSURE SORE AMONG THE SPINAL CORD INJURY PATIENTS 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

**PREVALANCE OF PRESSURE SORE AMONG THE SPINAL CORD
INJURY PATIENTS AT CRP**

Submitted by **Sharmila Jahan**, for partial fulfillment of the requirements for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

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DECLARATION

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of information of the study. I would be bound to take written consent of my supervisor.

Signature:

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Abbreviations

CRP:	Center for The Rehabilitation of The Paralyzed.
BHPI:	Bangladesh Health Professions Institute.
SCI:	Spinal Cord Injury
PU:	Pressure Ulcer
EPUAP:	European Pressure Ulcer Advisory Panel
NPUAP:	National Pressure Ulcer Advisory Panel
UK:	Unitated Kingdom
US:	Unitated State
WHO:	World Health Organization
BMRC:	Bangladesh Medical Research Council

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Abstract

Purpose: To identify the prevalence of pressure sore among the spinal cord injury patients at CRP. *Objectives:* The objectives of the study were to find out the information about the socio-demography and developing pressure sore, calculate the number of patients with pressure sore in per hundred SCI patients, determine the common factors that influence pressure sore, To inspect the degree of pressure sore which mostly occur at CRP, and evaluate the frequency of pressure sore among the complete, incomplete paraplegia and tetraplegic SCI patients. *Methodology:* A cross sectional research design was carried out in this study, purposive sampling technique was used to collect the data from 50 participants among the SCI patients at CRP. A questionnaire was used to collect data and data was collected by face to face interview. Data were numerically coded and captured by using an SPSS 17.0 version software program and descriptive statistics was used for data analysis which focus to table, pie chart and bar chart. *Results:* The findings of the study provided a baseline of information prevalence of pressure sore among the spinal cord injury patients at CRP. The finding of the study was that 28% SCI patients were suffered from pressure sore at CRP. Most of the patients have poor socioeconomic status and low literacy rate. Majority has no knowledge of proper transferring technique which is important for prevent pressure sore and they are not aware about taking a lift timely and avoiding friction to prevent pressure sore. *Conclusion:* The prevalence of pressure sore among the spinal cord injury patients at CRP was 28%. This result provide background information that may be useful in giving more attention to design the best-practice protocols for prevention and treatment of pressure sore, thereby reducing their prevalence.

1.1 Background

Pressure sore can be defined as “area of localized damage to the skin and underlying tissue caused by pressure, shear, friction or a combination of these (Conva Tec Inc 2011). Pressures sores are a very common problem for individuals with restricted mobility. Despite the current treatment and prevention attempts, Pressure ulcers remain a serious medical problem commonly found among hospitalized individuals (Luidhardt, 2011).

Approximately 10% of hospitalized and 5% of community-living patients are affected by pressure sore (Gorecki et al., 2009). These are formed as a result of prolonged pressure that restricts blood flow to certain areas of the skin. This pressure damages the skin and underlying tissue causing the risk of infection and tissue death (ConvaTec Inc 2011). The people with spinal cord injury remain at the high risk throughout their lifetimes because of decreased mobility and lack of sensation coupled with other physiological changes (Bates-Jensen et al., 2009).

The elderly being at the highest risk with approximately 70% of all pressure sores occurring in elders. In those individuals who develop pressure sores, approximately 60% occur in the acute care setting – usually within the first two weeks of hospitalization. With the increased acuity of those admitted to hospital, it is estimated that 15% of elderly patients will develop pressure ulcers within the first week of hospitalization. In the long term care setting, pressure ulcers are most likely to develop within the first four weeks of admission (Registered Nurses’ Association Of Ontario, 2005).

Many clinical observations and research have demonstrated human sufferings from pressure sores which have a profound negative effect on general physical health, socialization, financial status, body image etc (Henzel et al., 2011). Many cross-sectional studies of subjects with SCI showed that the prevalence of pressure sores increased as time since injury increased. Neurologically impaired skin with long-term structural and

physiological changes may play an important role in the development of pressure sore among subjects with longstanding SCI (Chen et al., 2005).

In American Hospitals Study it was shown that pressure sore remain major health problems affecting approximately 3 million patients. In 1993, pressure sore were noted in 280,000 hospital stays, and 11 years later the number of ulcers was 455,000.2 The Healthcare Cost and Utilization Project report found from 1993 to 2003 a 63 percent increase in pressure sore (Lyder and Ayello, 2007).

In Veterans the rate of pressure sore in people with SCI is high, with reports of 33% to 40% incidence during acute rehabilitation and the prevalence is similar for those living in the community. The recurrence rate is also high, reported as ranging from 31% to 79% (Bates-Jensen et al, 2009).

In Veterans approximately one-third of persons with SCI residing in the community are reported to have pressure sore. Yarkony and Heinemann reported prevalence rates of 8 percent at the first annual evaluation following rehabilitation, 9 percent at the 2-year follow-up, and up to 32 percent at 20 years post discharge. Carlson et al. reported a 29 percent prevalence rate during acute care, 3 percent during rehabilitation, and 17 percent during follow-up (Susan and Diana, 2003).

A number of countries have undertaken surveys to identify the numbers of patients with pressure ulcers, examples are as follows: Canada- overall prevalence rate of 26% in all healthcare institutions; 25% in acute care, 30% in long term or subacute care and 15% in the community. Germany- point prevalence rates of 5.3-28.3% in the hospital setting, Iceland – prevalence rate 8.9%. Italy – prevalence rate of 8.3% in hospital setting in 1996, but over 30% in home care setting. Japan – prevalence rate 5.1% and incidence 4.4%. Netherlands – prevalence rate of 23.1%. Spain – overall prevalence rate – 8%, but variation between different care settings (Zulkowski, 2005).

The prevalence of pressure sore in individual American hospitals varies widely ranging from 4.7% to 29.7%, in the UK, several large multi-centre studies show pressure sore prevalence varies from 6.6% to 18.6%. The prevalence of pressure sore in Australian health care settings between 1983 and 2002, ranges from 3% to 36.7%. Only a small number of prevalence studies have been reported in South East Asia and Africa. The prevalence of pressure sore in three Singaporean hospitals caring for acute and rehabilitating patients was 9% to 14% , and in one rehabilitation hospital in Hong Kong this was stated as 21% (Prentice et al., 2003).

1.2 Justification of the study

The spinal cord injury patients loss their sensation below the neurological level they have chance to develop pressure sore due to excessive pressure being applied to the tissues over an excessive duration which causes lack of blood supply to the area and necrosis of the tissues. Even they can get pressure sore from wet bed and cloth if they have no bladder control. So they may get pressure sore within some days after spinal cord injury if they are not aware about these.

Now a days the evidence of spinal cord injury is increased in Bangladesh as increase population .Due to increasing population decreasing the working opportunities they are undertaking risky work as a result they are falling in spinal cord injuries for this increasing the chance of developing pressure sore. But still now there is no evidence that research has been done on this tropics so I become interested to select this topic. Most of the spinal cord injury patients of Bangladesh come at CRP for treatment so I select the patients of CRP as my sample population.

This study will find out the amounts of the patients who have pressure sore and will help to take measure and about pressure sore among the patients. The patients may provide proper recommendation for every single risk which will be helpful for them. This study will also help to discover the lacking area of a patients, especially about their functional daily activities which are responsible for pressure sore. Beside this it will help to professional development which is mandatory for current situation. This study will find out the prevalence pf pressure sore among the spinal cord injury patients in CRP which will pay the farther attention for the treatment procedure of pressure sore.

1.3 Research question

What is the prevalence of pressure sore among the spinal cord injury patients at CRP?

1.4 Objectives of study

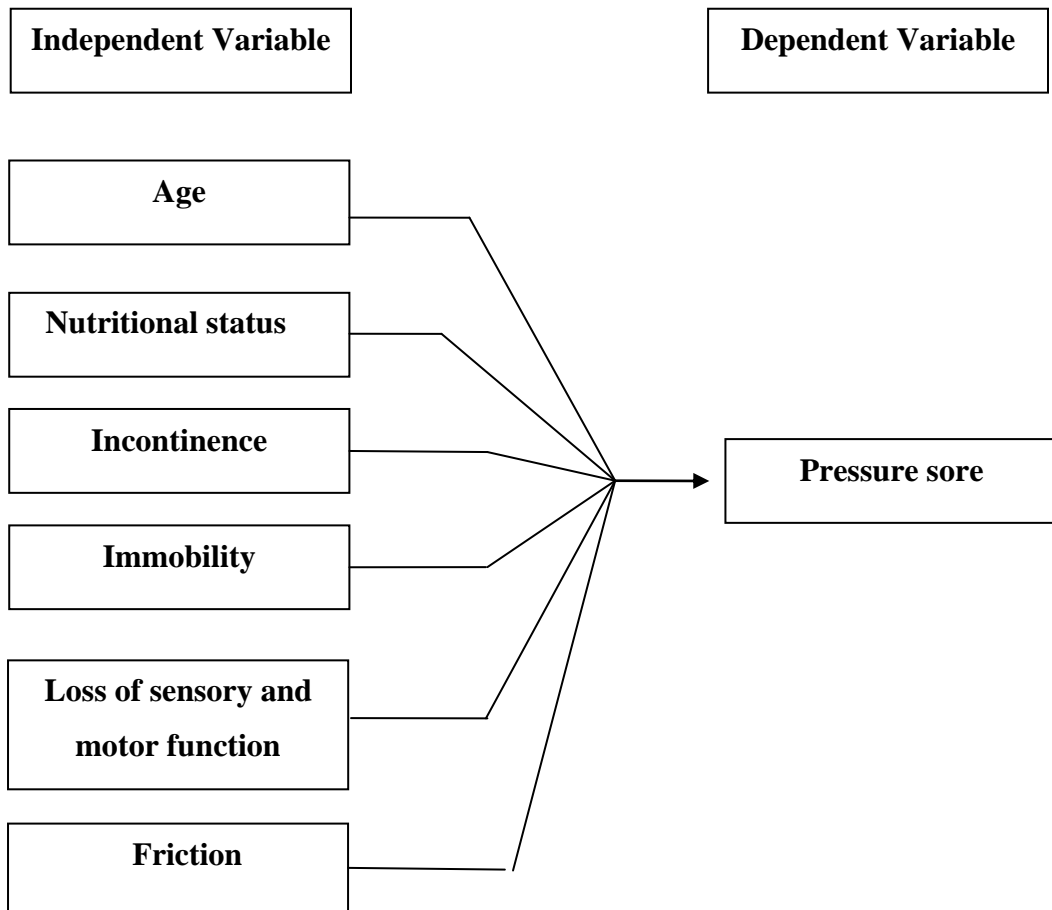
1.4.1 General objective

To identify the prevalence of pressure sore among the spinal cord injury patients at CRP.

1.4.2 Specific objective

- To find out the information about the socio-demography and developing pressure sore.
- To calculate the number of patients with pressure sore in per hundred SCI patients.
- To determine the common factors that influence pressure sore
- To inspect the degree of pressure sore which mostly occur at CRP.
- To evaluate the frequency of pressure sore among the complete, incomplete paraplegia and tetraplegic SCI patients.

1.5 List of variables



1.6 Operational definition

Prevalence: Prevalence is a frequently used epidemiological measure of how commonly a disease or condition occurs in a population. Prevalence measures how much of some disease or condition there is in a population at a particular point in time.

Pressure sore: A sore area of skin which develops due to cut off the blood supply to the area for more than two to three hours because of pressure and lack of movement

Neurological level: Up to the level where both sensory and motor function is remain intact.

Incidence: Incidence measures the rate of occurrence of new cases of a disease or condition. Incidence is calculated as the number of new cases of a disease or condition in a specified time period (usually a year) divided by the size of the population under consideration who are initially disease free.

Spinal cord injury: Spinal cord injury (SCI) is damage to the spinal cord that results in a loss of function such as mobility or feeling.

Paralysis: Injury or disease to the nervous system can affect the ability to move a particular part of the body. This reduced motor ability is called paralysis.

Paraplegia: Paralysis of both legs.

Tetraplegia: Paralysis of both legs *and* both arms, it is also called quadriplegia.

Friction: The rubbing of one object or surface against another.

Muscle spasms: A sudden, violent, involuntary muscular contraction.

The spinal cord is the part of the Central Nervous System, contained in the vertebral column, and any damage can cause a permanent loss of sensory leading to quadriplegia or paraplegia. Quadriplegia results from a change in the functions of the upper limbs, trunk, lower limbs and pelvic organs. Paraplegia refers to the loss of the motor and or sensitive function in the thoracic, lumbar and sacral segments (Nogueira et al., 2006).

Spinal cord injury is a condition that results from damage or trauma to the nerve tissue of the spine (North American Spine Society, 2009). Patients with traumatic spinal cord injury suffer a spinal cord trauma due to hyper flexion or hyper extension of the head and neck, compression or rotation of the vertebral body or by penetrating injuries which cause a total or partial rupture of spinal transmission leading to a change in the normal functioning of the spine (Nogueira et al., 2006).

SCI results in complications affecting nearly all systems of the body, leading to an increased morbidity and mortality in this group of patients. The complications profile reported from the developing countries are similar to that of the developed world with notably increased incidence .The high frequency of preventable complications indicates a general lack of awareness in the health care professionals as well as inability of the patients to adhere to a lifelong prevention regime. In developing countries the problem of pressure sores is more critical because of lack of access to specialized technologies and adequate medical and pressure ulcer risk assessment. In some cases these pressure sores even prove fatal for the patient (Rathore , F.A., 2012).

Definition

Pressure sore is a sore area of skin that develops when the blood supply to it is cut off for more than two to three hours due to pressure on it and lack of movement (MedicineNet, 2011). It is also define as a localized injury to the skin and underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and friction (National Pressure Ulcer Advisory Panel, 2007). As the skin dies, the pressure sore develops as a red painful area, which in time turns

purple. Left untreated, the skin can break open and become infected. A pressure sore can become deep and extend into the underlying muscle. Once a pressure sore develops, it is often very slow to heal. Untreated pressure sores can become gangrenous or seriously infected (MedicineNet, 2011).

Mechanism of developing pressure sore

Unrelieved pressure is the most common cause of pressure sores in SCI (Spinal Cord Injury Model System, 2009). There are three processes involved in the development of pressure sore. The main one is the pressure that body weight puts on tissues as they become squeezed between bones and a surface. Friction created by the body sliding over sheets, upholstery, etc also plays a part in irritating the skin. Poor circulation of blood to the area, too much moisture, and poor skin quality can also contribute to the problem. The ulcer comes about when the pressure cuts off the blood supply to an area of tissues and (AGS Foundation for Health in Aging, 2005) leading to tissue damage, skin breakdown and a pressure sore. (Spinal Cord Injury Model System, 2009).

Signs and Symptoms

Warm areas, skin redness, (U.S. National Library of Medicine, 2012) red areas on the skin that do not go away even after the pressure is removed, Cracked, blistered, scaly, or broken skin, an open sore involving skin surface or tissue under the skin, a foul odor (American Physical Therapy Association, 2012) or yellowish stains on clothing, sheets, or chairs, painful or tender pressure points may present in many parts of the body such as on the back of the head, ears, back of shoulders, elbows, buttocks, hips, heels, or any place where bony part rests on the bed surface (American Cancer Society, 2011). Although pressure sore can be very painful the person who has the pressure sore might not notice any pain for loss of sensation in the site of pressure sore (American Physical Therapy Association, 2012).

Common areas of developing pressure sore

Pressure sore usually occur over bony prominences. Positioning in bed or sitting in a wheelchair will focus the pressure on different parts of the body. When lying in bed on back pressure is distributed over a greater area than when sitting. However, sacrum, coccyx and heels are the most vulnerable when lying in bed .(Spinal Ciord Medicine, 2002). Pressure sores may also develop on the back or sides of the head, neck, or ear rims. This may occur in a patient who is paralyzed, in a coma or has a neuromuscular disorder. The back of a patient's head may develop a pressure sore due to lying in a supine position for a prolonged period of time during and after surgery (Carol et al., 08). In very thin people, their shoulder blades also may be at risk. If lying on side hip bone is the most vulnerable. Also in the side-lying position if knees or ankles are touching they are at risk as well. When sitting in wheelchair or on any other surface ischium are at greatest risk (Spinal Ciord Medicine, 2002).

Risk factors of pressure sore

Pressure- Pressure is the most important factor in pressure sore development. Tissue damage is caused by skin distortion resulting in occlusion of the blood vessels that leads to tissue necrosis and breakdown. Most pressure sore occur where the skin and tissues are directly compressed between bone and another hard surfacesuch as floor, bed, chair, theatre table or trolley. Pressure damage can also occur when equipment is incorrectly applied as splints or bandages. There is no scientific agreement about the time and the given amount of pressure needs to be exerted before injury begins. Prolonged low pressure can be as harmful as short-term high pressure (Tissue Viability Nurse and clinical practice vacillators, 2011).

Friction- Friction occurs when two surfaces move across each other, and often results in the removal of superficial layers of skin. Friction damage often occurs as a result of poor lifting techniques. In addition, voluntary and involuntary movements by the patients can lead to friction injuries, particularly on elbows and heels (Registered Nurses' Association of Ontario, 2005).

Sensory functioning – The loss of protective response is a major factor in pressure damage (Tissue Viability Nurse and clinical practice vacillators, 2011). Patients who have experienced loss of sensation as the result of spinal cord injury or neurological disease have an increased risk of developing pressure ulcers. A person without sensory loss can feel pain and will generally feel uncomfortable after spending a lot of time in one position. When sensory loss occurs, a person may not feel uncomfortable or the need to be repositioned (Morrow, 2009).

Severity of SCI- The level and completeness of SCI may increase the risk of developing pressure ulcers. Issues such as the inability to check the skin or perform a weight shift on can increase the likelihood that will develop a pressure ulcer. However, even people with full use of their arms and hands are at risk if they do not take responsibility for doing those things that contribute to healthy skin (Mayo Clinic staff, 2011).

Skin or tissue condition – This is adversely affected by age, dehydration, malnutrition, medication such as systemic or topical steroids, hypoxia, and skin moisture and tissue oedema. Previous skin trauma such as surgical scars or previous pressure ulceration increases the risk of farther damage (Tissue Viability Nurse and clinical practice vacillators, 2011).

Urinary or fecal incontinence- Problems with bladder control can greatly increase the risk of pressure sores because the skin may frequently be moist, making it more likely to break down. Bacteria from fecal matter can cause serious local infections and lead to life-threatening infections affecting the body in general (Mayo Clinic staff, 2011).

Age- Individuals at the extremes of age are at increased risk, which increases their susceptibility to pressure ulcer formation (Tissue Viability Nurse and clinical practice vacillators, 2011). The skin of older adults is generally more fragile, thinner, less elastic and drier than the skin of younger adults. Also, new skin cells are usually generated more slowly. All of these conditions of the skin make it more vulnerable to damage.

Smoking- Smoking impairs circulation. Pressure sores are one of the health risks increased by smoking especially in people with SCI. (Mayo Clinic staff, 2011).

Loss of muscle mass- With paralysis the muscles tend to shrink, become less bulky and get smaller (atrophy). Muscle mass or bulk serves as a natural cushion over the bony areas. A decrease in muscle mass leads to less protection over bony surfaces and more pressure on the thin skin layers (Spinal Cord Injury Model System, 2009).

Muscle spasms- People who have muscle spasms or other involuntary muscle movement may have an increased risk of pressure sores from frequent friction or shearing (Mayo Clinic staff, 2011).

Stage of pressure sore

There are different systems to classify pressure sore. The system adopted by the European Pressure Ulcer Advisory Panel (EPUAP) consists of four grades in which each

grade is defined by the anatomic limit of tissue damage, This classification system can be used to evaluate the anatomic depth of tissue destruction (Loerakker, S., 2007).

The international NPUAP- EPUAP Pressure Ulcer Classification System are staged as follows:

Stage I- Intact skin with non-blanchable erythema of a localized area usually over a bony prominence. Discoloration of the skin, warmth, edema, hardness or pain may also be present. Darkly pigmented skin may not have visible blanching. The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue. Stage I may be difficult to detect in individuals with dark skin tones. May indicate at risk persons.

Stage II- Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or ruptured serum-filled. Presents as a shiny or dry shallow ulcer without slough or bruising. This stage should not be used to describe skin tears, tape burns, incontinence associated dermatitis, maceration or excoriation.

Stage III- Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscles are *not* exposed. Some slough may be present. May include undermining and tunneling. The depth of a Stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and Stage III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep Stage III pressure ulcers. Bone or tendon is not visible or directly palpable.

Stage IV- Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often include undermining and tunneling. The depth of a Stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and these ulcers can be shallow. Stage IV ulcers can extend into muscle and supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis or osteitis likely to occur. Exposed bone/muscle is visible or directly palpable (EPUAP-NPUAP, 2009).

Prevention

To prevent pressure sore special attention should be given to the areas where pressure sore often develop (U.S. National Library of Medicine, 2011).

Pressure relief- Have to turn every 2 hours (based on some animal and human trials), rotate by 30°. It may be difficult to maintain every 2 hour position change (disrupts sleep cycle),so patients may use low air loss mattress or bed which turns patient automatically. (Koretz and Eslami, 2011). Patients have to use the devices which totally relieve pressure on the heels as for example placing pillows under the calf to raise the heels. Pillows or foam wedges may use to keep boney prominences such as knees and ankles from direct contact with each other. Avoid positioning directly on the trochanter when using the side-lying position. Elevate the head of the bed as little (maximum 30° angle) and for as short a time as possible (National Pressure Ulcer Advisory Panel, 1993) to minimize shear stress (Koretz and Eslami, 2011).

Skin Care - Daily inspection of the skin has to done. Incontinence have to assess and treat. When incontinence cannot be controlled, cleanse skin at time of soiling, use a topical moisture barrier, and select under pads or briefs that are absorbent and provide a quick drying surface to the skin. Have to avoid massage over the bony prominences. And also have to use proper positioning, transferring, and turning techniques to minimize skin injury due to friction and shear forces. It is necessary to identify and correct factors compromising protein or calorie intake and consider nutritional supplementation for nutritionally compromised persons (National Pressure Ulcer Advisory Panel, 1993).

Avoid Rough Materials- Avoid rough clothing that may cause constant friction against the hips, buttocks, elbows and shoulder blades the areas where the body comes into constant contact with mattresses or wheelchair materials. Avoid the use of rough wash clothes for bathing, but use a soft textured sponge instead. If any signs of a pressure sore is seen have to meet the doctor immediately for treatment (Stern, D., 2012).

Changing position-To prevent pressure sore reposition of the bed-bound patients at least every 2 hourly and chair-bound patients every hourly have to done. For this patients may use a written repositioning schedule. During positioning in chairs or wheelchairs postural alignment, distribution of weight, balance and stability, and pressure relief have to consider (National Pressure Ulcer Advisory Panel, 1993). The patients have to use the items which can help to reduce pressure as like as pillows, sheepskin, foam padding, and powders from medical supply stores. (U.S. National Library of Medicine, 2011).

Education-Implement educational programs for the prevention of pressure sores that are structured, organized, comprehensive, and directed at all levels of health care providers, patients, family, and caregivers. The information included- etiology of the risk factors for pressure sores, risk assessment tools and their application, skin assessment, selection or use of support surfaces, development or implementation of individualized programs of skin care, demonstration of positioning to decrease risk of tissue breakdown, and accurate documentation of pertinent data (National Pressure Ulcer Advisory Panel, 1993).

Complication

Pressure sore can have serious and even life-threatening complications. The most serious complication is blood poisoning or septicemia (AGS Foundation for Health in Aging, 2005). Sepsis occurs when bacteria enters to bloodstream through the broken skin and spreads throughout the body which is a rapidly progressing, life-threatening condition that can cause organ failure (Mayo Clinic staff, 2011). Other types of infections are also common, including local infections, skin infections, and bone infections. For about 25% of people with nonhealing pressure sore, the underlying bone is involved in the infection. These develop when the infection from a pressure sore burrows deep into the joints and bones. Joint infections (septic or infectious arthritis) can damage cartilage and tissue, and bone infections such as osteomyelitis, may reduce the function of the joints and limbs. Pressure sore can also serve as sources of serious infections by bacteria those are resistant to normal antibiotics (AGS Foundation for Health in Aging, 2005). Cellulitis is the another complication of pressure sore where the acute infection of the skin's connective tissue causes pain, redness and swelling, all of which can be severe. Cellulitis can also lead to meningitis which is an infection of the membrane and fluid surrounding the brain and spinal cord (Mayo Clinic staff, 2011). Other complications include pain and depression, both of which have been linked to slow wound healing. Finally, because most pressure ulcers, particularly deep ones, take a long time and a lot of care to heal, pressure ulcers can have a significant impact on the quality of life of that people who often need nursing care or may need to be in a specialized facility for treatment (AGS Foundation for Health in Aging, 2005).

Management of pressure sore

Treatment focuses on preventing pressure sores from getting worse and on restoring healthy skin (Skin Problems & Treatments Health Center, 2011). Pressure sores in spinal cord-injured patients can be treated by either conservative or surgical methods. Shortened healing period and long lasting results can be achieved by surgery (J6svey, 2003). The best treatment outcomes will result from using a multidisciplinary team of specialists, this will ensure all problems are addressed (Kirman, 2010).

Conservative treatments

Pressure reduction- The first step in healing a pressure sore is determination of the cause, ie, pressure, friction, or shear. Turning and repositioning the patient to prevention and treatment through pressure relief. Patients who are capable of shifting their weight every 10 minutes should be encouraged to do so. Repositioning should be performed every 2 hours, even in the presence of a specialty surface or bed. Patients who are bedbound should be positioned at a 30 degree angle when lying on their side to minimize pressure over the ischial tuberosity and greater trochanter. Efforts should be made to avoid sliding the patient over a surface to prevent shear forces and friction. Patients who develop a pressure sore while sitting should be placed on bed rest with frequent repositioning (Kirman, 2010).

Pressure Sore Care - The another principle of healing is proper care of the sore. The three aspects of care are: Cleaning, Removing dead tissue or debris, dressing or bandaging the pressure sore. Pressure sores heal best when they are clean. They should be free of dead tissue, excess fluid draining from the sore, and other debris. If not, healing can be slowed, and infection can result. Removing dead tissue is often painful so pain-relieving medicine have to take 30 to 60 minutes before these procedures. Choosing the right dressings is important to pressure sore care. The most common dressings are gauze, film and hydrocolloid (moisture- and oxygen-retaining) dressings. Gauze dressings must be moistened with saline and changed at least daily. If they are not kept moist, new tissue will be pulled off when the dressing is removed (Agency for Health Care Policy and Research, 1994).

Infection control- All pressure sore are colonized with bacteria. Most local infection can be managed using antimicrobial wound products and systemic antibiotics should not be used routinely for local infection. Reduce risk of infection and enhance wound healing by hand washing, wound cleansing and debridement. Protect from exogenous sources of contamination such as faces. If purulent material or foul odors is present, more frequent cleansing and possibly debridement are required. When there are clinical signs of infection which do not respond to treatment, radiological examination should be undertaken to exclude osteomyelitis and joint infection (Tidy, 2010).

Eat a healthy diet- Good nutrition is important to both preventing and treating pressure sores. Focus on getting enough liquids, calories, protein, and vitamins, and on controlling the weight. Both increases and decreases in body weight can cause pressure sores (Skin Problems & Treatments Health Center, 2011).

Pain management- Interventions that may reduce pain include the use of nonsteroidal anti-inflammatory drugs such as ibuprofen and naproxen particularly before and after debridement procedures and dressing changes. Topical pain medications such as a combination of lidocaine and prilocaine, also may be used during debridement and dressing changes (Mayo Clinic staff, 2011).

Physiotherapy intervention

Wound care has been a part of physical therapist practice from its very beginnings. Based on the results of the physical therapist's evaluation, including a review of the medical history and an examination of the wound, the therapist will select treatments, which may include caregiver training, strengthening exercises, wound care.

Train repositioning- As pressure sore are usually the result of prolonged contact of a body part with a bed or chair, repositioning or moving a person is needed to help pressure sore heal. The physical therapist can train family members and caregivers to do positioning and transfers safely from one place to another place (American Physical Therapy Association, 2012).

Improve Strength- In many cases, pressure sore are the result of people being too weak to change their own position. The physical therapist will develop an exercise program so that the individual with pressure sore can perform repositioning and transfers without any help of other person (American Physical Therapy Association, 2012).

Ultrasound- Clinical trials suggest that ultrasound speeds the healing of leg ulcers and possibly also of pressure sores (Ernst, 2012).

Hydrotherapy- Whirlpool methods for wound cleansing and facilitating healing and reducing wound and infection (EPUAP-NPUAP, 2009).

Monitoring healing- A physiotherapist will monitor the healing process of any pressure ulcers to gauge the effectiveness of treatment. Usually, the depth and width of the ulcers are measured. Healing progress is usually evaluated weekly. Depending on the size and severity of the ulcers healing may take from only a few days to several months. Especially severe pressure ulcers may take up to a year to heal, and unfortunately, some may never heal, especially when the person has other illnesses. There are no specific guidelines that can be used to predict whether an ulcer will be nonhealing. (AGS Foundation for Health in Aging, 2005).

Other interventions

Several other treatments are sometimes used in treating pressure sores. These are found most commonly in clinics that specialize in treating serious wounds. Researchers continue to study these and other treatments for pressure sores and other wounds. Some insurance will not cover the newer treatments without special approval (EPUAP-NPUAP, 2009).

Antibiotics- Pressure sores that are infected and don't respond to other interventions may be treated with topical or oral antibiotics (Mayo Clinic staff, 2011).

Muscle spasm relief- Muscle relaxants such as diazepam, tizanidine, dantrolene and baclofen - may inhibit muscle spasms and enable the healing of sores that may have been caused or worsened by spasm-related friction or shearing (Mayo Clinic staff, 2011).

Surgical treatments

Pressure sores that fail to heal may require surgical intervention. The goals of surgery include improving the hygiene and appearance of the sore, preventing or treating infection, reducing fluid loss through the wound and lowering the risk of cancer. The type of reconstruction that's best in any particular case depends mainly on the location of the wound and whether there's scar tissue from a previous operation. In general, though, most pressure wounds are repaired using a pad of the person's own muscle, skin or other tissue to cover the wound and cushion the affected bone (Mayo Clinic staff, 2011).

Postoperative Care- Rehabilitation of the patient with a flap includes progressively longer periods of sitting with flap viability checked after each sitting period. Flap viability may be compromised if pallor, redness, or both at the operative site do not decrease after 10 minutes of pressure relief (U.S. National Library of Medicine, 2008). In addition, general principles of preoperative care, the following measures have to take as daily inspection of flap; proper positioning to avoid any pressure on the flap and change of posture allowed earliest by 2 weeks of the surgery or later according to the flap-healing situation (Singh, 2010). Patients are taught to shift their body weight once they are bearing weight on the flap and to inspect the skin daily using a mirror. Managing Tissue Loads, for more specific recommendations on techniques for positioning and pressure reduction when the patient is sitting or in bed (U.S. National Library of Medicine, 2008). Only when a pressure sore is completely healed can pressure be reapplied over the area. Complete healing means that the outer layer of skin (the epidermis) is unbroken and normal coloring has returned to the area. The first time pressure is applied to a newly healed area, it must be for a very short time (15 minutes at most). Then remove pressure from the area and inspect it for redness (erythema). If there is redness, observe it and time carefully how long it takes to fade to the color of the surrounding tissue or the color which was before the pressure was applied in the case of a scar. If fading occurs in 15 minutes or less, no damage has occurred. Wait at least one hour and repeat pressure application (Tidy, 2010). Give proper wheelchair or cushions or orthosis for mobilization and to avoid any pressure on flap; monthly follow up for 3 months and then at 6 months after flap

surgery; reinforcement of general care principles to patients and caretakers at each follow up to avoid any recurrence (Singh, 2010).

3.1 Study design

A cross sectional study was chosen to conduct the study. It is the simplest variety of descriptive or observational epidemiology and also known as surveys, are a useful way to gather information on important health-related aspects of people's knowledge, attitudes, and practices. A survey is a research technique which involved collecting data from a large number of people, so that a general overview of the group could be obtained.

3.2 Study sites and area

The study was conducted in Spinal cord injury department of CRP, Savar Dhaka.

3.3 Study population and sampling

The study population is any set of people or events from which the sample is selected and to which the study results will generalize. In this study the study population was all the SCI patients of CRP and the samples are the SCI patients those staying in SCI unit of CRP, Savar, Dhaka. A group of people or events drawn from a population are known as sample. About 50 SCI patients were taken as sample for this study.

3.4 Sampling technique

Purposive sampling technique was selected. Because purposive sampling involves the deliberate selection of individuals by the researcher based on predefine criteria and getting of those samples whose criteria will be concerned with the study purpose. Here another factor is resource limitation to get the sample in bigger aspect as well as the limitation of time. Participants are chosen purposively because the participants have some particular features or characteristics which are enable detailed exploration of the research objectives. This method contained some inclusion criteria to select the participant as to find out the actual snap of the situation.

3.5 Inclusion criteria of the study

- All spinal cord injury patients staying at CRP, Savar, Dhaka.
- Both sex are equal priority
- The patients who has interest to participate in the interview.

3.6 Exclusion criteria of the study

- Patients who had developed pressure sore before coming CRP as to find out the prevalence of pressure sore during getting treatment from CRP.

3.7 Sample size

The actual sample size for this study is calculated 74. But as it is an educational research and had the time limitation so 50 SCI patients were taken as sample.

The formula was

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

Here,

$\frac{Z(1 - \alpha/2)}{d}$ = Confidence level at 95% (standard value of 1.96).

n= required sample size

p = prevalence of pressure sore in literature

q= (1-p)

d = margin of error at 5% (standard value of 0.05)

3.8 Data collection method and tools

The face to face interview technique was used to collect data. For this the materials to successfully complete the interview session and collected the valuable data from the participants were used such as- question paper, consent form, pen, file, clip board etc. A structured questionnaire for collecting information related to the study was used.

3.9 Data analysis

Data were numerically coded using an SPSS 17.0 version software program. Data was analyzed through descriptive statistics which focused to table, pie chart and bar chart.

3.10 Inform consent

Written consent was given to all participants prior to the completion of the pre test questionnaire. I explained the participants about his or her role in this study. I received a written consent form every participants including signature. So the participant assured that they could understand about the consent form and their participation was on voluntary basis. The participants were informed clearly that their information would be kept confidential. I assured the participants that the study would not be harmful for them. It was explained that there might not a direct benefit from the study for the participants but in the future cases like them might got benefit from it. The participants have the right to withdraw consent and discontinue participation at any time without prejudice to present or future care at the SCI unit of physiotherapy of CRP.

3.11 Ethical consideration

I took approval from the ethical committee of Physiotherapy department to do the study. Then permission was taken from the In-charge of SCI unit for data collection from the patients by ensuring the safety of participants. The participant, who was interested to participate in the study, was informed verbally about the topic and purpose of study. They were informed about the number of interviews and length of interview. It was informed that there would be no risk or direct benefit to participate in the study. Each participant had the right to refuse to answer any question or withdraw them from the study. It was informed that the information given by participant will be published according to their permission and at this time their identities will be protected by using coding. Here the world Health Organization and Bangladesh Medical Research Councils rules were followed.

3.12 Limitation of the study

- Some limitations were noted for this study. First of all, time was limited which had a great deal of impact on the study. If enough time was available knowledge on the thesis could be extended.
- On the other hand, the result of the study cannot be generalized to the whole population of SCI patients in Bangladesh as the samples were collected only from the CRP and the data were collected from very small population. The number of subjects (50) was not sufficient for the study.
- I could not able to collect samples by random selection because, there were not adequate subjects, therefore, the external validity had not achieved in this research.
- This study has provided for the first time data on the prevalence of pressure sore among the SCI patient in Bangladesh. No research has been done before on this topic. So there was little evidence to support the result of this project in the context of Bangladesh.
- The researcher was a 4th year B.Sc. in physiotherapy student and this was her first research project. She had limited experience with techniques and strategies in terms of the practical aspects of research. As it was the first survey of the researcher so might be there were some mistakes that overlooked by the researcher.

The aim of the study was to find out the prevalence of pressure sore among the SCI patients in CRP. Data were numerically coded using an SPSS 17.0 version software program. The collected data were calculated as percentages and presented by using graph and table charts. 50 participants were taken to find out the prevalence of pressure sore among the SCI patients in CRP.

Prevalence of pressure sore

Among the 50 participant 28% (n=14) participants were suffered from pressure sore and 72% (n=36) participants were not suffered from pressure sore (Figure 4.1).

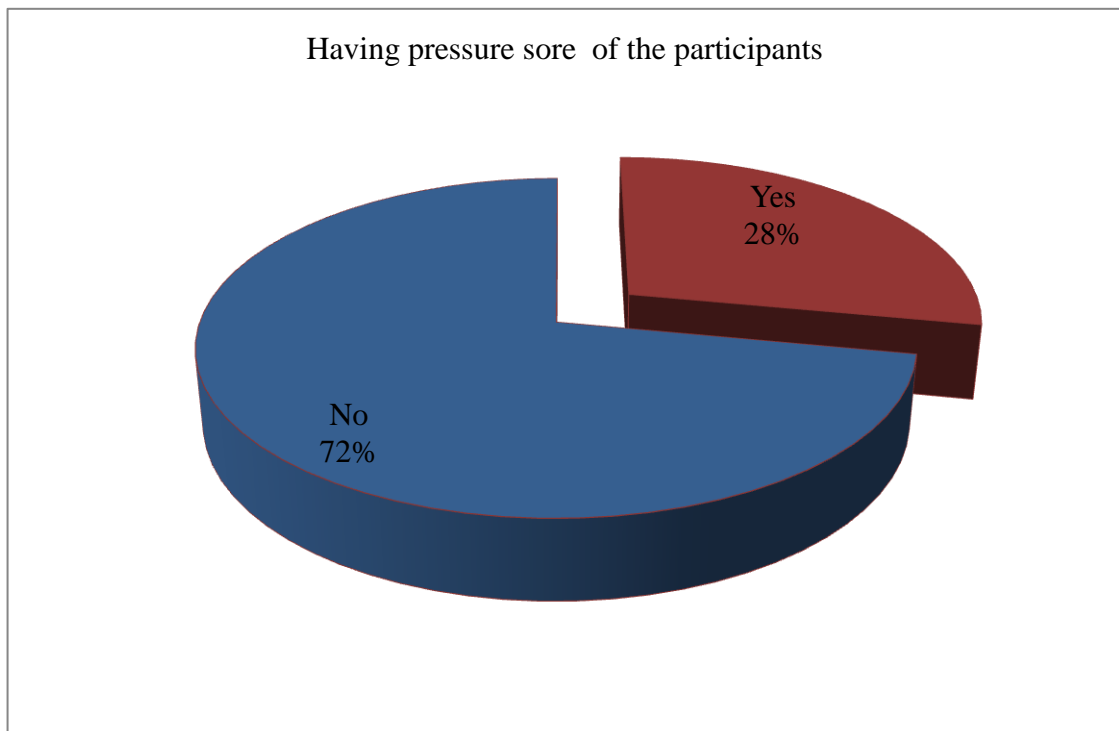


Figure - 4.1: Prevalence of pressure sore among the SCI patients

Male and female ratio

Among the 50 participants 82% (n= 41) were male and 18% (n=9) were female. And among the 14 participants who were suffered from pressure sore 92% (n=13) were male and 8% (n=1) were female, (Table 4.1).

Sex of the participant	Having pressure sore of participants		Total
	Yes	No	
Male	13	28	41
Female	1	8	9
Total	14	36	50

Table- 4.1: Information about sex and pressure sore of participants

Age frequency of the participants

Among the 50 participants from whom data were collected the lowest age was 11 and highest age was more than 50 years. And frequency was 24% (n=12) participants in between 11-20 years, 28% (n=14) participants in between 21-30 years, 30% (n=15) participants in between 31-40 years, 6% (n=3) participants in between 41-50 years and 12% (n=6) participants are more than 50 years (Figure 4.2).

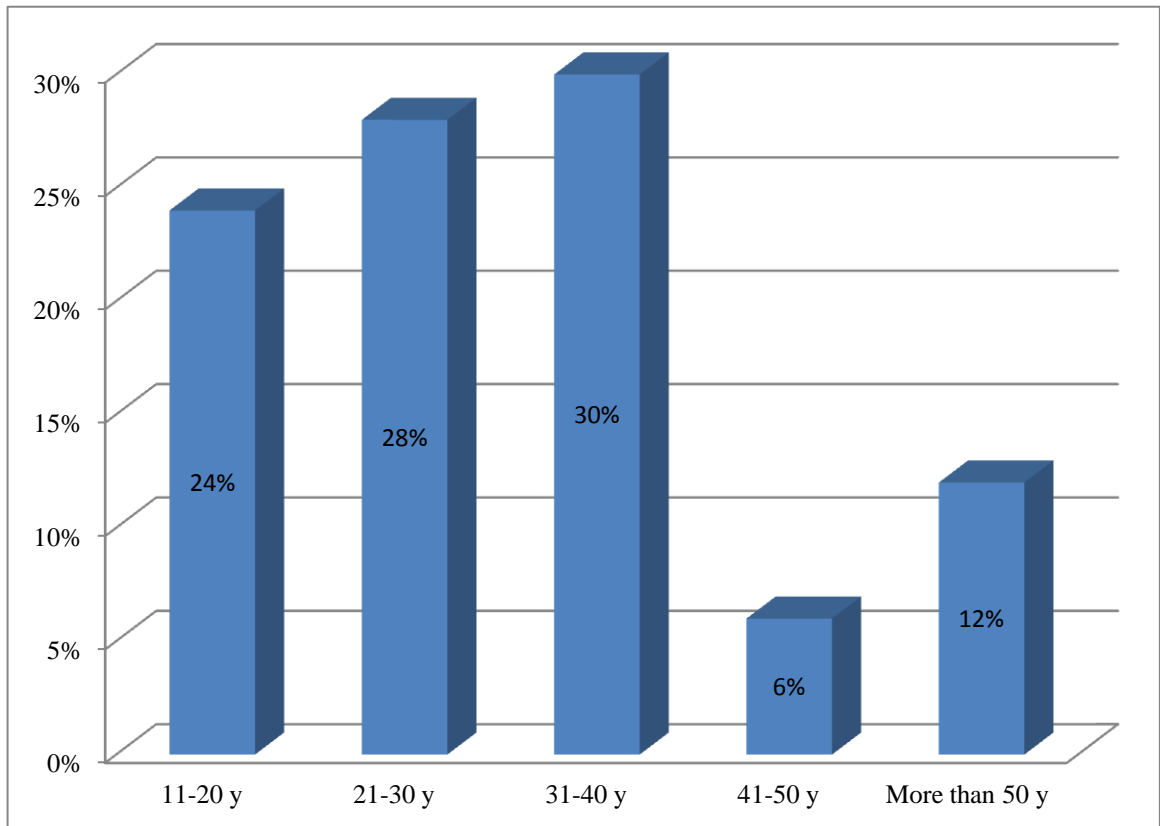


Figure -4.2: Frequency of age of the participants

Occupation

Among 50 participants the frequency of occupation was 30% (n=15) participants were farmer, 4% (n=2) were carpenter, 18% (n=9) were tailor, 6% (n= 3) housewife, 20% (n=10) were students and 22% (n=11) were from other occupation (Figure 4.3).

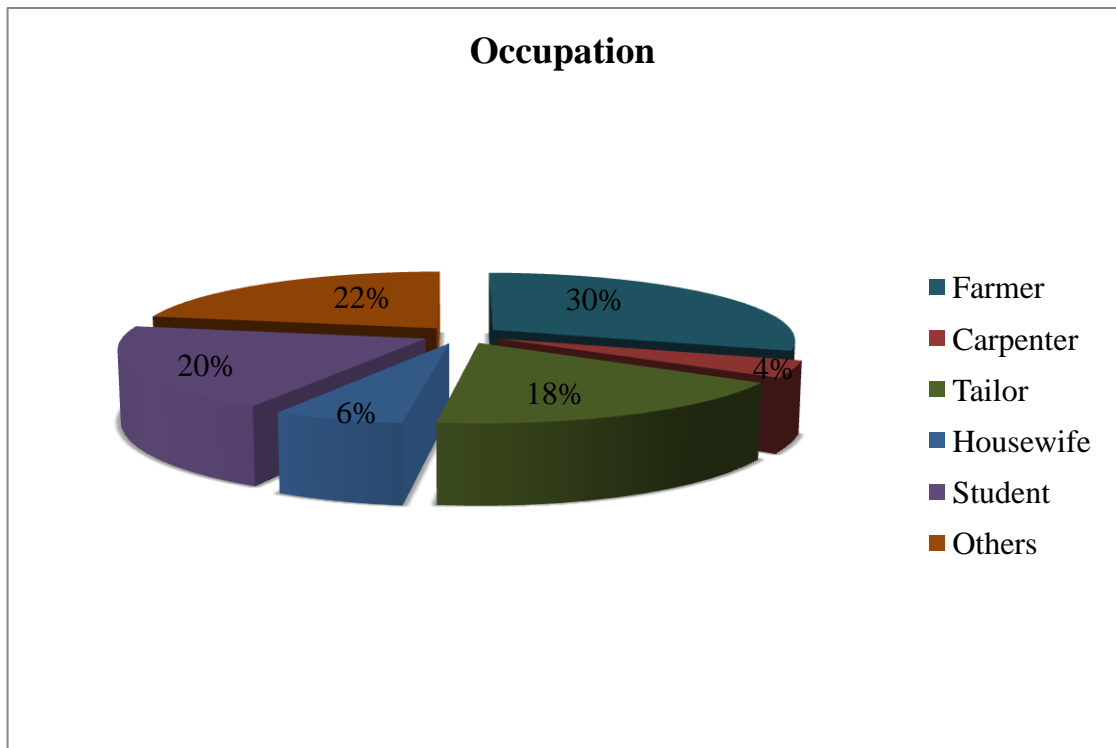


Figure- 4.3: Information about occupation

Information about educational status and pressure sore

Among 50 participants from whom data were collected 14 had suffered from pressure sore. Among the 14 participant who had pressure sore 50% (n=7) participants were illiterate, 35.7% (n=5) participants had primary education, 14.3% (n=2) participants had SSC and 0 participants HSC of educational status (Table 4.2).

Having pressure sore of the participants		Educational level of the participant				Total
		Illiterate	Primary	S.S.C	H.S.C.	
Yes	Count	7	5	2	0	14
	Percentage	50.0%	35.7%	14.3%	0%	100.0%
No	Count	11	14	8	3	36
	Percentage	30.6%	38.9%	22.2%	8.3%	100.0%
Total	Count	18	19	10	3	50
	Percentage	36.0%	38.0%	20.0%	6.0%	100.0%

Table -4.2: Information about presence of pressure sore and educational status

Residential area

The frequency of residential area among 50 participants are 8 participants were urban and 42 participants were rural. The percentage are urban 16% and rural 84% (Figure 4.4).

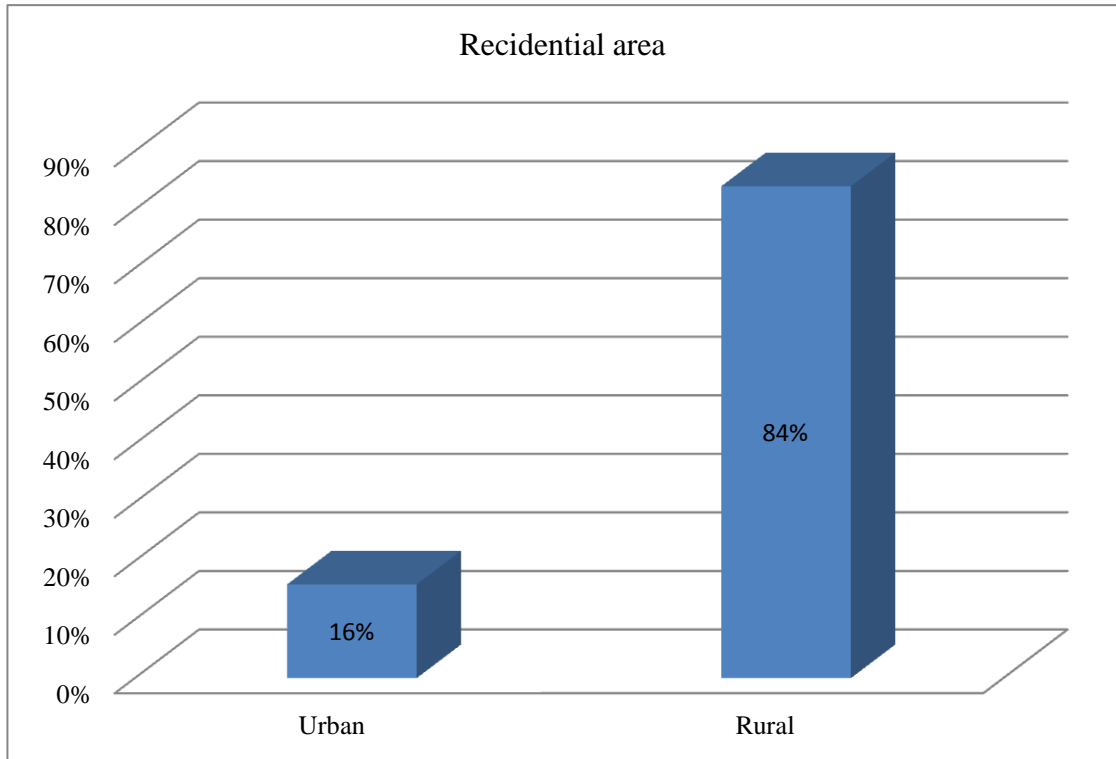


Figure -4.4: Information about residential area

Information about type of injury and pressure sore

The 14 participants who suffered from pressure sore among them complete paraplegia presented in 64.3% (n=9), incomplete paraplegia presented in 7.1% (n=1), complete tetraplegia presented in 14.3% (n=2), incomplete tetraplegia presented in 14.3% (n=2) participants. And the 36 participants who had no pressure sore among them 38.9% (n=14) participants had complete paraplegia, 41.7% (n=15) participants had incomplete paraplegia, 16.7% (n=6) participants had complete tetraplegia and 2.1% (n=1) participants had incomplete tetraplegia (Table 4.3).

Having pressure sore of the participants		Type of injury				Total
		Complete paraplegia	Incomplete paraplegia	Complete tetraplegia	Incomplete tetraplegia	
Yes	Count	9	1	2	2	14
	Percentage	64.3%	7.1%	14.3%	14.3%	100.0%
No	Count	14	15	6	1	36
	Percentage	38.9%	41.7%	16.7%	2.1%	100.0%
Total	Count	23	16	8	3	50
	Percentage	46.0%	32.0%	16.0%	6.0%	100.0%

Table- 4.3: Information about type of injury and pressure sore

Frequency of monthly family income

Among 50 participants the frequency of monthly family income were that 56% (n=28) participants earned monthly in range 1000-5000 taka, 36% (n=18) participants earned monthly in range 6000-10000 taka, 4% (n=2) participants earned monthly in range 10000-15000 taka and 4% (n=2) participants earned monthly >15000 taka (Figure 4.5).

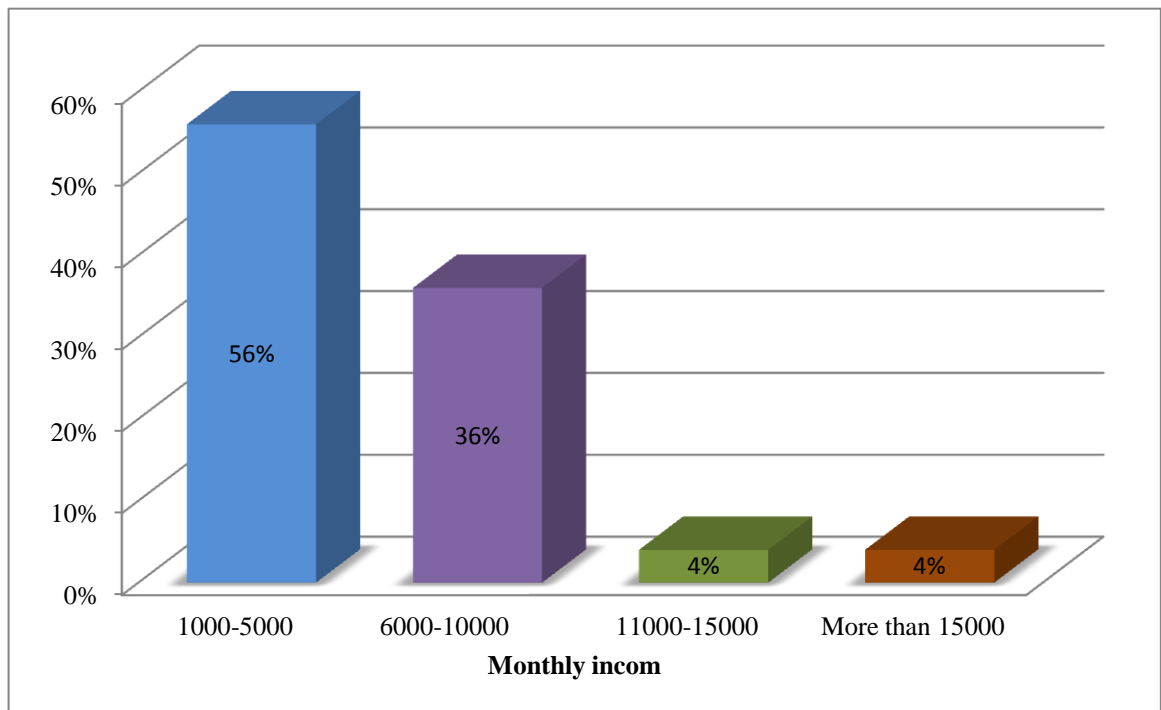


Figure- 4.5: Frequency of monthly family income

Frequency of site of pressure sore

Among 50 participants from whom data were collected 14 were suffering from pressure sore. The frequency of the site of pressure sore were 20% (n=10) participants got pressure sore in buttock, 6% (n=3) participants got pressure sore in hip and 2% (n=1) participants got pressure sore in ankle (Figure 4.6).

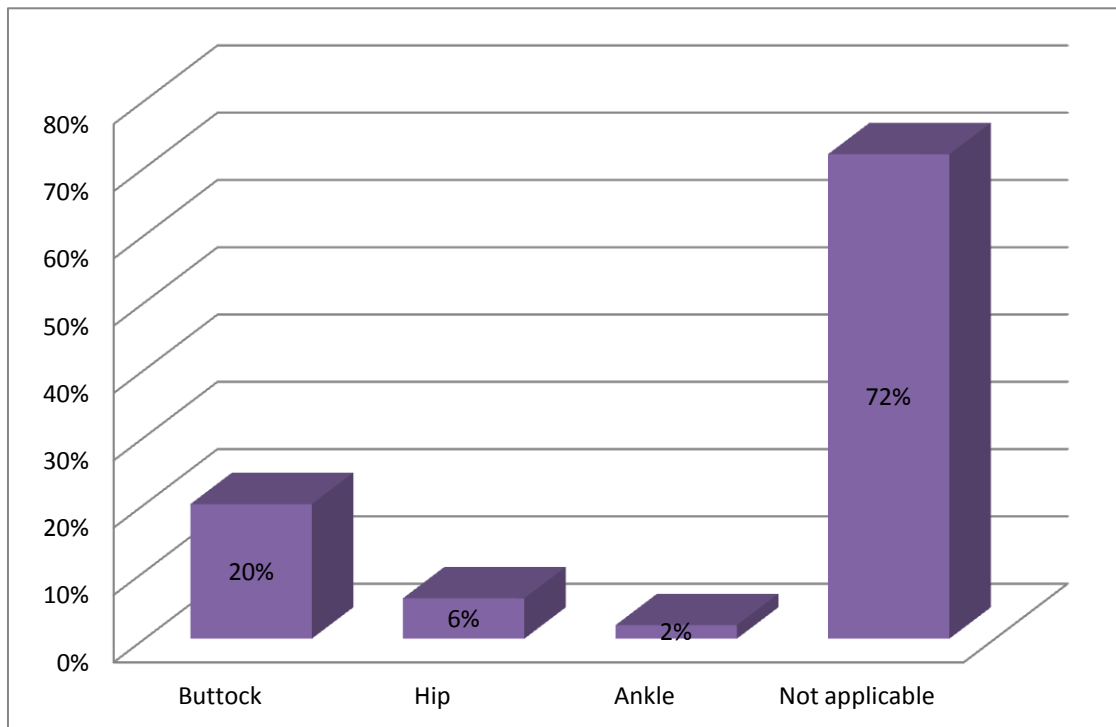


Figure- 4.6: Frequency of the site of pressure sore

Frequency of degree of pressure sore

The frequencies of degree of pressure sore were that 35.7% (n=5) participants had stage-I pressure sore, 28.6% (n=4) participants had stage-II pressure sore, 21.4% (n=3) participants had stage-III pressure sore and 14.3% (n=2) participants had stage-IV pressure sore (Figure 4.7).

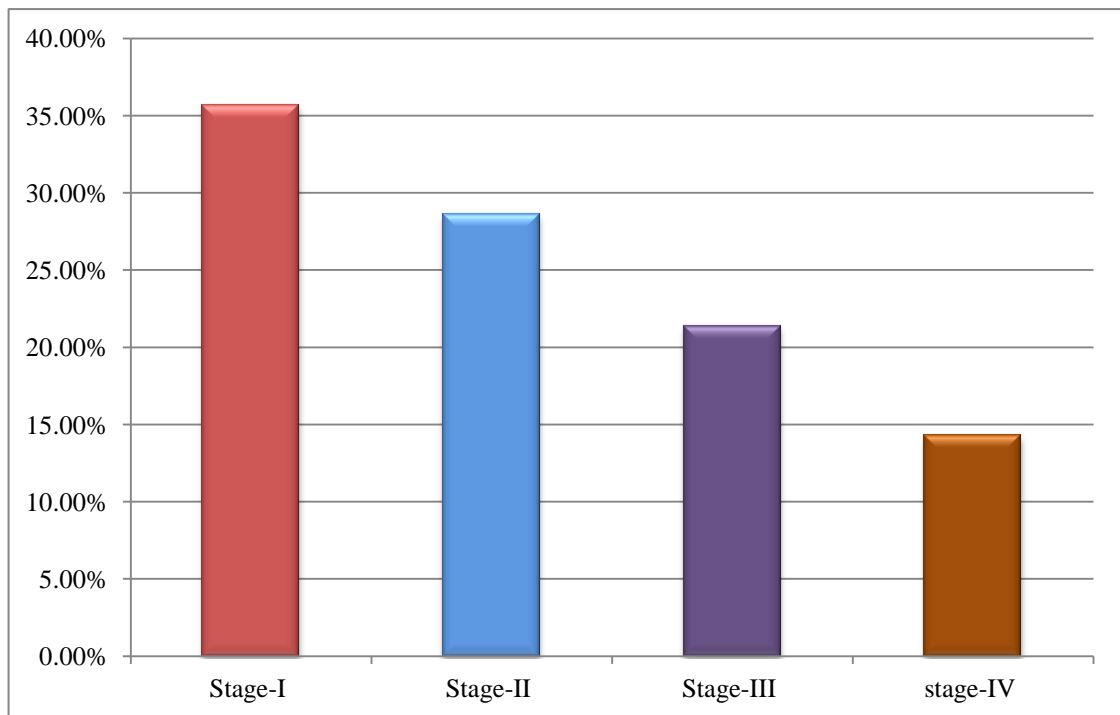


Figure- 4.7: Frequency of the degree of pressure sore of the participants

Frequency of taking lift

Among 50 participants the frequency of taking lift are that 46 participants take lift properly and rest 4 participants do not take lift properly. The percentages are 92% participants take lift properly and 8% participants do not take lift properly (Figure 4.8).

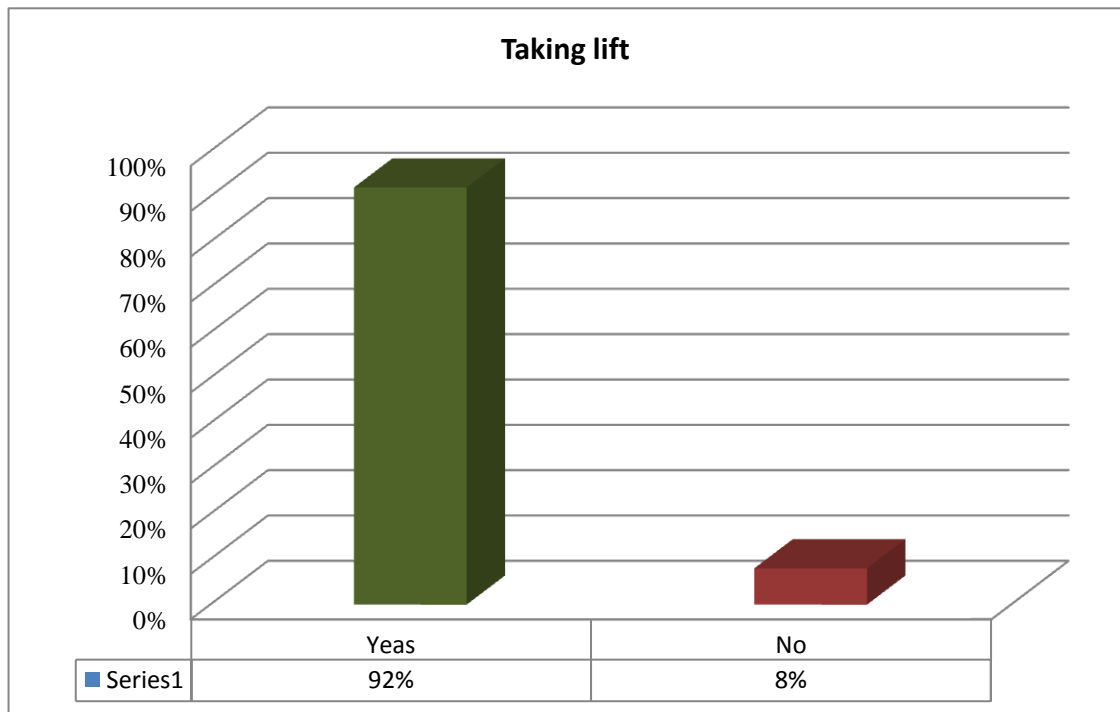


Figure -4.8: Frequency of taking lift

Information about taking lift and pressure sore

Among 14 participants who had pressure sore 92.9% (n=13) participants took lift properly and 7.14% (n=1) participant did not take lift properly. And the other 36 participants who had no pressure sore 91.7% (n=33) participants took lift properly and 8.3% (n=3) participant did not take lift properly (Table 4.4).

Having pressure sore of the participants		Taking proper lift		Total
		Yes	No	
Yes	Count	13	1	14
	Percentage	92.9%	7.1%	100.0%
No	Count	33	3	36
	Percentage	91.7%	8.3%	100.0%
Total	Count	46	4	50
	Percentage	92.0%	8.0%	100.0%

Table- 4.4: Information about taking lift and pressure sore

Information about sense of bowl and bladder movement of the participants

Among 14 participants who suffered from pressure sore 21.4% (n=3) participants had the sense of bowl and bladder movement and 78.6% (n=11) participants had no sense of bowl and bladder movement. And the other 36 participants who had no pressure sore among them 38.9% (n=14) participants had the sense of bowl and bladder movement and 61.1% (n=22) participants had no sense of bowl and bladder movement (Table 4.5).

Having pressure sore of the participants		Sense of bowl and bladder movement		Total
		Yes	No	
Yes	Count	3	11	14
	Percentage	21.4%	78.6%	100.0%
No	Count	14	22	36
	Percentage	38.9%	61.1%	100.0%
Total	Count	17	33	50
	Percentage	34.0%	66.0%	100.0%

Table- 4.5: Information about sense of bowl and bladder movement of the participants

Information about transferring technique of the participants

Among 50 participants from whom data were collected 84% (n=42) participants were able to transfer from bed to wheel chair and wheel chair to bed and 16 (n= 8) participants were not able as they were bed rest patients. The 14 (28%) participants who had pressure sore among them 85.71% (n=12) participants were able to transfer from them 28.6% (n=4) participants had the knowledge of proper transferring technique and rest 57.1% (n=8) participants had no knowledge of proper transferring technique. And the rest of 36 (72%) participants who had no pressure sore among them 30 were able to transfer from them 41.7% (n=15) participants had the knowledge of proper transferring technique and 41.7% (n=15) participants had no knowledge of proper transferring technique (Table 4.6).

Having pressure sore of the participants		Knowledge of proper transferring technique			Total
		Yes	No	Not applicable	
Yes	Count	4	8	2	14
	Percentage	28.6%	57.1%	14.3%	100.0%
No	Count	15	15	6	36
	Percentage	41.7%	41.7%	16.7%	100.0%
Total	Count	19	23	8	50
	Percentage	38.0%	46.0%	16.0%	100.0%

Table -4.6: Information about proper transferring technique of the participants

Information about friction

Among 14 participants who got pressure sore 50% (n=7) participants avoid friction and 50% (n=7) participants do not avoid friction. And the 36 participants who had no pressure sore among them 58.3% (n=21) participants avoid friction and 41.7% (n=15) participants do not avoid friction (Table 4.7).

Having pressure sore of the participants		Avoiding friction		Total
		Yes	No	
Yes	Count	7	7	14
	Percentage	50.0%	50.0%	100.0%
No	Count	21	15	36
	Percentage	58.3%	41.7%	100.0%
Total	Count	28	22	50
	Percentage	56.0%	44.0%	100.0%

Table -4.7: Information about friction

Information about duration of lift

The 14 participants who suffered from pressure sore among them 42.9% (n=6) took lift in every 30 minutes, 7.1% (n=1) took lift in every 1 hours, 42.9% (n=6) took lift 2 hourly and 7.1% (n=1) took no lift. And the 36 participants who had no pressure sore among them 52.8% (n=19) took lift in every 30 minutes, 19.4% (n=7) took lift in every hourly, 27.8% (n=10) took lift 2 hourly and 0% (n=0) took no lift.

Having pressure sore of the participants		Duration of taking lift				Total
		30 minutes	1 hours	2 hours	none	
Yes	Count	6	1	6	1	14
	Percentage	42.9%	7.1%	42.9%	7.1%	100.0%
No	Count	19	7	10	0	36
	Percentage	52.8%	19.4%	27.8%	0%	100.0%
Total	Count	25	8	16	1	50
	Percentage	50%	16%	32%	2%	100.0%

Table -4.8: Information about duration of lift

The present study used a cross-sectional design to find out the prevalence of pressure sore among the SCI patients in CRP. The results of this study showed that the prevalence of pressure sore among the SCI patients at CRP was 28% which is comparatively higher than other studies. A European study published in 2007 and conducted in five countries (Belgium, Italy, Portugal, UK, and Sweden) reported Pressure ulcer prevalence (Stage I through Stage IV, based on the National Pressure Ulcer Advisory Panel scale) of 18.1% (Zhao, 2010).

It was found that male were more affected than female the percentage of male and female who suffered from pressure sore were 92% male and 8% female ; as male were more got spinal cord injury than female. In this study it was also found that 24% pressure sore seen in between 11-20 years of age, 28% in between 21-30 years, 30% in between 31-40 years and, 6% in between 41-50 years and 12% > year of age. So it is seen that middle age person were more affected.

In this study most of the participants came from the rural area which was about 84% and had a low socioeconomic status. Majority had the monthly income that 56% participants earned monthly in range of 1000-5000 taka, 36% participants earned monthly in range of 6000-10000 taka and most of them had only one earning member in their family. Maximum participants of this study were farmer, it was 30%.

This study showed that the participants who were suffering from pressure sore had a poor educational status. Here 50% participants who were suffering from pressure sore were illiterate and 35.7% participants had primary educational knowledge.

It was seen in the study that pressure sore was most often applies in the complete paraplegic patients, which was 64% and among complete tetraplegic patients and incomplete tetraplegic patients the rate was same which was 14%. However, other studies had shown much higher prevalence rates for pressure ulcers that were as high as 60% in quadriplegic patients (Carol et al., 08).

In this study it was found that 35.7 % participants had stage- 1 pressure sore and 28.6% participants had stage- 2 pressure sore. The prevalence and incidence studies of pressure Ulcers in Canada had shown that the incidence of pressure ulcers over a 4-week follow-up ranged from 10.8% to 13.3% for Stage II and greater ulcers, and rose to 28% when Stage I ulcers were included (Carol et al., 08).

Among 50 participants from whom data were collected 14 were suffering from pressure sore. The frequencies of the site of pressure sore were buttock 20%, hip 6% and ankle 2%. Literature said that approximately 70 percent of pressure ulcers develop on the sacral prominence, or lower back. This is due to a bedridden patient not being turned on the side at least every two hours and approximately, 15 percent of pressure ulcers develop on the lower extremities, especially the heels (Riefler, 2010).

Among 50 participants the frequency of taking lift were that 92% participants took lift properly and 8% participants did not take lift properly and among the 14 participants who were suffering from pressure sore were properly took lift 92.9% & not properly took lift 7.14% participants. 42.9% took lift in every 30 minutes, 7.1% every hourly, 42.9% 2 hourly and 7.1% took no lift. And among rest of the 36 participants who were not suffering from pressure sore were properly took lift 91.7% & not properly took lift 8.3% participants. So it is found that in this study most of the participants took lift properly and 52.8% took lift in every 30 minutes, 19.4% took lift in every hourly, 27.8% 2 hourly and 0% took no lift.

This study showed that pressure sore was commonly seen in the participants who had no sense of bowl and bladder movements. The participants who had pressure sore among them 21.4% had the sense about bowl and bladder movements and 78.6% had no sense about bowl and bladder movements. So it was seems that incontinence is one of the risk factor of the risk factor for developing pressure sore at the CRP. The literature said that problems with bladder control can greatly increase the risk of pressure sores because the skin may frequently be moist, making it more likely to break down (Mayo Clinic staff, 2011).

In this study it was found that participants who were suffering from pressure sore among them only 28.6% participants had the knowledge of proper transferring technique and 57.1% had no knowledge about proper transferring techniques. Lack of knowledge about proper transferring may increase the patients risk to develop pressure sore. According to literature If anyone have trouble to transferring into wheelchair, have to learn proper technique from the physical therapist to prevent pressure sore (Mannheim, 2010).

This study found out that friction may be one of the risk factors for developing pressure sore at CRP but there was a doubt as this study showed that most of the participants avoid friction. Among the participants who had pressure sore 50% avoid friction and 50% did not avoid friction and among those who had no pressure sore avoid friction 58.3% participants and did not avoid friction 41.7% participants.

6.1 Conclusion

In general from this study can be concluded that people with SCI are vulnerable across their lifespan to tissue breakdown or pressure sore that can interfere with initial rehabilitation in the acute post-traumatic recovery phase and successful reintegration into the communities, as well as lead to more serious medical complications. Pressure ulcers are responsible for physical, social, vocational, and economic costs and impair quality of life.

The prevalence of pressure sore among the SCI patients at CRP is 28%. This result is significantly high to the complete paraplegic patients and most of them who have no sense about bowel and bladder movements. Most of the patients have poor socioeconomic status and low literacy rate. Majority has no knowledge of proper transferring technique which is important for prevent pressure sore and they are not aware about taking a lift timely and avoiding friction to prevent pressure sore. So it is necessary to grow more awareness about pressure sore among the SCI patients and their caregiver.

6.2 Recommendation

This study showed that the prevalence of pressure sore among the SCI patients at CRP was 28% which is only at CRP, as there was time limitation it was not able to gather huge amount of participant and for this result cannot be generalized So for further study it is strongly recommended to increase sample size to generalize the result in all of the SCI patients in Bangladesh. As a consequence of the research, it is recommended that a larger sample should be chosen randomly for the cross sectional study at the whole Bangladesh to generalize this study.

In case of farther study it is also recommended that to show the association between pressure sore and socio- economic demography and risk factors.

It should also be encouraged for further study purpose in Bangladesh for developing the physiotherapy profession. So this study can make more sense which will help to improve efficacy of physiotherapeutic intervention for pressure sore among the SCI patients which will be beneficial for our profession and also for the people of Bangladesh who are suffer from SCI.

If any researcher wants to replicate this study there is scope for it. In future, there is scope for further studies to be done in relation to this study.

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APENDEX

মৌখিক অনুমতি পত্র (অংশগ্রহণকারীকে পড়ে শোনাতে হবে)

আসসালামু আলাইকুম/ নমস্কার, আমার নাম শর্মিলা জাহান, আমি এই গবেষণাটি বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বি এইচ পি আই)-এ করছি যা আমার কোর্সের অধিভুক্ত। যার শিরোনাম হল- ‘সি আর পিতে মেরুদণ্ডে আঘাত প্রাপ্ত রোগীদের চাপ জনিত ঘাঁ এর হার’

আমি এক্ষেত্রে কিছু ব্যক্তিগত এবং আনুষঙ্গিক প্রশ্ন সম্পর্কে জানতে চাচ্ছি। যা আনুমানিক ২০-৩০ মিনিট সময় নিবে। আমি আপনাকে অবগত করছি যে, এটা আমার অধ্যয়নের সাথে অন্তর্ভুক্ত নয়। তাই এই গবেষণায় অংশগ্রহণ আপনার বর্তমান এবং ভবিষ্যৎ চিকিৎসায় কোন প্রভাব ফেলবে না। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনাপ্রবাহে এটা নিশ্চিত করা হবে যে, এই তথ্যে উৎস অপ্রকাশিত থাকবে।

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

এই অধ্যয়নে অংশগ্রহণকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি আমাকে এবং / অথবা ওবায়দুল হক, কোর্স সমন্বয়কারী, ফিজিওথেরাপী বিভাগে যোগাযোগ করতে পারেন।

এটা শুরু করার আগে আপনার কি কোন প্রশ্ন আছে?

আমি আপনার অনুমতি নিয়ে এই সাক্ষাৎকার শুরু করতে যাচ্ছি?

হ্যাঁ

না

সাক্ষাৎকারীর স্বাক্ষর :.....

VERBAL CONSENT STATEMENT

(Please read out to the participant)

Assalamualaikum/Namasker, my name is Sharmila Jahan, I am conducting this study for a Bachelor project study titled “Prevalence of pressure sore among the spinal cord injury patients of CRP.” from Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related questions about pressure sore. This will take approximately 20 - 30 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. The researcher is not directly related with this SCI area , so your participation in the research will have no impact on your present or future treatment. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous.

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 Sharmila Jahan, researcher and/ or Obaidul Haque, Course Coordinator, University of Physiotherapy.

Do you have any questions before I start?

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

YES

NO

Signature of the Interviewer _____

সি আর পিতে মেরমদন্ডে আঘাত প্রাপ্ত রোগীদের চাপ জনিত ঘাঁ এর হার

বাংলা প্রশ্নাবলী

অংশগ্রহনকারীর-

১। নাম:

২। বয়স:

ক। ১১-২০

খ। ২১-৩০

গ। ৩১-৪০

ঘ। ৫০

ঙ। ৫০

৩। লিঙ্গ:

ক। পুরুষ

খ। মহিলা

৪। পেশা:

ক। কৃষক

খ। দর্জি

গ। কাঠ মিস্ত্রি

ঘ। গৃহীনি

ঙ। ছাত্র

চ। অন্যান্য

৫। বাসস্থান:

ক। শহর

খ। গ্রাম

৬। আঘাত প্রাপ্তির তারিখ.....

৭। সি আর পিতে ভর্তির তারিখ.....

৮। তথ্য সংগ্রহের তারিখ.....

৯। আঘাতের ধরণ:

ক। সম্পূর্ণ প্যারাপ্লেজিয়া

খ। অসম্পূর্ণ প্যারাপ্লেজিয়া

গ। সম্পূর্ণ টেট্রাপ্লেজিয়া

ঘ। অসম্পূর্ণ টেট্রাপ্লেজিয়া

১০। আপনার শিক্ষাগত যোগ্যতা কি?

ক। অশিক্ষিত

খ। প্রাথমিক শিক্ষা

গ। মাধ্যমিক

ঘ। উচ্চ মাধ্যমিক

ঙ। স্নাতক

চ। স্নাতকোত্তর

১১। আপনার পরিবারে কয়জন উপার্জন করেন?

ক। মাত্র এক জন

খ। দুই বা দুই এর বেশী

১২। আপনার মাসিক আয় কত?

ক। ১০০০-৫০০০ টাকা

খ। ৬০০০-১০০০০ টাকা

গ। ১১০০০-১৫০০০ টাকা

ঘ। ১৫০০০ টাকা এর বেশী

- ১৩। আপনার শরীরে কোন চাপ জনিত ঘাঁ আছে কি।
ক। হ্যা খ। না
- ১৪। এটা সি আর পিতে আসার পর হয়েছে?
ক। হ্যা খ। না
- ১৫। আপনার শরীরে কয়টি চাপ জনিত ঘাঁ আছে?
ক। একটি খ। দুইটি
গ। দুইয়ের অধিক ঘ। প্রযোজ্য নহে
- ১৬। আপনার শরীরে এটা কোথায় হয়েছে?
ক। পশ্চাৎ দেশে খ। উরু গ। পায়ের কজি ঘ। পায়ের গোড়ালি
ঙ। হাতের কোনোই চ। কাধ ছ। পায়ের গিড়া জ। প্রযোজ্য নহে
- ১৭। চাপ জনিত ঘা কোন স্তরে রয়েছে?
ক। প্রাথমিক স্তর খ। ২য় স্তর
গ। ৩য় স্তর ঘ। ৪র্থ স্তর
- ১৮। আপনি কি প্রসাব এবং পায়খানার অনুভূতি বুঝতে পারেন?
ক। হ্যা খ। না
- ১৯। আপনি কি পায়খানার চাপ ধরে রাখতে পারেন?
ক। হ্যা খ। না
- ২০। আপনি কি প্রসাবের নিয়ন্ত্রন হারিয়েছেন?
ক। হ্যা খ। না
- ২১। আপনি বিচানায় কি ধরনের তোষক ব্যবহার করেন?
ক। শক্ত খ। নরম
- ২২। আপনি কি নিয়মিত লিপ্ট নেন?
ক। হ্যা খ। না
- ২৩। আপনি কতক্ষণ পর পর লিপ্ট নেন?
ক। ৩০ মিনিট খ। এক ঘন্টা
গ। ২ ঘন্টা ঘ। কোনটাই নয়
- ২৪। আপনি কি হুইলচেয়ার ব্যবহার করেন?
ক। হ্যা খ। না
- ২৫। আপনি কি স্থান পরিবর্তনের সঠিক নিয়ম জানেন?
ক। হ্যা খ। না গ। প্রযোজ্য নহে

২৬। আপনি কি এটা অনুসরণ করেন?

ক। হ্যাঁ খ। না গ। প্রযোজ্য নহে

২৭। আপনি কি স্থান পরিবর্তনের সময় ঘর্ষন এরিয়ে চলেন?

ক। হ্যাঁ খ। না গ। প্রযোজ্য নহে

Title: Prevalence of pressure sore among the spinal cord injury patients in CRP

QUESTIONNAIRE

ID:

Participant's

1. Name:

2. Age:

3. Sex:

A= Male

B= Female

4. Occupation:

A= Farmer

B= Tailor

C= Carpenter

D= House wife

E= Students

F= Others

5. Residential area:

A= Urban

B= Rural

6. Date of injury: DD/MM/YY.....

7. Date of admission: DD/MM/YY.....

8. Date of data collection: DD/MM/YY.....

9. Type of injury:

A= Complete paraplegia

C= Complete tetraplegia

B= Incomplete paraplegia

D= Incomplete tetraplegia

10. What is your educational level?

A= Illiterate

D= H.S.C

B= Primary

E= Graduate

C= S.S.C

F= Masters and above

11. How many earning member in your family?

A= only one

B= two or more than two

12. What your monthly family income?

A= 1000-5000

B= 6000-10000

C= 11000-15000

D= > 15000

13. Have you any pressure sore?
A=Yes B=No
14. Is it developed after coming in CRP?
A=Yes B=No
15. How many pressure sore do you have?
A=One B=Two
C=More than two D= Not applicable
16. Where is it developed in your body?
A=Buttock B=Hip
C=Ankle D=Heel
E=Elbow F=Shoulder
G= Mellulus H=Not applicable
17. What is the degree of pressure sore?
A= Stage I B= Stage II
C= Stage III D= Stage IV
18. Do you have any sense about bowl and bladder movements?
A=Yes B=No
19. Can you control your bowl movements?
A=Yes B=No
20. Do you have bladder incontinence?
A=Yes B=No
21. What type of matrix you use to lie on the bed?
A=Hard B=Soft
22. Do you take lift properly?
A=Yes B=No
23. How long after you take a lift?
A=30 minutes B= 1 hour
C= 2 hours D= None
24. Do you use wheel chair ?
A= Yes B= No

25. Do you know the proper transferring technique?

A=Yes

B=No

26. Do you follow it?

A=Yes

B=No

C= Not applicable

27. Do you avoid friction during transferring and bed mobility?

A=Yes

B=No

C= Not applicable

PERMISSION LETTER

To

The Head of the Department

Department of the Physiotherapy

Center for the Rehabilitation of the Paralyzed.

Savar, Dhaka-1343

Subject: Application for getting permission for conducting research project.

Sir,

I beg most respectfully to state that, I am a student of 4th year, B.sc in Physiotherapy in Bangladesh Health Professions Institute (BHPI). As a part of my study I need to conduct a research project. Because of this, I need your kind permission to conduct the research. My research Topic is "Prevalence of pressure sore among the spinal cord injury patients at CRP".

And in this research my participants are about all of the patients of SCI. Here I want to assure you that my interview will not do harm to the patient. From this research, we will be able to know the prevalence of pressure sore among the SCI patient. For this reason, I need to collect data for my research project. And my selected place is Spinal Cord Injury Unit of CRP.

I therefore, pray and hope that, you would be kind enough to give me permission to do this Research successfully in your Department and oblige thereby.

Date: 18.06.2011

I remain

Sir

Your most obedient pupil

Sharmila Jahan

Sharmila Jahan

B. Sc. in Physiotherapy

BHPI, Savar, Dhaka

Give the permission for data collection at SCI unit, please contact with SCI incharge, PT

[Signature]
18/06/11

Hassan
21.06.2011