

PERCEPTION OF SCI PATIENT ABOUT CHEST PHYSIOTHERAPY AT CRP

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

**PERCEPTION OF SCI PATIENT ABOUT CHEST
PHYSIOTHERAPY 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 for any publication, presentation or dissemination of information of the study, I would be bound to take written consent of my supervisor and Head, Department of Physiotherapy, Bangladesh Health Professions Institute (BHPI).

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Lists of Acronyms

BHPI	Bangladesh Health Professions Institute.
BMRC	Bangladesh Medical and Research Council.
CRP	Centre for the Rehabilitation of the Paralysed.
IRB	Institutional Review Board.
QCA	Qualitative Content Analysis.
SCI	Spinal Cord Injury.
WHO	World Health Organization.

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Abstract

Background: Respiratory complication is the most common complication among spinal cord injured patients. It has profound effects on spinal cord injured person and their activity. Chest physiotherapy is the new intervention for the spinal cord injured patients in CRP. *Objectives:* The objectives are to explore the effects of respiratory problem on function and explore the opinion of the person with spinal cord injury about Chest physiotherapy. *Methodology:* The study was a qualitative research design to collect in-depth information of participants' perception. Purposive sampling was used and six participants who met the inclusion criteria were selected. Semi-structured, face to face interviews were conducted to collect the data. *Result and Discussion:* Most of the tetraplegic patients face respiratory problem during different activity due to loss of motor and sensory function and also bowel and bladder problem. Persons with spinal cord injury get chest physiotherapy for reducing respiratory complications. Some patient get chest physiotherapy and some does not get among all the patients. Few patients have knowledge about chest physiotherapy and some has no idea. If the patients know about chest physiotherapy, they will be motivated to receive this treatment. Then their complications will be reduced and they can lead a better life. *Conclusion:* Respiratory complications affect the person's normal life and activity. Physiotherapists have an important role to reduce respiratory complications. The physiotherapist can improve quality of life of the spinal cord injury patient by providing chest physiotherapy. The spinal cord injured patients feel better by continuing chest physiotherapy.

Keywords: SCI, tetraplegic, respiratory complication, chest physiotherapy.

1.1 Background

A Spinal cord injury (SCI) is damage to any part of the spinal cord or nerves at the end of the spinal canal often causes permanent changes in strength, sensation and other body functions below the site of the injury. Injury may make it more difficult to breathe and cough if abdominal and chest muscles are affected. These include the diaphragm and the muscles in chest wall and abdomen. The neurological level of injury will determine what kind of breathing problems may have. If persons have cervical and thoracic SCI, they may have an increased risk of pneumonia or other lung problems. Medications and therapy can treat these problems (Mayo Clinic Staff, 2014). Most persons with SCI face many other respiratory complications.

Bellamy et al retrospectively reviewed 54 patients and cited 64 complications and a 31% death rate. These patients however, were cervical injuries only. In another study it was few studies however, have actually determined the incidence of respiratory complications in the acute care stage following an SCI. A study reported that 35.7% pulmonary complication rate. This was a retrospective study encompassing only 1 month after injury. The death rate was 18% with 11% of the deaths attributable to respiratory problems. More recently, a prospective study revealed that 50% of acutely injured patients developed either atelectasis or pneumonia 1 month post-SCI.

Pulmonary compromise is a leading cause of morbidity in patients with SCI. Because these patients have such complex and massive needs, routine respiratory care is not always given the priority it deserves in a rehabilitation program. If anybody has a chest infection he/she may feel shortness of breathing, tightness in chest and has a raised temperature or cough. The mucus in chest will become thicker and lungs will produce more mucus to help clear lungs of infection. It may also notice that who have respiratory problem their normal function become restricted. Change position and Chest physiotherapy regularly to help move the mucus out of chest and drink plenty fluids as the mucus will be harder to clear if you are dehydrated (Sekaran et al., 2010).

Researcher has completed placement in 2nd and 4th year in the SCI unit at Centre for the Rehabilitation of the Paralyzed (CRP). It is situated at Savar, Dhaka, Bangladesh. CRP is the renowned rehabilitation centre for the persons with SCI (Annual report of CRP, 2014). Researcher observed that the patients with SCI have to face many difficulties. At that time researcher was curious to know about their opinion and understanding level about chest physiotherapy. The people with SCI need to provide chest physiotherapy to the injured persons. Therapists concentrate on this issue to provide chest physiotherapy. There are no related and sufficient studies in Bangladesh. Completion of this study will find out the perception of the persons SCI about chest physiotherapy.

1.2 Rationale

Respiratory complications are a common cause of morbidity and mortality in patients with SCI. They occur throughout patients' lives and are a leading cause of hospitalization. Patients are particularly susceptible to respiratory complications in the first few weeks after SCI. At this time, respiratory complications are the second leading cause of death. The common respiratory complications are hypoventilation, atelectasis, secretion retention and pneumonia. Each leads to a mismatch between ventilation and perfusion, resulting in hypoxaemia and, if untreated, respiratory failure. Patients with tetraplegia are particularly vulnerable. Persons with SCI experience changes in their different function (Harvey, 2008). In addition to these physical changes, most persons also experience respiratory problem. In case of those problems a person with SCI faces difficulties in their functioning. On the other hand, the persons with SCI don't get sufficient treatment to reduce complications. Sometimes they don't know about chest physiotherapy. This is a more important issue for the betterment of treatment. This study will be helpful to find out the perception of the persons with SCI about chest physiotherapy.

Physiotherapists work with both patient and caregiver. If the patient and caregiver don't understand the reason and purpose of chest physiotherapy they never want to take treatment. This study will help to find out the understanding of the patients about chest physiotherapy.

Physiotherapy is not well known profession in Bangladesh. Most of the people do not know about the profession and its services. The Physiotherapists and the students of physiotherapy will be able to enrich their knowledge and resource by using this study in Bangladesh. They will also establish chest physiotherapy management strategies for the persons with SCI.

1.3 Aim of the study

To find out the perception of the person with SCI about chest physiotherapy in CRP.

1.4 General Objective

To find out the perception of the person with SCI about chest physiotherapy in CRP.

1.4 Specific Objective

1. To explore the effects of respiratory problem on function.
2. To explore the opinion of the person with SCI about chest physiotherapy.

1.5 Operational Definition

Perception

Perception is the ability to see, hear, or become aware of something through the sense or the way in which something is regarded, understood, or interpreted. Perception is a particular attitude towards something or a way of thinking about something or the ability to think about problems and decision in a reasonable way without exaggerating their importance.

Perception is the theory of cognition is the choice of context or a reference from which to sense, categorize, measure or codify experience, cohesively forming a coherent belief, typically for comparing with another.

Spinal Cord Injury

A Spinal Cord Injury is defined as damage or trauma to the spinal cord that in turn results in a loss or impaired function resulting in reduced mobility or feeling (Adams & Hicks, 2005).

Chest Physiotherapy

Chest physiotherapy is something can do to help SCI patient breathe better. Chest physiotherapy helps to loosen SCI patient mucus, so SCI patient can cough it up (The Emily Centre, 2009).

SCI usually occurs after an unexpected, traumatic and non-traumatic damage to the spinal cord. This injury or damage results in fracture, dislocation of vertebrae, intervertebral discs which in turn rupture the spinal cord partially or completely. “A SCI is defined as damage or trauma to the spinal cord that in turn results in a loss or impaired function resulting in reduced mobility or feeling” (O’Connor & Murray, 2006). SCI results from an accident that breaks or severely damages the spinal cord in the segments of neck and back.

In Bangladesh it is a common practice to carry heavy load on the head. Most of the SCI takes place due to accidental fall while carrying load.

In Bangladesh during harvesting season the farmers and laborers carry their products on their head and transport them from harvesting areas to local store houses or from one vehicle to another. The common causes of SCI in Bangladesh are fall while carrying heavy load on head, road traffic accidents, falling from a height, fall of a heavy object on the head or neck, bull attack and diving into shallow water. According to the WHO, between 20-40 people per million of population acquire spinal injury each year (Hasan, 2009). According to the report of National SCI statistical center (NSCISC) among the developed countries only in the U.S.A. approximately 12000 new cases of SCI are found every year. Approximately 60% of cases occurred in people 16-40 years of age (Ottomaneli & Lind, 2009). Currently there is no accurate number of persons SCI in Bangladesh. Therefore it is difficult to know or estimate the total number of patients with SCI in Bangladesh. The most common age group for SCI ranges from 25-29 years in Bangladesh and 83% of them are male (Islam et al., 2011).

The major complication of SCI is paralysis in body part such as upper and lower extremities. A variety of complications can also result from SCI. The person with SCI might have the complications like lack of skin sensation, pressure sore, bowel and bladder complexities, respiratory complications, and autonomic dysreflexia, sexuality dysfunction etc. (Somers, 2006). According to the Harvey (2008), there are some other complications like deep vein thrombosis, decreased vital capacity, osteoporosis, postural hypotension, spasticity and heterotopic ossification. From the practical

observation of the researcher at CRP, it has been seen that the most common complication is pressure sore, urinary tract infection, bowel and bladder problem, burning sensation, autonomic dysreflexia, abdominal distension, psychosocial distress etc. One of the common complications of tetraplegic patient is respiratory distress or chest complication. These can be developed at any time after the injury. Complications can also develop during the rehabilitation phase and after discharge. Patient and caregiver education plays a great role for preventing these complications. In CRP it is seen that, the most of the patients are suffered.

The respiratory system of a person suffering a spinal cord injury may be impaired due to paralysis of the chest muscles, abdominal muscles or diaphragm. The degree of impairment will vary depending on the level of spinal cord injury.

The tube which carries the air from the mouth is called the trachea or windpipe, this later divides into two at which point it becomes the bronchi and divides the air equally to each lung. Once the air enters the lungs it passes through a fine spongy structure which contains an extensive network of blood vessels, these vessels bring carbon dioxide into the lungs for removal, and take oxygen from the lungs to the body (Harvey, 2008).

The process of breathing is controlled subconsciously, and involves muscles in the ribcage, between the ribs called intracostal muscles, and another muscle called the diaphragm. These muscles work together, and to breathe in, the intracostal muscles lift the ribs up and forward whilst the diaphragm moves downwards, thus expanding the lungs and resulting in an inward breath. To breathe out, the intercostal muscles and the diaphragm are relaxed, resulting in an outward breathe.

The lining of the bronchi is very sensitive and is covered in a layer of mucus which helps protect the delicate structure of the lungs and moisten the air; it also helps to filter out dust and bacteria from reaching the lungs. If a bacterium does reach the lungs, it can form into a chest infection, or if dust is inhaled, it can cause a reaction of coughing. Coughing is induced by a rapid contraction of the abdominal muscles to expel air at force from the lungs, and for the spinally injured, only a low level spinal cord injury will leave the cough reflex intact (The Emily Center, 2009).

The effects on the respiratory system from a spinal cord injury will vary from person to person, however, several generalisations can be made with regards to the level of injury and how it affects the breathing process.

With a spinal cord injury of C4 and higher all the muscles which control breathing will be paralysed. These muscles are the intracostal muscles, the diaphragm and the abdominal muscles.

For a person with a high spinal cord injury to breathe, the person will need a machine called a ventilator to breath for them, this machine forces air in and out of the lungs to re-oxygenate the blood. In order to cough, the person will need help by way of a carer performing an assisted cough procedure. An alternative to a ventilator is a diaphragm pacemaker. Pulses are sent down electrodes from the pacemaker implanted under the skin in either the neck or upper chest to the phrenic nerves in the neck, causing the diaphragm to contract. This contraction causes inhalation of air. When the pulses stop, the diaphragms relax and exhalation occurs. Repetition of this series of pulses produces a normal breathing pattern. A breathing pacemaker can provide ventilatory support for patients with chronic respiratory insufficiency whose diaphragm, lungs, and phrenic nerves have residual function (Apparalyzed, 2015).

Injuries between C4 and T6 will leave the person able to breathe on their own, however, because the intracostal muscles may be weakened or paralysed depending on the level of injury, breathing may be mainly done in patients with a cervical injury solely by the diaphragm. Again, coughing may also be a problem; quadriplegics may need help in coughing, whilst paraplegics may have enough abdominal movement to innervate sufficient pressure to clear their airways on their own (Harvey, 2008).

Injuries between T6 and T12 do not normally affect breathing, however the ability to cough will be impaired. It is only with injuries below T12 that normal breathing and cough reflexes are preserved.

The inability to cough is of major importance to a person with a spinal cord injury, as failure to remove dust, mucus or saliva from the lungs can lead to infection. The most common infections are common colds, bronchitis (inflammation of the bronchus), bronchiolitis (inflammation of the bronchioles) and pneumonia. If an infection does

occur in the lungs it may be necessary to take a course of antibiotics to help clear the chest (Apparalyzed, 2015).

With all infections of the chest, it may be necessary to clear the lungs with an assisted cough. This procedure is done by applying firm, even pressure just below the ribcage by a carer, while the person breathes out or tries to cough. Careful control of the pressure used by the carer is critical, to avoid causing injury and to help give the most effective 'cough'.

A way to help keep the fine structures of the lungs clear is to do deep breathing exercises, and one of the best deep breathing exercises is to do physical exercise.

It goes without saying that those people who continue to smoke following a spinal cord injury, are at an even higher risk of developing a chest infection, and pneumonia, than a nonsmoker (Apparalyzed, 2015).

Impairments in respiration resulting from SCI result in medical consequences that are leading causes of morbidity, mortality, and economic burden. Pulmonary complications of SCI include increased risk of pulmonary infection and death, and higher rates of symptoms of respiratory dysfunction. Inspiratory capacity is diminished in individuals with higher level lesions, contributing to microatelectasis, dyspnea with exertion, and, in those with more severe impairments, respiratory insufficiency. Muscles of expiration are impaired in many individuals with SCI with profound effects on cough effectiveness and, presumably, on clearance of secretions and susceptibility to lower respiratory tract infections (Christopher, 2007). In persons with SCI, quality of life is diminished by respiratory symptoms that include cough, phlegm, and wheezing. In those with higher lesions, asthma-like disorders of airway function have been described, which are prevented by cholinergic antagonists. This abnormality has been attributed to the unopposed effects of parasympathetic innervation on respiratory smooth muscle resulting from disruption of sympathetic efferent. Hope for reductions in the impact of these many respiratory complications comes from new technologies that support respiration, continued growth of knowledge about the specific characteristics and impact of the respiratory complications of SCI, and interventions to reduce their severity. From a more fundamental view point, gains in function of respiratory musculature after SCI,

whether occurring spontaneously or stimulated by rehabilitation paradigms, point to the plasticity of the nervous system and its ability to form new connections after SCI (Apparalyzed, 2015). The respiratory function of patients with spinal cord injury is primarily determined by neurological status and can be summarized as Patients with lesions at C1 and C2 have total paralysis of the diaphragm, intercostals and abdominal muscles and are therefore ventilator dependent. They, however, retain some voluntary control of accessory respiratory muscles such as the sternocleidomastoid muscles. These muscles receive innervations from cranial nerves and contribute to respiration in a small way, although they have little functional importance in patients with such high levels of tetraplegia requiring mechanical ventilation. Patients with lesions at C3 have marked but not total paralysis of the diaphragm. They have some voluntary control of the scalene muscles which assist respiration. Most, however, require long-term mechanical ventilation. Patients with lesions at C4 have partial paralysis of the diaphragm and total paralysis of the intercostal and abdominal muscles. Most can breathe independently, typically after short periods of invasive mechanical ventilation following injury. They have little ability to cough and a vital capacity less than one third of predicted. They have minimal expiratory reserve. Patients with lesions at C5–C8 have full voluntary control of the diaphragm, partial voluntary control of the scalene and pectoralis muscles and full paralysis of the intercostal and abdominal muscles. They have a poor cough and a vital capacity of between one third and one half of predicted. The pectoralis muscles are significant because they contribute to expiration (Harvey, 2008).

Chest physiotherapy is a very important treatment for person who has respiratory problem. Pulmonary hygiene is also called respiratory care. Pulmonary hygiene is a group of exercises and treatments to help you breathe better and to keep healthy. Although many people need pulmonary hygiene, it is very important for people with SCI. Caregivers will work very closely with you to help lungs work as well as possible and to prevent problems. The amount of trouble patient has in breathing. Chest physiotherapy depends on where spinal cord is injured. Pulmonary hygiene consists of breathing exercises and treatments, postural drainage, Chest physiotherapy (Pellegrino et al., 2005).

Chest physiotherapy is something can do to help SCI patient breathe better. Sometimes there is too much mucus, or it is too thick. It blocks the air from moving in

and out of SCI patient's lungs. Mucus makes it hard for SCI patient to breathe. Mucus that sits too long in the lungs can also grow germs that can make SCI patient sick. Chest physiotherapy helps to loosen SCI patient's mucus, so SCI patient can cough it up (The Emily Center, 2009).

Percussion is clapping the chest. Percuss means to tap sharply. A drum is a percussion instrument. Percussion in Chest physiotherapy can be done with either a cupped hand or an electric percussor. The clapping shakes the inside of the chest and loosens mucus, so it is easier to cough out. Postural Drainage moves the mucus by changing the SCI patient's position. Mucus, like water, moves from high places to low places. Tilting the SCI patient helps move the mucus from the small airways at the bottom of the lungs to the large airways in the middle. The most mucus moves into the large airways when you do percussion and postural drainage together. Deep breathing and coughing helps to move the loosened mucus. Lobe is a section of the lung. The left lung has two lobes, and the right lung has three lobes (Sekaran et al., 2010).

It is indicated for patients in whom cough is insufficient to clear thick, tenacious, or localized secretions. Examples include: Cystic fibrosis, Bronchiectasis, Atelectasis, Lung abscess, neuromuscular diseases, Pneumonias in dependent lung regions (Nursing Care, 2013).

There are some contraindications also for providing chest physiotherapy. Such as: Increased ICP, Unstable head or neck injury, Active hemorrhage with hemodynamic instability or hemoptysis, Recent spinal injury or injury, Emphysema, Bronchopulmonary fistula, Rib fracture, Flail chest, Uncontrolled hypertension, Anticoagulation, Rib or vertebral fractures or osteoporosis (Nursing Care, 2013).

Nursing care and selection of chest physiotherapy skills are based on specific assessment findings. The following are the assessment criteria:

1. Know the normal range of patient's vital signs. Conditions requiring Chest physiotherapy such atelectasis, and pneumonia, affects vital signs.
2. Know the patient's medications. Certain medications, particularly diuretics antihypertensive cause fluid and haemodynamic changes. These decrease patient's tolerance to positional changes and postural drainage.

3. Know the patient's medical history; certain conditions such as increased ICP, spinal cord injuries and abdominal aneurysm resection, contra indicate the positional change to postural drainage. Thoracic trauma and chest surgeries also contraindicate percussion and vibration.
4. Know the patient's cognitive level of functioning. Participating in controlled cough techniques requires the patient to follow instructions.
5. Beware of patient's exercise tolerance. Chest physiotherapy maneuvers are fatiguing. Gradual increase in activity and through chest physiotherapy, patient tolerance to the procedure improves (Nursing Care, 2013).

Clinical findings and investigations

Detailed History

Physical examination

1. Inspection
2. Palpation
3. Percussion
4. Auscultation

Investigations

1. X-ray
2. Blood investigations-bleeding and clotting parameters (Nursing Care, 2013).

CRP is a non-profitable organization in Bangladesh consisted of 100 beds for treating SCI patients. CRP is the only rehabilitation centre for the patient with SCI. CRP provides appropriate treatments such as medical, surgical and therapeutic. At CRP, patients get physiotherapy treatment not only for SCI. and different neurological condition (CRP Bangladesh, 2014). Physiotherapists are autonomous practitioner who diagnose and treat disorders of movement, function, and human performance caused by activity, injury, disease, disability or ageing, particularly those that affect the

muscles, bones, joints, nervous system, heart, circulation and lungs. They identify and maximize movement and function through health promotion, preventative healthcare, treatment and rehabilitation using a variety of physical, electro-physical, cognitive and pharmacological agents.

Physiotherapy is a crucial element of the rehabilitation process and covers a diverse range of approaches such as manual therapy, exercise therapy, and electrotherapy. The service is provided in both in-patients and out-patients. Physiotherapists in CRP are primary health care professionals so patients do not require a physician referral to visit a Physiotherapist. Physiotherapists at CRP have developed competency to perform differential diagnosis regarding each of the primary Physiotherapy areas including: Orthopedics, Neurology and Pediatrics.

Over the years, CRP has developed its physiotherapy services through continuous professional developmental program. For having good international connection, standard of Physiotherapy practice and education offered by CRP are now world standard. Thousands of Patients have been benefited through receiving Physiotherapy from CRP. The Physiotherapy department has also launched a Sports Rehabilitation Unit and a Gymnasium. Specialist services are provided for the cases of stroke through Stroke Rehabilitation Unit. Critical and challenging patients' cares are provided by the clinical specialist once a week.

Every year many people come to CRP after SCI to take treatment. Most of them are tetraplegic (Annual report of CRP, 2014). Physiotherapists ensure comprehensive rehabilitation services since patients admission until discharge of the patients. Physical rehabilitation starts with providing chest physiotherapy for the acute patients and it continues through improving mobility, balance, coordination, gait re-education, lifting and transferring from one place to another as the patients progress. Community Based Rehabilitation (CBR) services are also provided by Physiotherapist to make sure appropriate social rehabilitation after being discharged from CRP. Now a days physiotherapists provide chest physiotherapy to the SCI patients individually and in a group (CRP Bangladesh, 2014).

3.1 Study design

Qualitative method was chosen to conduct this study. The qualitative study design was selected because this method helps to explore the in depth information on the perception of the participants (Hissong et al., 2014). Researcher was selected qualitative research design to identify participant's views, perceptions and experiences.

The aim of this study was to explore the perception of the SCI patient about the chest physiotherapy. Qualitative study was suitable to explore the experience and perception. Qualitative approach was used to describe experiences of the participant (Magenuka, 2006). For this reason qualitative method was chosen. A qualitative design and semi-structured face to face interviews was conducted to identify the impacts of SCI patients. As mentioned by Ohman (2005) that, there have been increasing number of qualitative methods in rehabilitation research because qualitative approaches help to derive new concept, theory and alternative of traditional treatment model. Moreover, it explores about human's practical life phenomenon. In this study researcher found this approach appropriate because each of the participants have an own point of view on their experience. The participants were able to express a detailed view and their own thoughts, attitudes and perception regarding the impact of SCI. Researcher wanted to show the participant's experience not the researcher's view and on this regard. Qualitative research tells about ordinary people's understanding and explanation of their own reality, not the researcher's preconceived views and perceptions of others' reality (Ohman, 2005). This approach of qualitative method helped to show the participants actual response of their practical experience which lastly formed the theme of the study by the interpretation and judgment of the collected data.

3.2 Study site

The researcher collected data from the inpatient unit of CRP, Savar, Dhaka. SCI patients are treated here. It was easy for the researcher to gather information from the patients with SCI.

3.3 Study Population

The population was tetraplegic patients with SCI who admitted in SCI Indoor Physiotherapy Department.

3.4 Sample Size

For this study small size was taken. So the researcher could analyze the data from the participants deeply and easily. Only 6 participants were taken as sample until data saturation point was reached. Small numbers of potential study participants are appropriate for a qualitative methodology.

3.5 Sampling Technique

Subjects were collected by using purposive sampling from the population who met the all inclusion criteria. Purposive sampling was used because the researcher could not find out whoever was available, but could use judgment to select a sample. This method was also used to find out lived experience of a specific population. In qualitative studies, the sample size was generally very small (Hissong et al., 2014).

3.6 Inclusion criteria

1. Patients who are tetraplegic were selected because tetraplegic patients face respiratory complication.
2. Patients who have level at C3-C5 because these level is considered as tetraplegic.

3.7 Exclusion criteria

1. Paraplegic patients were excluded because paraplegic patients don't face respiratory problem.
2. Person with speech problem were excluded because people with speech problem cannot provide information.

3.8 Ethical consideration

The whole process of this research project was done by following the Bangladesh Medical and Research Council (BMRC) guidelines and World Health Organization (WHO) Research guidelines. The proposal of the dissertation including methodology were presented to the Institutional Review Board (IRB). Then the proposal of the dissertation including methodology was approved and obtained permission from the concerned authority of ethical committee of Bangladesh Health Professions Institute (BHPI).

Ethical considerations were implemented to avoid ethical problems. Researcher was granted permission from research supervisor and head of the department {APPENDIX-5} from the Department of Physiotherapy of Bangladesh Health Professions Institute (BHPI), an academic institute of the CRP to conduct the study. Then the researcher will take permission from the head of the Physiotherapy department, CRP for collecting data. The ethical considerations were achieved by participant's consent form. Informed consent was obtained by giving each participant a clear description of the study purpose, the procedures were involved in the study and also informing them that they would free to withdraw from the study at any time if they wish. No personal data (e.g. name, address) was recorded to ensure participant confidentiality. Participants were also informed that their information might be published but their name and address would not be used in any way {APPENDIX-2}

in the research project to maintain confidentiality. The researcher was committed not to share the information given with others except the research supervisor. These materials will be disposed of after completion of the research project. Recorded data, written data, transcript will be destroyed after six months following the study. Participants also informed that they would not be harmed due to being a participant of the study.

3.9 Data collection tools

Researcher used a tape recorder to record the conversation or interview with all of the participants during interview time. Audio recording was necessary to develop full transcripts of the interview, which should be accessible to independent analysis (Lowrance, 2006). It was very difficult for researcher to write every questions answer in detail at the time of the interview. Pen, pencil, paper (white), consent form, questionnaire, clip board and tape recorder were also used to collect the data.

3.10 Data collection procedure

Semi-structured interviews were conducted on the basis of structure consisting of open ended questions that define the area to be explored, at least initially, and from which the interviewer or interviewee may diverge in order to pursue an idea in more detail (Qualitative Research Methods, 2014). Semi-structured interview were used for this study. The researcher used qualitative methodology and asks pre-set, open-ended questions addressing a variety of issues in relation to find out the perceptions. It is useful because this technique ensures that the researcher obtained all information required, while at the same time gives the participants freedom to respond and illustrate concepts.

3.11 Data analysis

The researcher selected Qualitative content analysis (QCA) method to analyze the data. It facilitates the formation of core data through a systematic method of reduction and analysis. The theme of the study was created by systematic reduction and analysis of data. QCA follows three steps (coding, categorizing and generating theme) to show the result of the study. In a short line, it is said that, texts are coded into established categories to support the generation of ideas.

Qualitative data analysis is a complex process. Content analysis was used to discover themes as it was a common data analysis procedure most often used in qualitative data and based on searching for repeated words, phrases or concepts (Hissong et al., 2014). At first, it includes systemic organization of the field notes, transcripts of interviews and other associated materials. From this data an understanding of how this addresses the research question is formed. The analysis of the data will began with transcription of the interviews. From data analysis researcher transcribed the entire interview in Bangla from a recorder. Researcher observed the relevant issues related to the study and noted it down. It was then given to two individuals who were competent in English, with the intention that they can transform it separately from Bangla to English. Then the researcher verified the accuracy of the data. The researcher read it several times to recognise what the participant wants to say. Researcher also listened to the audio tape again to ensure the validity of data.

Analysis of the interview data began with content analysis. It involved taking a volume of qualitative material and attempting to identify core consistencies and meanings. Then data was coded into broad categories as dictated by the research question. The researcher identified the coded major themes from each interview during initial category coding. The second stage involved identified information units. Information units are categorised into themes in identifying impacts of SCI on partners of person with SCI. Finally analysis of interview data began by analyzing text from the categorised data and coded themes. Researcher also analysed the key themes based on the literature.

Result and discussion analysed by the facts and figures which were collected from the participant's views and practical experiences. These views and experiences are regarding perception of SCI patients about chest physiotherapy. It is found that generally the result and discussion were presented together in one section because this is general practice in reporting on qualitative studies (Hissong et al., 2014). The objectives of the studies were to explore the effects of respiratory problem on function and to explore the opinion of the person with SCI about Chest physiotherapy .In this section coding were selected on the basis of participant's views and opinions by which the theme was selected. The findings were described by using the table and also highlighted their interview is a coding basis.

4.1 Summary of data analysis and result

Objectives	Questions	Category	Theme
1. To explore the effects of respiratory problem on function	1,2,3	Category 1: Problems are faced by the patients after SCI	Persons with SCI face many difficulties due to SCI
		Category 2: Respiratory problems due to SCI	Person with SCI has respiratory problems
		Category 3: Difficulty in activities due to respiratory problem	Person with SCI has difficulty in activity due to respiratory problem
2. To explore the opinion of the person with SCI about chest physiotherapy	4,5	Category 4: Some person with SCI received chest physiotherapy	Many patients have different opinion about chest physiotherapy
		Category 5: Understanding about chest physiotherapy	
		Category 6: Opinion about chest physiotherapy	

Each table describes the interview findings. The tick was given only for those columns where the participants expressed their opinion. Here, “P” indicates the participant. The subscript number 1, 2, 3... 6 used to mention the number of participants.

Theme-1. Person with SCI faces many difficulties due to SCI

The perceptions of the person with SCI to know about the problems are faced by them were collected through interview are stated below by the coding:

Category 1 Problems are faced by the patients after SCI

Coding	P1	P2	P3	P4	P5	P6
Bowel bladder dysfunction	✓					
Paralysis in legs and hand	✓		✓			
Paralysis in fingers	✓					
Full body paralysis		✓				
Pain					✓	
Paralysis in below chest				✓		✓

Table-1 Problems are faced by the persons with SCI

All the participant are expressed their view and share their experience in the interview time. They told about their complications due to SCI. The participants individually also added their own physical problems due to SCI.

Theme-2 Person with SCI has respiratory problems

Category 2 Respiratory problems due to SCI

Coding	P1	P2	P3	P4	P5	P6
Yes	✓	✓		✓	✓	✓
No			✓			

Table-2 Respiratory problem

All the participant were expressed their view and share their experience in the interview time. They told that is there any respiratory problem due to SCI. The participants individually also added their own physical problems due to SCI.

Theme-3 Person with SCI has difficulty in activity due to respiratory problem

The perceptions of the person with SCI to find out the problems are faced by them during activity were collected through interview are stated below by the coding:

Category 3 Difficulty in activities due to respiratory problem

Coding	P1	P2	P3	P4	P5	P6
During Speaking	✓			✓	✓	
During sitting	✓			✓	✓	
During eating	✓	✓				
Propelling W/C	✓					
Coughing						✓
Sleeping		✓				
Moving		✓		✓		

Table-3 Respiratory problem during activities

Every participants share their experience in the interview time. They told that there are respiratory problem during activity due to SCI. The participants individually also added their own points of view about respiratory complications.

Theme-4 Many patients have different opinion about chest physiotherapy

Category 4 Some person with SCI received chest physiotherapy

Coding	P1	P2	P3	P4	P5	P6
Received		✓	✓	✓	✓	✓
Not received	✓					

Table-4 Some people received chest physiotherapy

There is some people received chest physiotherapy having respiratory complication such as shortness of breathing, coughing etc. Among six of the participants only one was not received chest physiotherapy. Chest physiotherapy is an effective treatment to reduce respiratory problems.

Category 5 Understanding about chest physiotherapy

Coding	P1	P2	P3	P4	P5	P6
Understand		✓	✓	✓	✓	
Not understanding						✓
Little bit understanding	✓					

Table-5 Understanding about chest physiotherapy

Chest physiotherapy is very necessary and effective for the person with cervical SCI. In CRP physiotherapists provide chest physiotherapy during treatment phase. They also give concept about chest physiotherapy during provision but patient sometimes don't make sense about chest physiotherapy. The entire participant said about their understanding about chest physiotherapy.

Category 6 Opinion about chest physiotherapy

Coding	P1	P2	P3	P4	P5	P6
Need to provide who has respiratory problem	✓					
Feel better		✓	✓		✓	✓
No comment				✓		

Table-6 Opinion about chest physiotherapy

Theme-1 Person with SCI faces many difficulties due to SCI

SCI changes a person's life and creates new challenges for everyday life. SCI can occur at any level of the spinal cord. Altered or lost body functions depend on the level of the injury. Changes are also depends on how severely the spinal cord was injured. Damage to the spinal cord can cause changes in movement, feeling, bladder control, or other functions (Smith & Sparkes, 2005). Complications of SCI spoil the physical, mental and economical condition of that person.

Person with SCI has different complications after getting injury. SCI causes paralysis in different body part. Bowel-bladder incontinence is another most common complication among complete tetraplegic patients.

One of the participants mentioned that-

“There are problems. After that trauma my body is paralysed below my chest. I can't do anything with my hands.”

SCI brings changes the person's life. It reduces person's function such as motor and sensory. He faces difficulties in performing his mandatory activities (Smith & Sparkes, 2005). In this study researcher also found this kind of information about the complications of SCI.

Another participant said that-

“I have problems in bowel bladder, legs hands. Fingers of hand do not work”.

Loses bowel and bladder control is one of the common complications among complete SCI persons. They cannot manage their own bowel and bladder. Sometimes they wet bed and clothes. It can cause skin breakdown and pressure sore. They feel pain in their hand, back, leg and whole body. With spinal cord injury, pain may be acute or chronic. Acute pain may be caused by bruising, broken bones, surgery, or positioning. Chronic pain may be caused by overuse of joints and muscles, or changes in muscles, joints and ligaments (Smith & Sparkes, 2005). From the researcher's observation it has been seen that the most common complication is pressure sore, bowel and bladder problem, psychosocial distress etc. It is noticed that every persons

with SCI have face various types of problems either less more. These problems restrict their life.

Theme-2 Person with SCI has respiratory problems

Immediately after a traumatic injury to the upper spinal cord, most bodily functions are compromised by nerve-associated damage. Including the ability to breathe, may remain impaired. Consequently, many people who have suffered upper spinal cord injuries are unable to breathe on their own (Spinal cord medicine, 2009). SCI patients face different respiratory complications such as pneumonia, shortness of breathing, coughing etc.

A participant said that,

“I have severe respiratory problems after SCI”.

Respiratory dysfunction and related diseases, such as pneumonia, which can be complicated by septicemia or pulmonary emboli, are common causes of death in SCI. From the point of view of respiratory dysfunction, it is instructive to consider SCI in 2 phases: (1) the initial phase immediately following the injury and the year there after and (2) the later, chronic phase during the rest of the life of the affected individual.

Following SCI, dysfunctional muscles of exhalation cause reduced cough and secretion clearance (with associated atelectasis), increase in airways resistance the mortality rate is higher than in the able-bodied, and the most common causes of death are related to respiratory illnesses. Impaired muscles of inhalation prevent deep breathes and some patients with cervical-level SCI may not sigh, even to the amount that they can leading to atelectasis and related gas exchange and lung-compliance abnormalities., and determination of infection when it occurs. The latter has been thought to reflect recent improvement in medical care of SCI. A limitation of the earlier retrospective studies is that, other than those factors noted above, it was difficult to assess further risk factors for mortality (Garshick et al., 2005).

Theme-3 Person with SCI has difficulty in activity due to respiratory problem

Respiratory complications occur more frequently in high cervical levels C1-C4, but equally as frequent in lower cervical levels. Common problems include atelectasis, ventilator failure, and pneumonia. Complications appear to occur earlier in thoracic injured individuals but last longer in those with high cervical injuries. Finally, the completeness of an injury has minimal impact on incidence of complications. In conclusion, this study emphasizes. Respiratory problem has effect on activities such as eating, walking, sleeping etc.

One of the participants expressed that-

“I cannot talk loudly, cannot talk excessively. I cannot propel wheel chair. I feel chest pain during propelling.”

Another patient said that-

“When I am in sitting or in sleeping I cannot breathe properly”.

With a spinal cord injury of C4 and higher all the muscles which control breathing will be paralysed. These muscles are the intercostal muscles, the diaphragm and the abdominal muscles. For a person with a high spinal cord injury has to face difficulty to breathe and cough. In order to cough, the person will need help by way of a carer performing an assisted cough procedure (Spinal Cord Injury Info Sheet, 2014). Respiratory problems restrict their normal activity. Person with SCI has to face difficulty during eating, walking, propelling wheel chair, speaking even sleeping.

Theme-4 Many patients have different opinion about chest physiotherapy Some person with SCI received chest physiotherapy

There is some people received chest physiotherapy having respiratory complication such as shortness of breathing, coughing etc. Among six of the participants only one was not received chest physiotherapy. Chest physiotherapy is an effective treatment to reduce respiratory problems. So Physiotherapists give advice to continue this treatment for their rest of life.

Understanding about chest physiotherapy

Chest physiotherapy is very necessary and effective for the person with cervical SCI. In CRP physiotherapists provide chest physiotherapy during treatment phase. They also give concept about chest physiotherapy during provision but patient sometimes don't make sense about chest physiotherapy. The entire participant said about their understanding about chest physiotherapy.

A participant said that-

“I know little bit. I heard from other patient beside to me. They took chest physiotherapy. They are well now”.

Another patient has no respiratory problem but he took chest physiotherapy and said about his understanding. He said-

“I have no respiratory problem but I took chest physiotherapy because my lungs might never work. That's why I have taken chest physiotherapy”.

Some people don't have any idea about necessity of chest physiotherapy, so they are not interested to take this therapy. Researcher observed it during her placement that some people have little bit idea, some has no idea and some people have idea about chest physiotherapy.

Opinion about chest physiotherapy

Different participants provide different opinion during interview session. They give suggestions and comments about chest physiotherapy. After completing this study, physiotherapist will provide more clear concepts about chest physiotherapy.

Researcher also found during data collection that, some people has pulmonary and respiratory problem but they don't get chest physiotherapy. So, the patient and researcher have recommendation to provide chest physiotherapy to the patient in a regular basis.

5.1 Limitations

There are some limitations which were unconditionally taken by the researcher into account during the study period. The researcher always tried to consider the limitations during the period of study. These were given below:

Participants were collected only six data from CRP. Researcher could not collect more data and information due to time limitation. Researcher could not use quantitative method due to time limitations because it needs more participants than qualitative design. It is time consuming to collect data from many participants.

Conclusion

Chest physiotherapy has very importance to minimize or reduce respiratory and pulmonary complication. When SCI patient can not able to breathe properly and unable to cough independently, then physiotherapists provide various technique such as percussion, deep breathing and coughing, postural drainage etc. Physiotherapists can prescribe the correct breathing apparatus such as spirometry etc. Chest physiotherapy can help SCI patient to breathe better. It helps to loosen SCI patient's mucus, so SCI patient can cough it up. Physiotherapists also provide chest physiotherapy to prevent respiratory and pulmonary complication.

The Physiotherapists has an important role to understand the patient's situation and promote a better quality of life of the SCI survivors as well. Besides if the patients know about chest physiotherapy they will be benefited by taking this treatment.

Chest physiotherapy is an important treatment for tetraplegic patients. So Physiotherapists give advice to continue this treatment for their rest of life.

Recommendations

Physiotherapists should implement a broader role and holistic treatment techniques for the persons with SCI. Physiotherapists need to update their knowledge in this area. Physiotherapists should involve the patients in treatment to reduce respiratory problem. Physiotherapists need to concentrate more on this issue during the treatment period. If the Physiotherapists do not involve the patients in their treatment, it would not be significant. For these reason it is necessary to involve the patients in chest physiotherapy etc.

Recommendations for further research

The researcher's recommendation is that Physiotherapists needs to study this topic in depth. This may involve:

- To use quantitative experimental study.
- To collect more data.
- To find out the effectiveness of chest physiotherapy.

REFERENCES

Adams, M.M. and Hicks, A.L., (2005). Spasticity after spinal cord injury. *Spinal cord*, 43(10): 577-586.

Annual Report of Centre for the Rehabilitation of the Paralyzed, (2014). Celebrating 35 years of service [Online]. Available at: [http://www.crp-bangladesh.org/index.php?option=com_docman & task=cat_view&gid=4& Itemid=65](http://www.crp-bangladesh.org/index.php?option=com_docman&task=cat_view&gid=4&Itemid=65) [accessed on 12 October 2015].

Apparalyzed, (2015). The respiratory system. [Online]. Available at: [http://www.apparalyzed.com/ respiratory.html](http://www.apparalyzed.com/respiratory.html) [accessed on 12 October 2015].

Christopher, C.P., (2007). Respiratory Complications of Spinal Cord Injury. *Journal of Spinal Cord*, 30(4):307-308.

Critical care medicine department (2014). Critical Care Therapy and Respiratory Care Section [Online]. Available at: http://www.cc.nih.gov/ccmd/staff/cctrcs_staff.html [accessed on 5 October 2015].

CRP Bangladesh, (2014). About CRP [Online]. Dhaka: Centre for the Rehabilitation of the Paralyzed. Available at: <http://crp-bangladesh.org> [accessed on 12 October 2015].

Garshick, E., Kelley, A., Cohen, S.A., Garrison, A., Tung, C.G., Gagnon, D., and Brown, R., (2005). A prospective assessment of mortality in chronic spinal cord injury. *Spinal Cord*, 43(7):408–416.

Harvey, L., (2008). *Management of Spinal Cord Injury*. USA: Elsevier.

Hasan, S.A., (2009). Rehabilitation of Patients with Paraplegia from Spinal Cord Injury: A Review', *Journal of Chittagong Medical College Teachers' Association*, 20:53-57.

Hissong, A.N., Lape, J.E., and Bailey, M.D., (2014). *Bailey's Research for the Health Professional*. Maidenhead: Philadelphia.

Islam, M.S., Hafez, M.A., and Akter, M., (2011). Characterization of spinal cord lesion in patients attending a specialized rehabilitation centre in Bangladesh. *Spinal cord*, 49(7): 783-786.

Lowrance, W.W., (2006). Access to collections of data and materials for health research: A report to the Medical Research Council and the Wellcome Trust', Available at: http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_grants/documents/web_document/wtx030842.pdf [accessed on 18 August 2015].

Magenuka, N.S., (2006). Available at: <http://www.umkndsp01.unisa.ac.za/xmlui/bitstream/handle/10500/2179/thesis.pdf> [accessed on 12 August 2015].

Mayo Clinic staff, (2014). Complications of SCI, Available at: <http://www.Mayoclinic.org>] [accessed on 24 August 2015].

Nursing Care, (2013). Chest physiotherapy [Online]. Available at: <http://currentnursing.com/reviews/chest-physiotherapy> [accessed on 10 August 2015].

O'Connor, R.J. and Murray, P.C., (2006). Review of spinal cord injuries in Ireland. *Spinal Cord*, 44: 445- 448.

Ohman, A., (2005). Qualitative Methodology for Rehabilitation Research, *Journal of Rehabilitation Medicine* 37:273-280.

Ottomaneli, L., and Lind, L., (2009). Review of Critical Factors Related to Spinal Cord Injury: Implication for Research and Vocational Services, *The Journal of Spinal Cord Medicine*, 32 (5):503-531.

Pellegrino, R., Viegi, G., and Brusasco, V., (2005). Interpretative strategies for lung function tests. *European Respiratory Journal*, 26:948–968.

Qualitative Research Methods, (2014). A Data Collector's Field Guide Qualitative Research Methods Overview, Available at: <http://www.ccs.neu.edu/course/is4800sp12/resources/qualmethods.pdf> [accessed on 18 July 2015].

Rathore, M.F.A., Hanif, S., Farooq, F., Ahmed, N., and Mansoor, S.N., (2008). Traumatic Spinal Cord Injuries at a Tertiary Care Rehabilitation Institute in Pakistan. *Journal of Pakistan Medical Association*, 58:53–57.

Razzak, A.T.M., Hellal, S.A., and Nuri, R.P., (2011). Life Expectancy of Persons with Spinal Cord Injury (SCI) Treated in Rehabilitation Centre at Dhaka, Bangladesh, Asia Pacific Disability Rehabilitation Journal, 22: (2).

Sekaran, P., Vijayakumari, F., Hariharan, R., Zachariah, K., Joseph, S.E., and Kumar, R.K.S., (2010). Community reintegration of spinal cord-injured patients in rural south India. Spinal Cord, 48:628–632.

Smith, B., and Sparkes, A.C., (2005). Men, sport, spinal cord injury, and narratives of hope. Social science & medicine, 61(5):1095-1105.

Somers, M.F., (2006). Spinal Cord Injury: Functional Rehabilitation, Connecticut: Appelton and Lang.

Spinal cord injury info sheet, (2014). Understanding and Managing Respiratory Complications after SCI [Online]. Available at: http://www.disability.gi/library/Managing_Respiratory.pdf [accessed on 13 August 2015].

Spinal cord medicine, (2009). Respiratory management following spinal cord injury [Online]. Available at: [http://www.learnicu.org/Docs/Guidelines/CSPM Respiratory Management](http://www.learnicu.org/Docs/Guidelines/CSPM_Respiratory_Management) [accessed on 15 September 2015].

The Emily Center, (2009). How to do chest physiotherapy, Available at: <http://www.phoenixchildrens.com> [accessed on 20 September 2015].

Appendix-1

সম্মতিপত্র

(অংশগ্রহনকারীকে পড়ে শোনাতে হবে)

আসসালামু আলাইকুম/ নমস্কার,

আমার নাম আনিকা ফারজানা, আমি এই গবেষণা প্রকল্পটি বাংলাদেশের হেল্থ প্রফেশনস ইনস্টিটিউট (বিএইচপিআই)- এ পরিচালনা করছি যা আমার ৪র্থ বর্ষ বি.এসসি. ইন ফিজিওথেরাপী কোর্সের অধিভুক্ত। আমার গবেষণার শিরোনাম “চেস্ট ফিজিওথেরাপি সম্পর্কে মেরুরজুতে আঘাতপ্রাপ্ত ব্যক্তির মতামত”।

আমি এক্ষেত্রে আপনাকে কিছু ব্যক্তিগত এবং আনুষঙ্গিক প্রশ্ন করতে চাচ্ছি। এতে আনুমানিক ২০-৩০মিনিট সময় নিবো।

আমি আপনাকে অনুগত করছি যে, এটা আমার অধ্যয়নের অংশ এবং যা অন্য কোন উদ্দেশ্যে ব্যবহার হবে না। গবেষক সরাসরি এই অধ্যয়নের সাথে অন্তর্ভুক্ত নয়। তাই এই গবেষণা আপনার অংশ গ্রহন বর্তমান ও ভবিষ্যৎ চিকিৎসায় কোন প্রকার প্রভাব ফেলবে না। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনা প্রবাহে এটা নিশ্চিত করা হবে যে এই তথ্যের উৎস অপ্রকাশিত থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহন স্বেচ্ছাপ্রণোদিত এবং আপনি 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 অধিকার আপনার আছে।

সাক্ষাৎকার শুরু করার আগে আপনার কি কোন প্রশ্ন আছে?

আমি আপনার অনুমতি নিয়ে এই সাক্ষাৎকার শুরু করতে যাচ্ছি।

হ্যাঁ

না

অংশগ্রহনকারীর স্বাক্ষর / টিপসই

তারিখ:

অংশগ্রহনকারীর স্বাক্ষর

তারিখ:

সাক্ষ্যপ্রদানকারীর স্বাক্ষর/ টিপসই

তারিখ:

Appendix-2

CONSENT FORM

(Please read out to the participants)

Assalamualaikum/ Namasker, my name is Anika Farzana, I am conducting this study for a B.Sc in Physiotherapy project study dissertation titled **“Perception of Person with Spinal Cord Injury about Chest Physiotherapy at CRP”** under Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some personal and other related information regarding spinal cord injury. You will perform some tasks which are mention in this form. 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 study, so your participation in the research will have no impact on your present or future treatment in this area (SCI unit). All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous and also all information will be destroyed after completion of the study. Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview.

Do you have any questions before I start?

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

Yes No

Signature/Finger print of the Participant:

Date:

Signature of the Researcher:

Date:

Signature/Finger print of the witness:

Date:

Appendix-3

প্রশ্নাবলী (বাংলা)

অংশগ্রহণকারীর নামঃ

বয়সঃ

পেশাঃ

ঠিকানাঃ

লেভেলঃ

১। মেরুরজুতে আঘাত পাওয়ার ফলে আপনার কি কোনোধরনের সমস্যার সন্মুখীন হতে হচ্ছে?

অনুগ্রহ করে ব্যাখ্যা করুন।

২। মেরুরজুতে আঘাত পাওয়ার ফলে আপনার শ্বাসপ্রশ্বাসে কি কোন ধরনের সমস্যার সন্মুখীন হতে

হচ্ছে? সমস্যা হয়ে থাকলে, কি কি সমস্যা অনুগ্রহ করে তা ব্যাখ্যা করুন।

৩। আপনার শ্বাসপ্রশ্বাসের সমস্যার কারণে কাজের সময় কি কোনধরনের সমস্যার সন্মুখীন হতে

হচ্ছে? কি কি সমস্যা ব্যাখ্যা করেন।

৪। আপনি কি চেস্ট ফিজিওথেরাপি নিয়েছেন? নিয়ে থাকলে কতদিন নিয়েছেন? এই থেরাপি সম্পর্কে

যা জানেন তা ব্যাখ্যা করুন।

৫। আপনি কি চেস্ট ফিজিওথেরাপি নিয়ে সন্তুষ্ট? আপনার মতামত ব্যাখ্যা করুন।

Appendix-4
Questionnaire (English)

1. Are you facing any difficulties after SCI? Yes/ no. If yes please explain.
2. Are you facing any respiratory problem due to SCI? If yes please explain.
3. Do you have difficulty during activities due to respiratory problem?
4. Did you take chest physiotherapy? If you took, than how many days?
5. Please tell about chest physiotherapy.
6. Are you pleased by taking chest physiotherapy? Please describe your opinion.

Appendix-5

Permission Letter

August 17, 2015
The Head of the Department
Department of Physiotherapy
CRP, Chapain, Savar, Dhaka-1343

Through: Head of department, Department of physiotherapy, BHPI

Subject: Application for seeking permission for data collection to conduct the study for fulfillment of 4th year of B.Sc. in Physiotherapy course

Sir,

With due respect, I want to state that, I am a student of 4th year B.sc in physiotherapy. I am sincerely seeking permission for collecting data from spinal cord injury unit to conduct my research project as the part of my 4th year course curriculum. The title of my research is "Perception of spinal cord injury patients about chest physiotherapy". Now I am looking for your kind approval to start data collection for research project and I would like to assure that anything of my project will not harmful for the participants.

So, I therefore, hope that you would be kind enough to grant me the permission of collecting data to conduct the research and help me to complete a successful study as a part of my course.

Sincerely yours

Anika Farzana
Anika Farzana
4th year, B.Sc. in Physiotherapy
Department of Physiotherapy
Roll no.:23, Session: 2010-2011
BHPI, CRP, Savar, Dhaka-1343.

She may be allowed for data collection
18/08/15
Md. Obaidul Haque
Associate Professor & Head of the Department
Department of Physiotherapy
Bangladesh Health Professionals Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

18.08.15

For
Rumana
Sr. PT
18.08.15