

**COMMON WORK RELATED MUSCULOSKELETAL DISORDER
AMONG THE PHYSIOTHERAPISTS OF NEUROLOGY UNIT AT
CRP**

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Bachelor of Science in Physiotherapy (B.Sc. PT)

DU Roll no: 924

DU Registration no: 1728

Session: 2011-2012

BHPI, CRP, Savar, Dhaka.



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August' 2016

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Common Work Related Musculoskeletal Disorder among the Physiotherapists of Neurology Unit at CRP

Submitted by **Saima Mozammel Happy**, 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 from Department of Physiotherapy, Bangladesh Health Professions Institute.

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Acknowledgement

All the praise must to Almighty Allah. I was determined to try my best to make it a success and I am most grateful to Almighty Allah. The second acknowledgement must go to my family members for always inspiration and provided necessary financial support.

I would like to pay my highest gratitude to my research supervisor **Farjana Sharmin Rumana**, lecturer of Physiotherapy, BHPI and senior physiotherapist of CRP, Savar, Dhaka for her supervision and guidance.

I would also like to express my gratitude to my respected teacher **Md. Shofiqul Islam**, Assistance Professor, Department of Physiotherapy, BHPI, CRP not only for his valuable suggestions, classes and guidelines but also for his optimistic and courageous attitude to taking challenge that have inspired me throughout the project.

I am thankful to my respectable teacher **Md. Obaidul Haque**, Associate professor; Head of the Physiotherapy Department, Bangladesh Health Professions Institute, for his encouraging behave. I also thank **Mohammad Anwar Hossain**, Associate Professor, Head of the Department of Physiotherapy for sharing his precious knowledge in class.

I also thank **Mohammad Habibur Rahman**, Assistant professor, Department of Physiotherapy, BHPI, CRP, Savar, Dhaka for his guideline.

I would like to express gratitude to all of my teachers for helping me in this study. I am thankful to all the stuff of neurology unit of Savar CRP and Mirpur CRP, for their kind support to collect data.

I would like to reimburse my special appreciation all of respondents of my research project who supported me through smooth conversation during data collection.

Also, thanks to the stuff of the Bangladesh Health Professions Institute(BHPI) library for their friendly attitude to find out related books, journals and access to internet specially HINARI.

Acronyms

BHPI: Bangladesh Health Professions Institute.

BMRC: Bangladesh Medical Research Council.

CRP: Centre for the Rehabilitation of the Paralysed.

IRB: Institutional Review Board.

MSD: Musculoskeletal Disorder.

WRMD: Work Related Musculoskeletal Disorder.

WHO: World Health Organization.

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Abstract

Purpose: Increasing evidence suggests that musculoskeletal disorders are common in workers in the health care industry. *Objectives:* So, the objective this research was carried out to identify the common work related musculoskeletal disorders among the neuro physiotherapists at CRP. *Methodology:* The prospective quantitative research was carried out to accomplish the objective of the study. 60 participants among the neuro physiotherapists were selected as simple random sampling technique. The investigator used a structured and participants were requested to give opinion based on the structure of the question. Data were numerically coded and put in both Excel and SPSS 20.0 version software program. Descriptive statistics was performed to obtain the result of the study. *Results:* After analysis researcher found that among the 57 participants who have suffered from work related musculoskeletal disorder. Among them 43(71.7%) suffered in low back pain, 26(43.3%) suffered in upper back pain, 21(35%) suffered in neck pain, 12(20%) suffered in knee pain, 10(16.7%) suffered in wrist pain and 9(15%) suffered in ankle pain. Work related musculoskeletal disorder lowest age was 22 and highest age was 38 years. In WRMD 41.70% participants stressful positions were performing same task over and over, 23.30% participants were working in awkward and cramped position, 60.00% participants were working in the same position for long periods, 30.00% participants were bending or twisting back or neck in an awkward way, 70.00% participant was not enough rest during the day. So most common risk factor were not enough rest break during the day and repetitive movement of upper limb. *Conclusion:* This study contributes to the understanding of work-related disorders among physiotherapists from neurology unit at CRP.

Key words: Musculoskeletal disorder, Work related musculoskeletal disorder.

1.1 Background

The musculoskeletal systems is a compound thing, composed of bones, joints muscles, tendons, ligaments, bursa, nerve and blood vessels and commonly affect them (Samat et al., 2011). The presence of discomfort, disability or fixed pain in the joints, muscles, tendons and other soft parts are the characteristics of musculoskeletal disorder. Repeated movements and sustained awkward or involuntary body postures are responsible for musculoskeletal disorder (Hayes et al., 2009).

All activities that perform using musculoskeletal system are walking, sitting, running, playing, dancing, and working. Postures and movements are dependent on the working of the musculoskeletal system but burden of physically determined tasks may pose a threat to it. Uncomfortable posture, monotonous work or managing heavy materials may damage the system and leading to musculoskeletal fatigue, pain or complaints (Rahman & Atiya, 2009).

Thus, a disorder is work-related when work procedures, equipment or environment contribute significantly to the cause of the disorder (WHO, 1985). The work related musculoskeletal disorders describe a wide range of inflammatory and degenerative disease conditions that result in pain and functional impairment affecting the neck, shoulders, elbows, wrists, and hands. Moreover, the work related musculoskeletal disorders are defined differently in different studies; some investigators restrict the case definitions based on Clinical Pathology, some due to the presence of symptoms, and some due to demonstrable pathological processes, and some due to work disability. The most common health effect has been the occurrence of pain, which is expected to be the precursor of more severe disease (Riihimaki, 2005).

The common risk of the health care personnel are musculoskeletal disorder. It is a burning issue in over the world (Torp et al., 2006).

Work related musculoskeletal disorders can be acute or chronic; mostly they develop over time and are due to work nature directly or develop by the employee's working environment (Nkhata et al., 2010) & (Buddhadev & Kotecha, 2012).

Glover et al. (2005) found that work-related musculoskeletal disorders (WRMDs) are the most common cause of chronic pain and physical disability that affect current workforces.

Salik & Ozcan (2004) also found that work related musculoskeletal disorders among physical therapist as a musculoskeletal injury that results from a work related event causing physical disability.

One of the largest health problems among physiotherapists are musculoskeletal injuries, because the nature of the work that therapists expose themselves to have a high risk of pain. Though physiotherapists have expert knowledge of musculoskeletal injuries and injury prevention strategies because of their training and continuous professional development, physiotherapists still report a high incidence of work-related injuries during their professional practice (King et al., 2009).

Throughout the past periods the incidence of musculoskeletal disorders becomes gradually common during the world. Work related musculoskeletal disorders (WRMD) have harmful outcome that produce work related disability among the workers with significant financial concerns due to workers advantage and medical expenses. A number of work related factors have been identified as predisposing the disorders (Alexopoulos et al., 2008).

Musculoskeletal disorders are common complaints that lead to a major effect on the health related quality of life as well as performance and competence at work. Work related musculoskeletal disorders reason for a large number of disabilities and worker benefit days in many countries (Wang, 2009).

Work-related musculoskeletal disorders (WMSDs) are injuries that cause from work events. Physical therapists are often at risk for developing WMSDs because they are often involved in physically demanding and intense, repetitive tasks in their practices

(Cromie et al.,2004).The highest prevalence of work related musculoskeletal disorders among physical therapists is reported to be in the lower back area (Holder et al.,2010).

Soft tissue injuries occur when there is an inappropriateness between the physical necessities of the job and physical capability of the human body. Musculoskeletal disorders encompass a gamut of inflammatory and degenerative conditions that affects the muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels with consequent ache, pain or discomfort. Musculoskeletal disorders are informed to occur in certain industries and occupations with rates up to three or four times higher than the average rate across all industries (Punnett & Wegmen, 2012).

Work related musculoskeletal disorders (WRMDs) have accounted for a large quantity of work injuries and workers remuneration rights in western developed nations since the late 1980s. Recent epidemiological studies have significantly improved methods to distinguish the involvement of work place and non-workplace risk factors to the progress and severity of musculoskeletal disorders (Mary & Ann, 2006).

The nature of the work in a physiotherapy practice is physically demanding and it involves repetitive tasks, high force manual techniques for treating patients, techniques that exert direct pressure on certain joints during treatment, awkward positioning of joints during certain maneuvers and prolonged constrained postures (Glover et al., 2005). These physical factors expose physiotherapists to various work-related musculoskeletal injuries (Punnett & Wegmen, 2012). A lack of information is available on the level of this problem among physiotherapists because ahuge amount of research on work related musculoskeletal disorders among physiotherapists are available.

To measure the degree of work-related musculoskeletal disorder among physiotherapists past studies have used lifetime prevalence, 12-months prevalence and one week prevalence. (Adegoke et al., 2008).

1.2 Rationale

From this study physiotherapist's will able to identify the risks that can influence their activities. Physiotherapists may provide proper recommendation for every single risk which will be helpful for better service. Beside this it will be help to established guidelines in line with ergonomics for space, equipment, furniture and environmental conditions of their workplace. This study will also help to improve their awareness, especially about their posture when treating patients. Besides this it will be helpful for professional development which is crucial for current situation of the profession. From this study researcher can identify the risk factors of the workplace and adjustment of equipment's and posture which are harmful for the physiotherapist because physiotherapist have to treat a patient in various aspect work condition with frequent change of the posture. So the study may help to their awareness about their posture. And finally will help to discover the role and importance of physiotherapy in every sector of Bangladesh.

Neurology unit physiotherapist may provide proper communication recommendation for every single risk which will be helpful for them. Beside this, it will be help to established ergonomic guidelines for neurology unit physiotherapist to the space, equipments, tools, instruments, furniture and environmental condition which are mandatory in the design of neurology unit of CRP. Workers experiencing aches and pains on the job may not be able to do quality work. During treatment procedures clinical neurology unit physiotherapist work in awkward body posture, sometime slouch posture, often accompanied by repetitive movements of both upper & lower limb, Changing posture , increased muscle activity and prolonged static head and back postures. In addition, when clinical neurology unit physiotherapist gives treatment they do not any concentration about their posture so suffered from work related musculoskeletal disorder (Albayrak et al., 2007).

Peter (2006) claimed that musculoskeletal disorders may cause a great deal of pain and suffering among distressed workers. These are the most common lost time injuries and most costly occupational problems. Job activities that may cause musculoskeletal disorders span diverse workplaces and operations. Musculoskeletal disorders may

decrease productivity and the quality of products and services. Workers experiencing aches and pains on the job may not be able to do quality work.

1.3 Research question

What are the common worked related musculoskeletal disorders among the physiotherapist of neurology unit at CRP?

1.4 Aims

Identify the worked related musculoskeletal disorders among the physiotherapist of neurology unit at CRP.

1.5 Objectives

1.5.1 General objective

To identify the common worked related musculoskeletal disorders among the physiotherapist of neurology unit at CRP.

1.5.2 Specific objectives

To estimate the prevalence of work related musculoskeletal disorders among the physiotherapist of neurology unit at CRP.

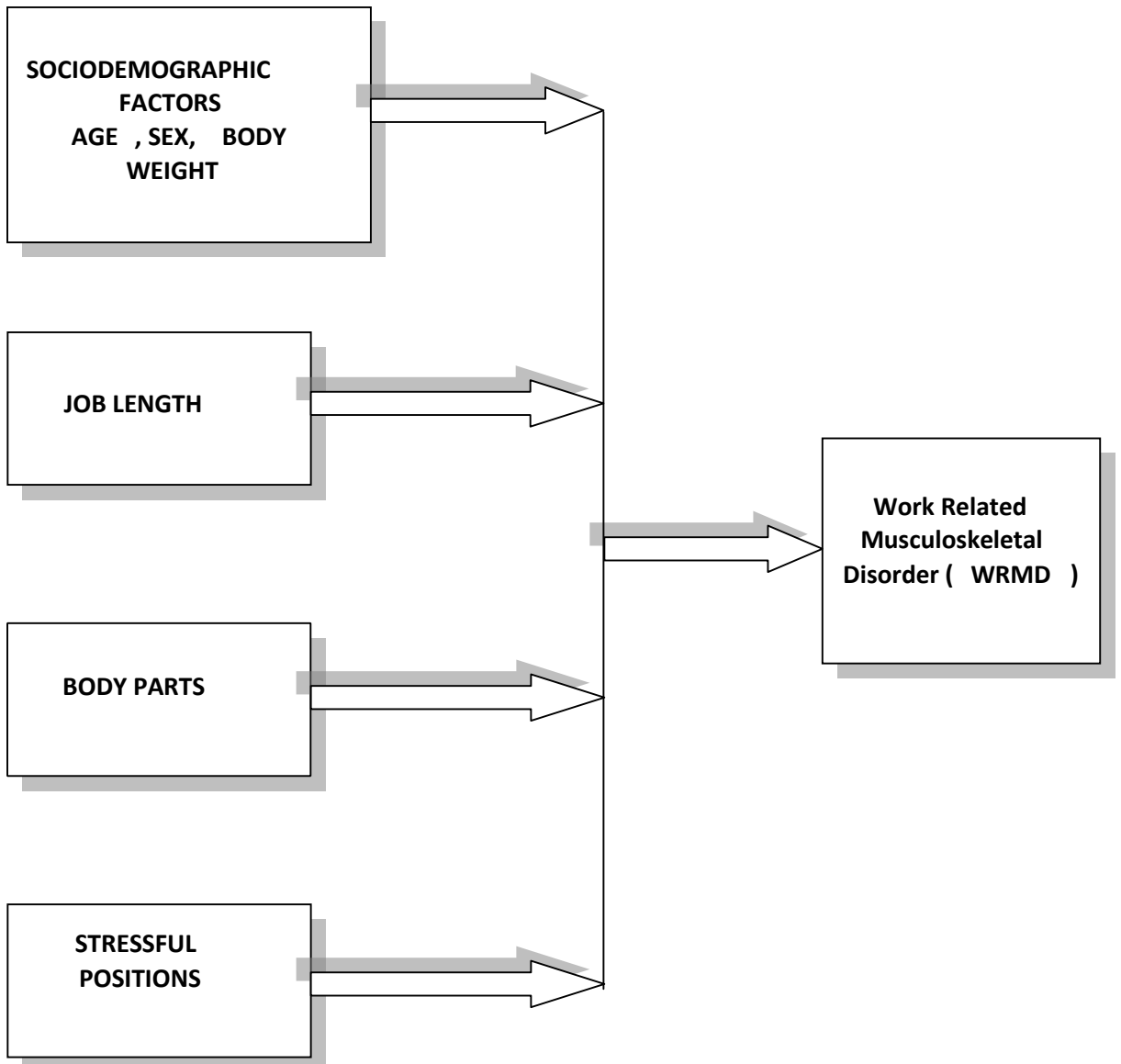
To find out the risk factors that are considered a problem for the physiotherapist of neurology unit at CRP.

To determine the most affected body part of the physiotherapist of neurology unit at CRP.

1.6 List of Variables
Conceptual Framework

Independent variables

Dependent variable



1.7 Operational definition

Work related musculoskeletal disorder

Work-related musculoskeletal disorders (WRMD) are the disorders of muscles, tendons, ligaments and nerves that develops due to work related factors such as repetitive work or activities with awkward postures with symptoms of pain, aches, parathesis, tingling , numbness and stiffness etc. Some examples of musculoskeletal disorders include back pain, neck pain, carpal tunnel syndrome, tendonitis and tenosynovitis etc.

Neurology unit physiotherapist

A neurologic physical therapist is a physical therapist who specializes in the evaluation and treatment of individuals with movement problems due to disease or injury of the nervous system. Physical therapists can help improve or restore the mobility you need to move forward with your life.

Musculoskeletal disorders are sometimes called ergonomic injuries and illnesses. Ergonomics is the study of the worker's interaction with tools, equipment, environment, jobs, tasks, work methods, work rates, and other systems. The federal Bureau of Labor Statistics (BLS) (2011) has defined musculoskeletal disorders (MSDs) as injuries and disorders to muscles, nerves, tendons, ligaments, joints, cartilage, and spinal discs. Musculoskeletal disorders do not include injuries causing from slips, trips, falls, or similar accidents. Musculoskeletal disorders include many kinds of sprain and strain, carpal tunnel syndrome, tendinitis, sciatica, and low back pain. Musculoskeletal disorders result from bodily reactions due to bending, climbing, crawling, reaching, or twisting, and from overexertion and repetitive motion (Maier & Ross-Mota, 2009). Medical terms used to describe musculoskeletal disorders to various parts of the body include low back pain, tendinitis, bursitis, carpal tunnel syndrome, epicondylitis, trigger finger, thoracic outlet syndrome, carpet layers knee and degenerative disc disease (Peter, 2006).

Work Related Musculoskeletal Disorders (WRMDs) are common in other anatomical areas like neck, elbow, wrist and hand, but studies reported a high prevalence of lumber (Al Eisa et al., 2012).

Health care professionals regularly rank among the most commonly injured occupational groups by musculoskeletal disorders. The U.S. Department of Labor Bureau of Labor Statistics (BLS) indicates that, healthcare support occupations rank first among all professions in terms of sustaining on the job musculoskeletal injuries involving days away from work. The occupational groups (rehabilitation, nurses and other professional healthcare occupations) with musculoskeletal injuries shows absenteeism during working days and are ranked seventh in musculoskeletal injuries. A growing body of evidence demonstrates significant injury rates among rehabilitation professionals (Arnold et al., 2011).

There is evidence that work-related musculoskeletal disorders (WMSDs) have a significant impact on physical therapists (Glover et al., 2005). Physical therapists

reported taking sick time, changing practice habits, changing work settings, or leaving the profession due to work related musculoskeletal disorders. 1 in 6 physical therapists changed settings or left the profession due to WMSDs (Cormie et al., 2004).32% of physical therapists with work related musculoskeletal disorder lost work time (Glover et al., 2005).18% of physical therapists with work related musculoskeletal disorder of the low back changed their work setting and that 12% of the physical therapists reduced their patient care hours. Fifty percent of moving and handling injuries among physiotherapists occur within the first four years after qualification (Molumphy et al., 2006).

Physiotherapy is a health care profession concerned with human function and movement and maximizing potential. Physiotherapists who treats injury or dysfunction with exercises and other physical treatments of the disorder. Chartered physiotherapists work with a broad variety of physical problems, especially those associated with the neuromuscular, musculoskeletal, cardiovascular and respiratory systems. They may work alone, with physiotherapy colleagues or teams and with other healthcare professionals in multi-professional teams (Sommerich et al., 2006).

Physiotherapists (graduate) are now working independently in outpatient's clinic, assessing and diagnosing and complete management responsibility for patient. Prescribing drugs would entail the range of medication as their condition related for both oral use and for injection. With responsibilities physical therapist works in Hospitals, Private clinics ,Rehabilitation centers ,and long term care ,Home care programs ,including schools for children with special needs ,Child development centers, Public health units or health planning agencies, Industry and commercial places ,Recreation centers (Ritchie, 2007).

In order to be eligible to register with the Health Professions Council and practice as a physiotherapist, one will have to graduate from an approved course. Physiotherapists have a duty to keep up to date with new knowledge generated by research with what their peers thinking and by formally evaluating outcome their practice. Physiotherapists have responsibilities to patient with safe and effective interventions, to treat patient with respect and dignity, to involve patients in decision making about their treatment .Physiotherapists have ethical responsibilities to payers for the services. Programed for

the professional development should be put on the place to facilitate full compliances as a part of the individual's professional responsibility (Mead, 2003).

Low back pain (LBP) is one of the most dominant and one of the most commonly treated musculoskeletal disorder (Rundell et al., 2009). Eighty percent of the adult population experience LBP in their lifetime (Ekstrom et al., 2008). This means that most individuals will experience LBP regardless of their age, gender or career.

Most of the physiotherapists experience work-related musculoskeletal disorders (WMSD's), especially LBP during their career. It follows that physiotherapists are at risk of experiencing back pain in the process of helping and treating patients (Rozenfeld et al., 2010; Campo et al., 2008; West and Gardner, 2005). The onset of LBP amongst younger physiotherapists occurs between the ages of 21 and 30 years and within the first four years of qualification and starting to practice physiotherapy. Other authors report a prevalence of 30-40% with up to 60% LBP in the first five years of employment. To prevent recurrence of LBP preventative measures must be taken. For standardization, a clear definition is needed for recurrent LBP as demonstrated in a systematic review done by Stanton et al., (2010) to minimise different findings for prevalence and treatment outcomes for recurrent LBP.

Several studies have documented that, physical therapists are frequently experienced work related Low back pain and they highlighted the prevalence and risk factors of LBP among physical therapist (Shah & Dave et al.,2012); (Buddhadev & Kotecha,2012); (Al Eisa et al.,2012); (Falavigna et al.,2011). Worldwide, 37% of low back pain is related to occupational risk factors (Falavigna et al., 2011) and in physical therapist, there has been 29% prevalence of work related LBP (Cromie et al., 2004).Cormie et al define work related LBP as, job related ache, pain in low back, and they reported its prevalence as 62.5%. Studies also reported the highest prevalence in younger therapist and the prevalence of initial onset most commonly within first 4 years was reported (Cromie et al., 2002). Work related LBP cases associated with an initial episode could be resolved within 24 weeks. It had been observed that, individuals who suffered from WRLBP problems might develop multidimensional disruptions, which could affect their occupations. Physical impact includes the loss of physical function and deteriorated general health. Social impact included decreased participation in social

activities. Psychosocial impacts are displayed through insomnia, irritability, anxiety and depression (Shah & Dave, 2012).

Physical therapists routinely perform manual therapy, such as soft-tissue mobilization, which means that the upper limb is also uncovered to risk factors associated with musculoskeletal and neurovascular disorders. These professionals routinely perform activities that involve transferring a patient, assisting with activities on the exercise mat, and lifting and using cumbersome equipment (Cromie et al., 2007). These work tasks put therapists at risk for both acute and increasing musculoskeletal pain.

Although physical therapists have expert knowledge about prevention and treatment of musculoskeletal disorder but still they have higher frequency of low back pain and related conditions (Nourdin & Leonard, 2011). The major cause of LBP in physical therapy profession is the nature of job. The physical therapy practice involves repetitive tasks, high force manual techniques bending/twisting postures, patient transfer assisting with mat activities, lifting heavy equipment. Among them, three most common factors have been documented in previous studies: uncomfortable postures, repetitive task and high force level (Buddhadev & Kotecha, 2012) ; (Al Eisa et al., 2012) ; (Falavigna et al., 2011). Apart from nature of job, WRLBP also relates with specific sub-specialties, gender of physical therapist, body mass index, work experience and working cultures (Nourdin & Leonard, 2011).

Physiotherapy is an occupation that involves manual, hard labor with many occupational musculoskeletal injuries (West and Gardner, 2006). Common musculoskeletal injuries among qualified physiotherapists include injuries to the neck, hands, wrists and back, with the lower back being most prevalent (Rozenfeld et al., 2010; Darragh et al., 2009; Campo et al., 2008). The effect of occupational injuries on physiotherapists is a key concern as income is directly related to the physiotherapist's health. After an injury, 17.7% of physiotherapists in the state of Victoria, Australia (Cromie et al., 2000) and 33% physiotherapists in Turkey (Salik & Özcan, 2004) changed their field of practice. The physiotherapists in Turkey changed their field of practice due to their musculoskeletal injuries 1.9 times more than the rate in the study by Cromie et al., (2000).

The area of practice for the physical therapist is an important factor for understanding the occurrence of back pain in work related musculoskeletal disorders. Certain subspecialties contribute LBP more than others and it includes musculoskeletal out patient, neurological rehabilitation, geriatric rehabilitation. Molumphy et al.,(2006) reported that, 18% of physical therapist with work related low back pain changed their work setting and that 12% of the physical therapist reduces their patient care hours(Cormie et al., 2007).

There is scanty information about the association of work related low back pain, body mass index and physical activity level of physical therapist. Very few researches are available which provide data on body mass index association but the results are in contrast with one another (Nourdin & Leonard, 2011). No previous researches are available about the association of physical activity level and work related low back pain in physical therapist. Previous researches identify self-protective behavior which include outsourcing, preventive and reactive strategies used by physical therapist to minimize effects and risk of developing Work related Musculoskeletal Disorder like change in posture, adjust bed height, use of aids and equipment, using a different body part and substituting electro therapy etc.(Cromie et al.,2000). There have been many studies conducted worldwide on prevalence of work related low back pain in physiotherapist. While gathering literature research it was found that, there is no such study conducted in past focusing particularly on this issue in Pakistan. So the aim for this study is to find out the prevalence of work related low back pain among physiotherapist in Karachi, to explore how physical therapist see themselves when they experience work related low back pain and to establish information on influencing factors specifically body mass index, subspecialty areas and physical activity level of physical therapist on the occurrence of work related low back pain.

Exposure to risk factors for work related musculoskeletal disorders is likely to result from patient care activities that include lifting patients, transferring patients, and the performance of manual therapy. Each activity involves the application of relatively high levels of force, and each activity may have to be performed in hazardous postures. Patient handling has been consistently associated with work related musculoskeletal disorders in physiotherapists, (Smith & leggat, 2007) and biomechanical studies (Skotte et al., 2009)have demonstrated very high associated loads.

Different studies show about 50% of workers have been or will be affected by knee pains and complaints will be more frequent as the population ages and careers will be longer. The increase in prevalence depends on mechanical or morphological causes as well as psychosocial state and work organization. Lesions of the meniscus, well known for a long time, seem to be stable in the statistics of Social Security as well as the hygroma; the use of knee-pads (overalls with built-in cushions) is strongly recommended while working in kneeling or squatting position. The squatting or kneeling position extended for longer than one hour a day, often recovering from these two positions (more than 30 times a day), lifting or carrying heavy loads, often climbing (around 30 times per day) stairs or ladders. These gestures and postures are unavoidable in some jobs; in those cases, advices given by the specialist of occupational medicine and the ergonomist may improve or alter the habits of the worker or of his entire team (Part, 2009).

Physical therapist or physiotherapist (sometimes abbreviated to PT) is a health care profession primarily concerned with the remediation of impairments and disabilities and the promotion of mobility, functional ability, quality of life and movement potential through examination, evaluation, diagnosis and physical intervention. In addition to clinical practice, other activities encompassed in the physical therapy profession include research, education, consultation, and administration. Many physical therapists experience work-related musculoskeletal disorders (WMSDs). Investigators in studies of physical therapists in Europe, North America and Australia² used different definitions to describe WMSDs and reported a variety of prevalence's for musculoskeletal disorders. For example, investigators in a British study of 212 physical therapists reported a 12-month prevalence of low back pain (LBP), which was defined as any intermittent or constant pain in any area of the back for three or more days" of 38%. A lifetime prevalence of LBP, which was defined as "pain below T10 and the lowest ribs which lasted three or more days," of 29% was reported in a study of 500 Californian therapists. American study of all graduates of a particular physical therapy program, Bork et al., (2005) defined LBP as "job-related ache, pain, discomfort, and so on" reported an annual prevalence of 45%. In an Australian study of 536 therapists, Cromie et al., (2004) define LBP as job-related ache, pain, etc. and reported a prevalence of 62.5%. The researchers in both of these more recent studies, also examined the annual prevalence of WMSDs in body areas other than the low back, and

they reported WMSDs in the neck (24.7% and 47.6% for Bork et al., and Cromie et al., shoulders (18.9% and 22.9%), upper back (28.7% and 41%), wrists and hands (29.6% and 21.8%), and knees (10.9% and 11.2%). The Australian researchers also reported an annual prevalence of thumb pain of 33.6%.

Role of physiotherapy to decrease work related musculoskeletal disorder Physical therapy can reduce the recurrence of back pain and neck-shoulder Pain. In order to be effective, however, the exercise should include vigorous exercise. And be repeated at least three times a week (Podniece 2008).

Like other country Bangladesh also adopted the Physiotherapy and Physiotherapy plays a vital role in health system of the country. Bangladesh health care structure is gradually including physiotherapists to provide a complete health care service (CRP's annual report, 2005-2006)

CRP provides employs for physiotherapists and continually tries to promote the therapy professions by lobbying and networking with the government in order to create posts for employment and awareness of the value of health care professions in the country (CRP annual report, 2006-2007).

Centre for the rehabilitation of the paralyzed (CRP)

CRP was established in 1979 by a group of Bangladeshi therapist in collaboration with Miss Valerie Taylor, a British Physiotherapist, following her 10 years of experience in treating paralyzed people in Bangladesh. Apart from providing high quality treatment and rehabilitation services. CRP is internationally recognized for work promoting equal rights opportunities for disabled people and training the pioneers of vital health professions in Bangladesh (Centre for the rehabilitation of the paralysed, 2002). Its holistic approach tries to consider the patient, physical, emotional, social, and economic need during and following treatment. CRP is working to improve the quality of life for her disabled people. It has 100 beds for treatment and rehabilitation of paralyzed people in words and has a physiotherapy department, occupational therapy department, speech and language therapy department, outpatient facilities, social welfare department; special needs school and pediatrics unit for children with disabilities, operation theatre, x-ray and pathology department, training institute, sports and recreational facilities (Barai, 2007).

Physical therapy can reduce the recurrence of back pain and neck-shoulder Pain. In order to be effective, however, the exercise should include vigorous exercise. And be repeated at least three times a week (Podniece, 2008). Physical Therapist assess an individual's physical ability to do a specific job or activity and aids in developing a safe return to work program. All exercises should be performed slowly and comfortably to avoid injury. When performing strengthening and flexibility exercises, remember to breathe naturally and do not hold your breath; exhale during exertion and inhale during relaxation. A program of strengthening, stretching, and aerobic exercises will improve your overall fitness level. Research has shown that people who are physically fit are more resistant to back injuries and pain and recover quicker when they do have injuries than those who are less physically fit (Healthy Back Exercises: Strengthen and Stretch, 2011).

Strengthening exercises help increase muscle tone and improve the quality of muscles. Muscle strength and endurance provide energy and a feeling of wellness to help you perform daily, routine activities. Adequate core strength that comes from abdominal and back muscles helps stabilize the spine, allows proper spinal movement, and makes it easier to maintain correct posture. Strong hip and leg muscles are important to perform proper lifting techniques and body mechanics. Flexibility is the ability to move arms and legs through their full range of motion. Stretching will help improve your flexibility. Adequate flexibility of tissues around the spine and pelvis allows full, normal spinal movement, prevents abnormal force on the joints and decreases the possibility of injury. Stretching also prepares muscles for activity; stretching should be done both before and after each vigorous workout to prevent muscle strain and soreness and to help avoid injuries. When performing flexibility exercises, stretch as far as you can and hold the stretch for 10 seconds and then ease back. Each stretching exercise should be performed slowly in both directions, with no sudden jerking or bouncing. Bouncing is more likely to injure or strain a muscle or joint (Healthy Back Exercises: Strengthen and Stretch, 2011).

Use equipment that isn't too heavy, that can be used without awkward upper body posture and that feels comfortable to use. Ergonomically designed equipment helps to minimize stresses on the upper extremities and the back.

Avoid long appointments where possible, or intersperse these with frequent short rest breaks in which you change posture and relax the upper extremities (Tanya et al., 2008).

3.1 Study design

This study aimed to find out the work related musculoskeletal disorders among the neurology unit therapists at CRP. For this reason a quantitative research model in the form of a cross-sectional design is used. Cross-sectional study is selected because in this way it is possible to identifying a defined population at a particular point in time. Through the cross-sectional study easily comparing results among those of different ages, gender, or ethnicity. In other hand quantitative research method helps to use a large number of participants and therefore collect the data objectively through this way data was reduced to numbers for statistical analysis in order to draw conclusion (Hicks. 2000).

3.2 Study settings

As this is a survey on work related musculoskeletal disorders among the neurology unit physiotherapists at CRP, so study site was in CRP. Samples were selected according to the inclusion criteria.

3.3 Population

All physiotherapists of neurology unit at Savar CRP and Mirpur CRP were the population of this study. A population refers to the members of a clearly defined set or class of people, objects or events that are the focus of the investigation.

3.4 Sample

Bailey (2006) claimed that a population is the total group or set of events to which hypothesis apply. The population shares a specific set of characteristics or criteria that have been established by the investigator. The criteria of study population are determined from a literature review and the goals for the study. All physiotherapists of Bangladesh were considered as the study population. Bailey (2006) claimed that a sample is a subset of the population that has been selected to participate in the project.

Hicks (2005) claimed that many researchers thought that it needs hundred people to participate in a survey. But this is not necessary to have crowds of people taking part

in research as sample. There is no easy way of establishing the best size of sample since this decision depends very largely on the research which is being undertaken as well as on the investigator's knowledge of the relevant population's characteristics.

Sample should represent the population as closely as possible. For survey research, it is better to get as many subjects as possible with the consideration of the size of the

Ideal population (Bowling 2007). 60 samples were selected randomly from the population for this study from Savar CRP and Mirpur CRP.

3.4.1 Sampling procedure

Sampling procedure for cross sectional study done by following equation-

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

Here,

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

$$P = 0.664$$

$$Q = 1 - p$$

$$D = 0.05$$

So the researcher aimed to focus his study by 342 samples following the calculation above initially. But as the study was done as a part of fourth professional academic research project and there were some limitations, so the researcher had to limit with 60 neurology unit physiotherapists as sample.

3.4.2 Inclusion criteria

1. Both male and female neurology unit physiotherapists were selected. In this study, the investigator wanted to explore work related musculoskeletal disorders among the neurology unit physiotherapists at CRP.
2. Subjects were selected from only CRP -Because this study focused on work related musculoskeletal disorders among the neurology unit physiotherapists at CRP.

3. All age group are selected- as there is objective of the study to explore the relationship between age and work related musculoskeletal disorders, so samples are selected from all age group.
4. Subject who are willing to participate in the study- Otherwise they will not give exact information that is helpful to the study.
5. Subject who works at least 4 hours a day except weekend.
6. All kinds of musculoskeletal complain having participants were selected.

3.4.3 Exclusion criteria

1. Subjects who had major accident or major surgery in any part of the body-any major surgery or accident may cause pain or any discomfort in any part of the body which may not be work related musculoskeletal disorder. This can mislead the result of the study.
2. Age range below 20 or above 65 years.
3. Other physiotherapy unit of CRP are not included.
4. Subjects who were not willing to participate in the study.
5. Had any pathological disease.

3.5 Method of data collection

In this study data were collected by structured questionnaire. Following that the investigator was gone to neurology unit physiotherapists to take permission if they are interested in this study or not. Firstly, the investigator introduced him and the research project as well its purpose. Then investigator met with individual subject to find out if they were interested in participating. For data collection, the investigator used only English type of questionnaire but easiest wording. On the other hand the Bengali version about disease condition might be difficult to understand than English. After that a date was fixed by the researcher to collect the questionnaire from the recipients. Survey usually, use questionnaires or interviews by which information is gathered (Hicks, 2005).

The strength of structured questionnaire is the ability to collect unambiguous and easy to count answers, leading to quantitative data for analysis structured questionnaire involve the use of fixed (standardized) questions, batteries of questions, tests and scales which are presented to respondents in the same way, with no variation in question wording and with mainly pre-coded response choices (Bowling,2007).

3.6 Questionnaire

Data was collected using a questionnaire on paper and the questions types were a structured questions. These questions were used to collect nominal and ordinal data for research findings and were setup sequentially.

3.7 Materials

Consent form.

Questionnaire.

Pencil and eraser.

Page.

SPSS (Statistical Package for the Social Sciences) software to analyze data

Harvard Referencing 2015 Computer.

3.8 Data analysis

The result of this survey was consisted of quantitative data. The collected data was illustrated with bar graphs and pie charts. By this survey a lot of information was collected. All these results gave a basic idea about the work related musculoskeletal disorders among the neurology unit physiotherapists at CRP.

3.9 Ethical consideration

Research proposal was submitted to the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) and approval was taken before the beginning of the data collection. IRB permission was taken and written informed consent was taken from every participant and ensure every patient that they can leave any time during data collection. The study was followed by WHO and BMRC guidelines. It was ensured that participants were not influenced by data collector. The researcher strictly maintained the confidentiality regarding participant's condition. The study was conducted in a clean and systematic way.

The aim of my research is to explore the prevalence of work related musculoskeletal disorders among the physiotherapists of neurology unit at CRP. Data were numerically coded and captured in Microsoft Excel to show the result, using an SPSS 20.0 version software program for analyze the data as descriptive statistics. The investigator collected the descriptive data and calculated as descriptive statistics as percentages and presented by using both pie and bar charts. 60 participants were chosen to estimate the prevalence of work related musculoskeletal disorders among the physiotherapists of neurology unit at CRP.

Prevalence of WRMD

After analysis researcher found that n=57, (95.00%) participants out of 60 participants have suffered from work related musculoskeletal disorder (WRMD). (Figure 1)

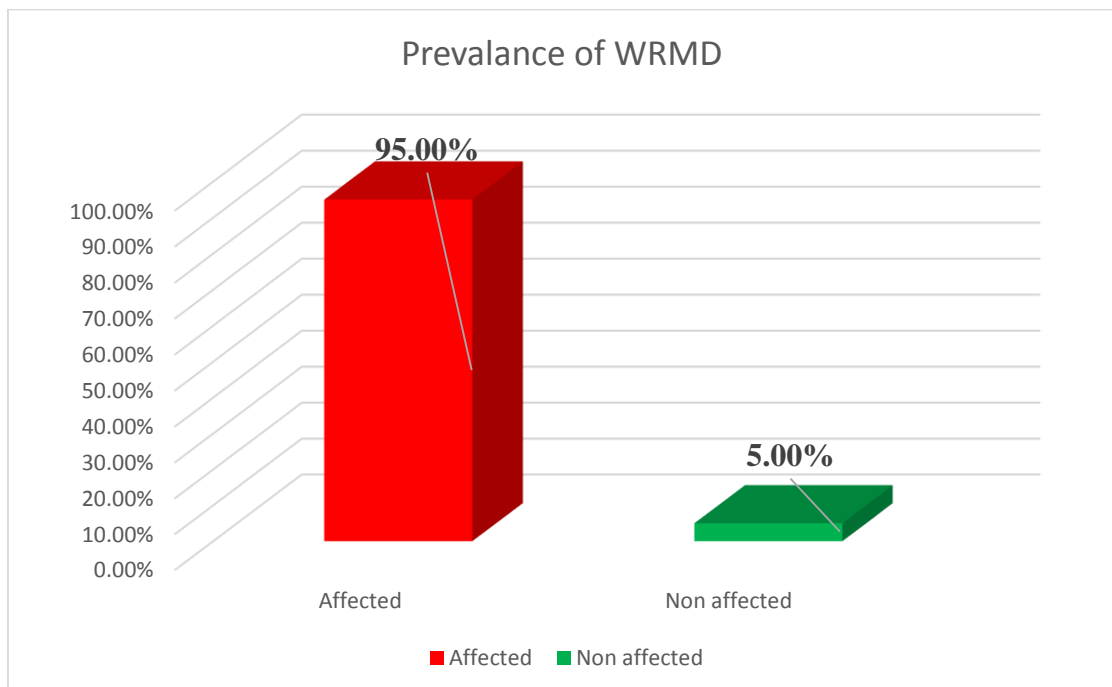


Figure 1: Prevalence of WRMD

Male and female ratio

Among the 60 participants 22 were male and 38 were female. And among the 57 participants who were suffered from WRMD n=21, (36.84%) were male and n=36, (63.16%) were female. (Figure 2)

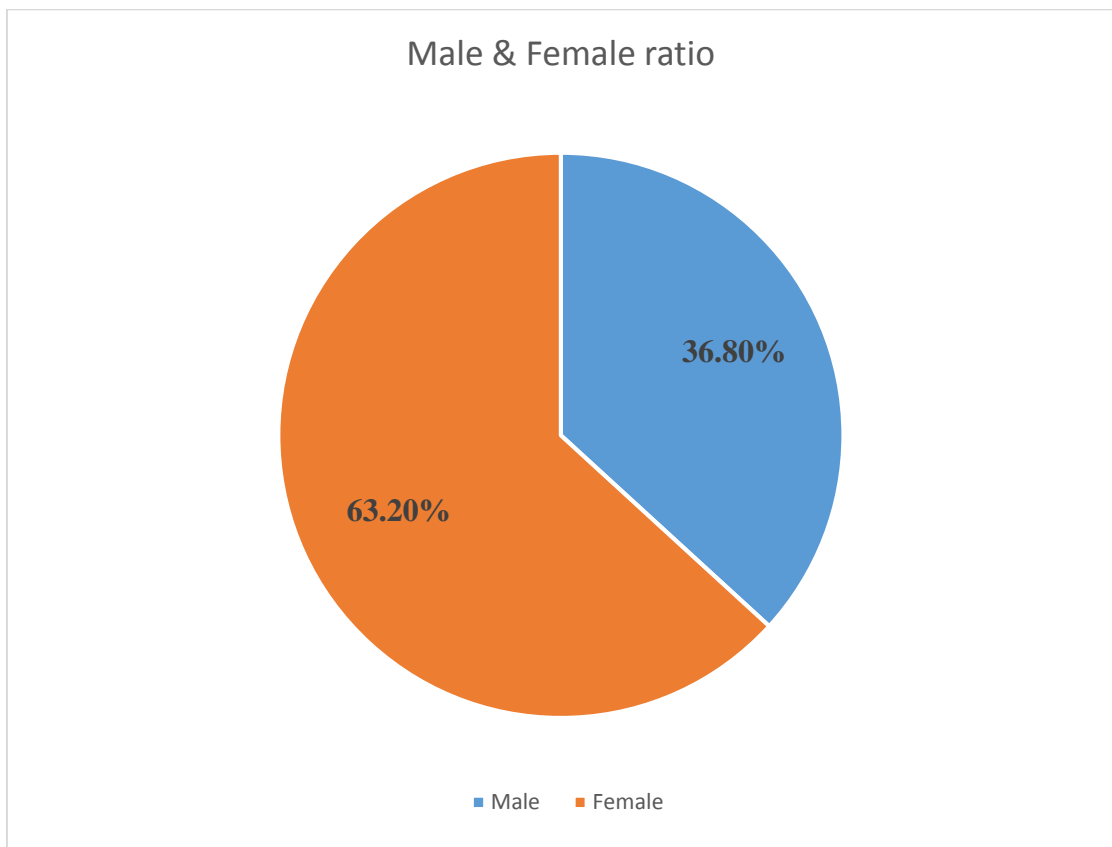


Figure 2: Male and female ratio

Table-01

Analysis reveals that among the 57 participants who have suffered from work related musculoskeletal disorder lowest age was 22 years and highest age was 38 years. Their mean age was 26.91 (SD \pm 3.542) years.

Age	Frequency	Percent
22	1	1.8
23	4	7.0
24	9	15.8
25	11	19.3
26	12	21.1
27	1	1.8
28	2	3.5
29	6	10.5
30	3	5.3
31	3	5.3
33	1	1.8
34	2	3.5
38	2	3.5
Total	57	100.0

Age limitation of WRMD

Table-02

Outcome demonstrated that among the participants the lowest weight was 46 kg and the highest weight was 85 kg. Mean weight of the affected group was 60.96 kg (SD \pm 10.729).

Weight	Frequency	Percentage
41-50	10	31.6
51-60	23	40.6
61-70	10	17.8
71-80	13	22.9
81-90	1	1.8

Weight & WRMD relationship

Job experience & WRMD

Outcome reveals that among the 57 participants out of 60 participants n=47, (82.5%) participants had job experience <5 years, n=8, (14%) participants <10 years, n=2, (3.5%) participants >10 years. years. (Figure 3)

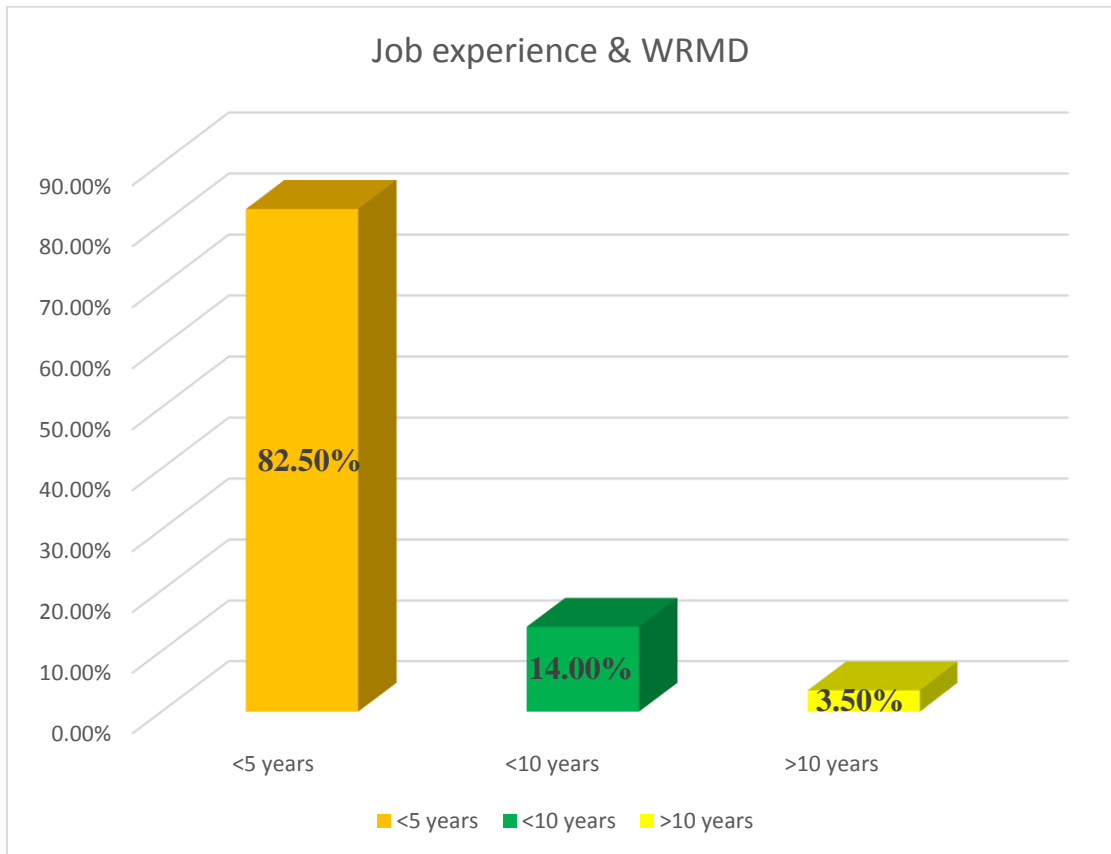


Figure 3: Job experience & WRMD relationship

Working Hour of Participants

Among 60 participants, 47 (78.3%) participants worked 8 hours and 5 (8.3%) participants worked 10 hours and 8(13.3%) worked at >10 hours (Figure-4)

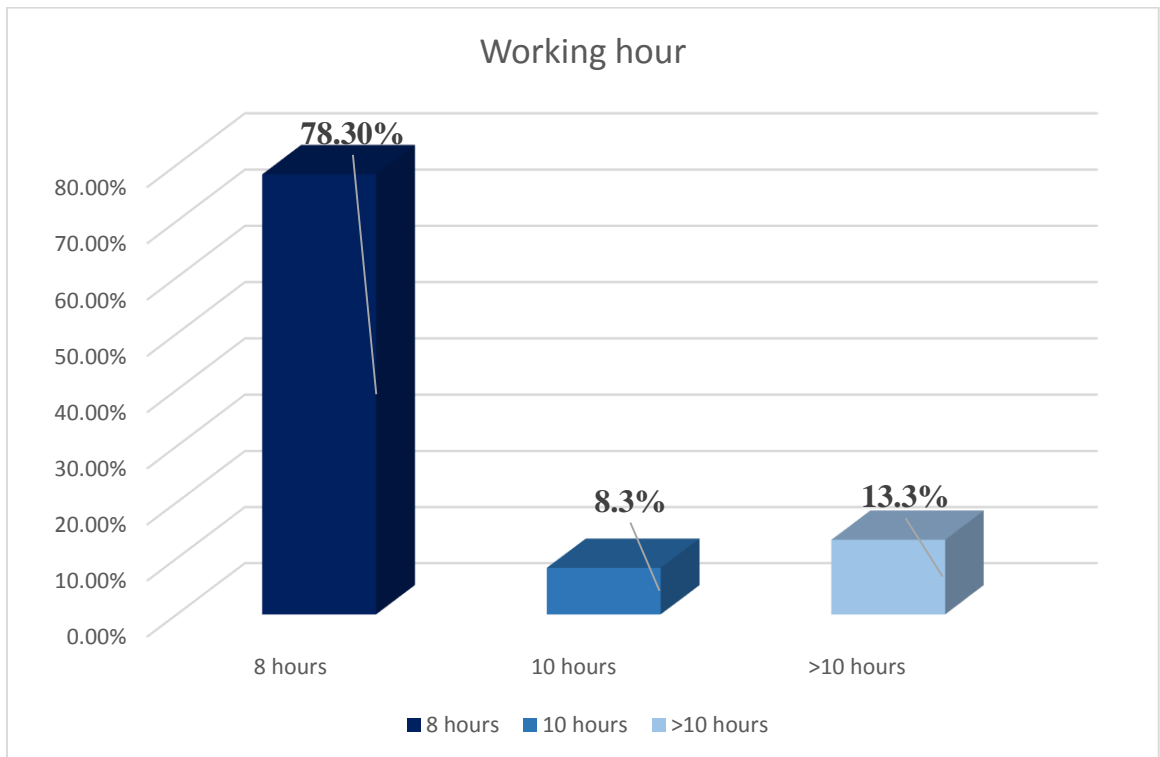


Figure 4: Working hour of the participants

Table-03

Analysis showed that among the 57 participants out of 60 participants who suffered from WRMD n=39(65%) participants felt their WRMD in the first year of work, n=12 (20%) participants felt from first 5 years of work, n=5, (8.3%) participants felt in the 5-15 years of work and n=1, (1.7%) participant don't know when he/she first experienced.

First experience of WRMD	Percentage
0-1 year	65.00%
1-5 years	20.00%
5-15 years	8.30%
Don't know	1.70%

First experience of WRMD

Symptoms

Analysis demonstrated that 57 participants out of 60 participants who suffered from WRMD n=2, (3.3%) participants suffered from aching, n=3, (5%) participants have cramp, n=46, (76.7%) have pain, n=3, (5%) has tingling, n=3, (5%) have numbness. So most physiotherapists suffered from WRMD symptoms was pain. (Figure 5)

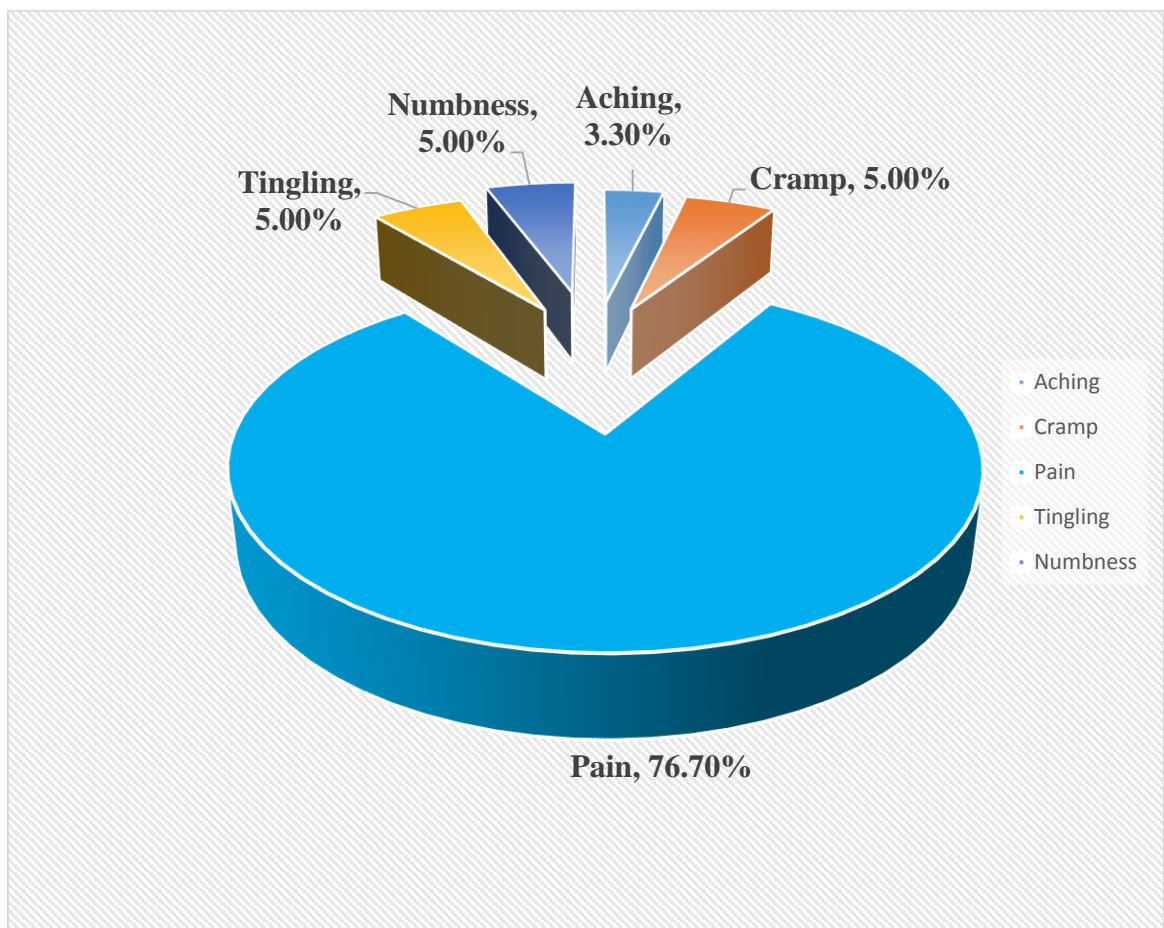


Figure 5: Symptoms of WRMD

Severity of pain

Analysis demonstrated that n=7 (11.70%) participants have mild symptoms, n=45, (75%) moderate symptom and n=5 (8.30%) participants have severe symptoms out of 57 participants. (Figure 6)

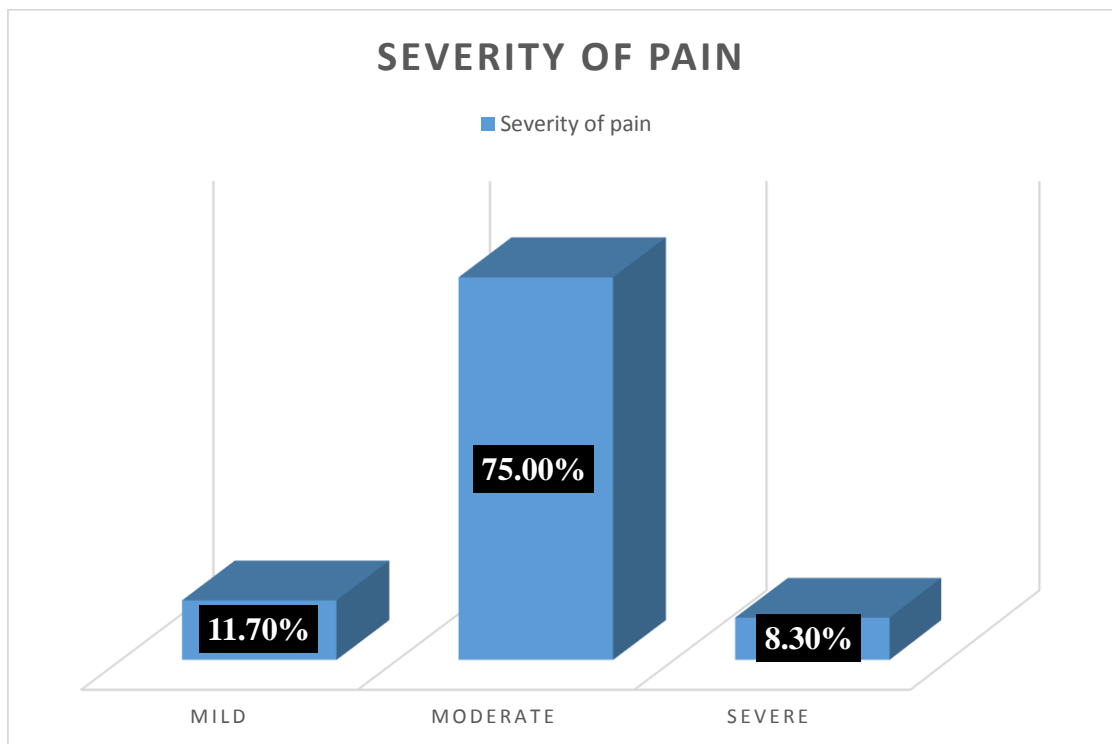


Figure 6: Severity of pain

Hamper practice

Among 57 participants out of 60 participants 11 participants were told that, their practice were hampered not at all and 46 participants were told that their practice hampered for WRMD. (Figure -7)

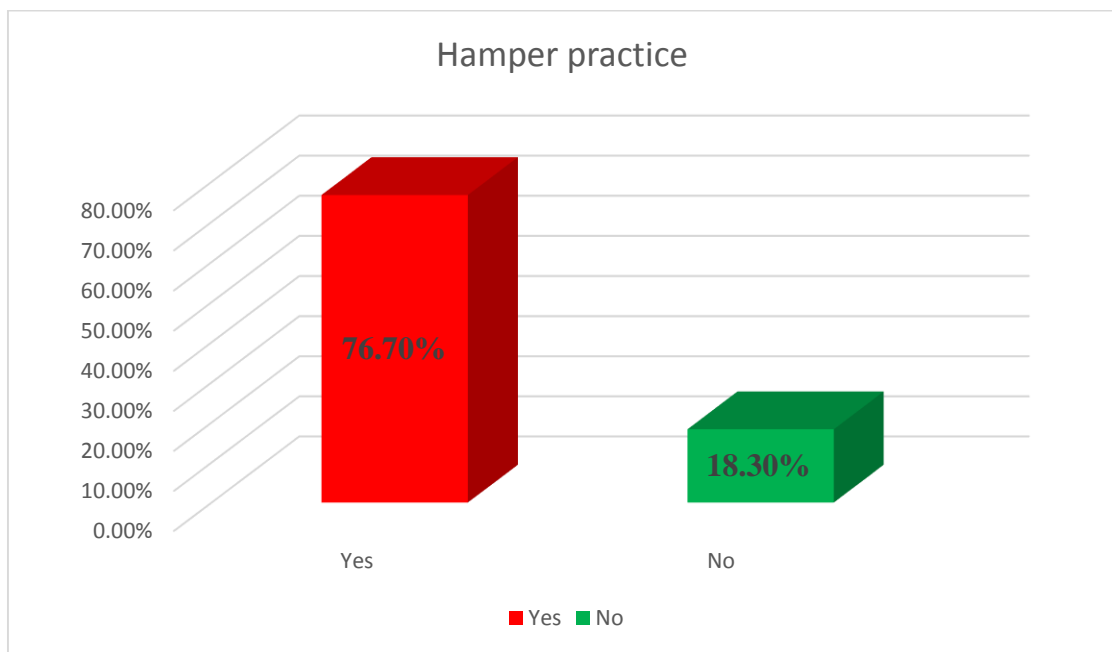


Figure 7: Hamper practice for WRMD

Affected body parts

After analysis researcher found that among the 57 participants who suffered from WRMD most affected body parts were Lower back in n=43, (71.7%) participants, upper back in n=26, (43.3%) participant and neck in n=21,(35%) participants, shoulder in n=8,(13.3%) participants, elbow in n=4,(6.7%) participants, wrist in n=10,(16.7%) participants, hip in n=3,(5%) participants, knee in n=12,(20%) participants and ankle in n= 9,(15%) participants. (Figure 8)

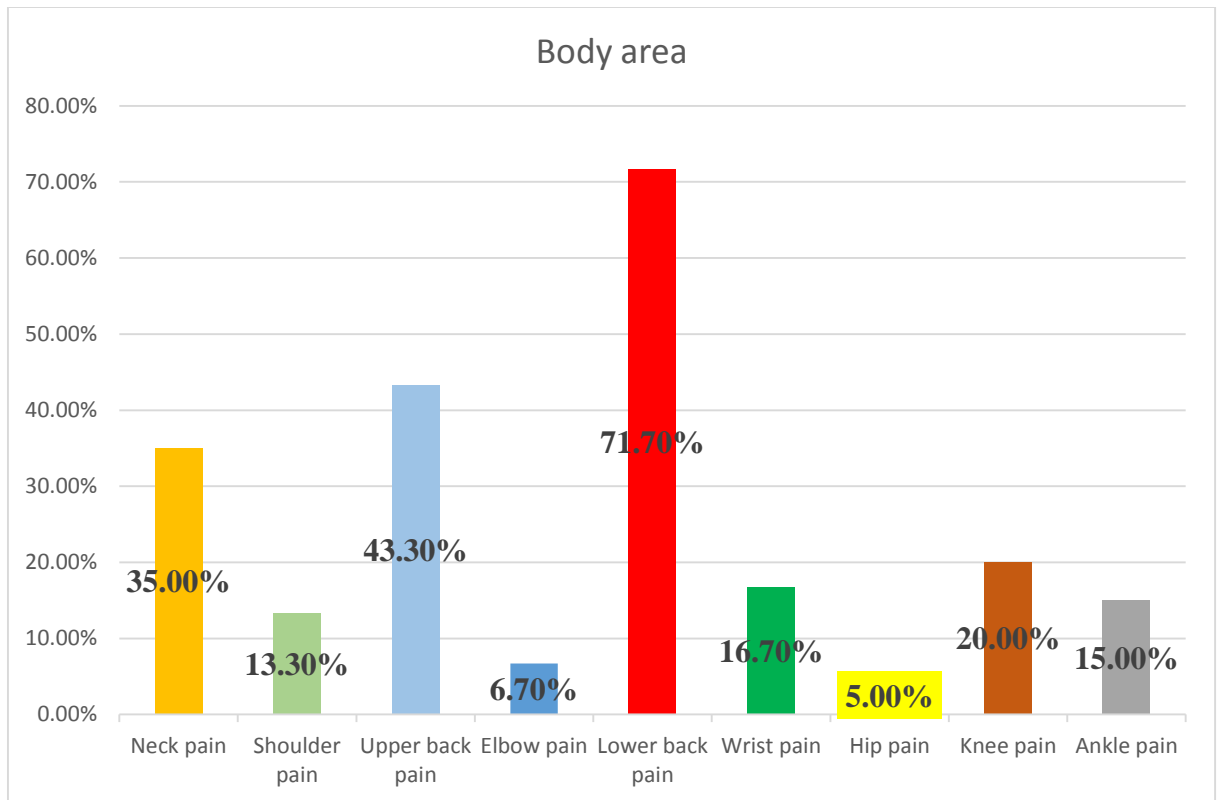


Figure 8: Affected body parts

Stressful positions

Analysis showed that among the 57 participants who had suffered from WRMD stressful positions were performing same task over and over for n=25, (41.7%) participants, working in awkward and cramped position for n=14, (23.3%) participants, working in the same position for long periods for n=36, (60%) participants, bending or twisting back or neck in an awkward way for n=18, (30%) participants, not enough rest during the day for n=42, (70%) participant, repetitive movement of upper limb for n=38, (63.3%) participants, continuing to work when injured or hurt for n=16, (26.7%) participants, work scheduling for n=33, (55%) participants . So most common risk factors were not enough rest break during the day: (70%), repetitive movement of upper limb (63.3%) and working in the same position for long periods (60%). (Figure 9)

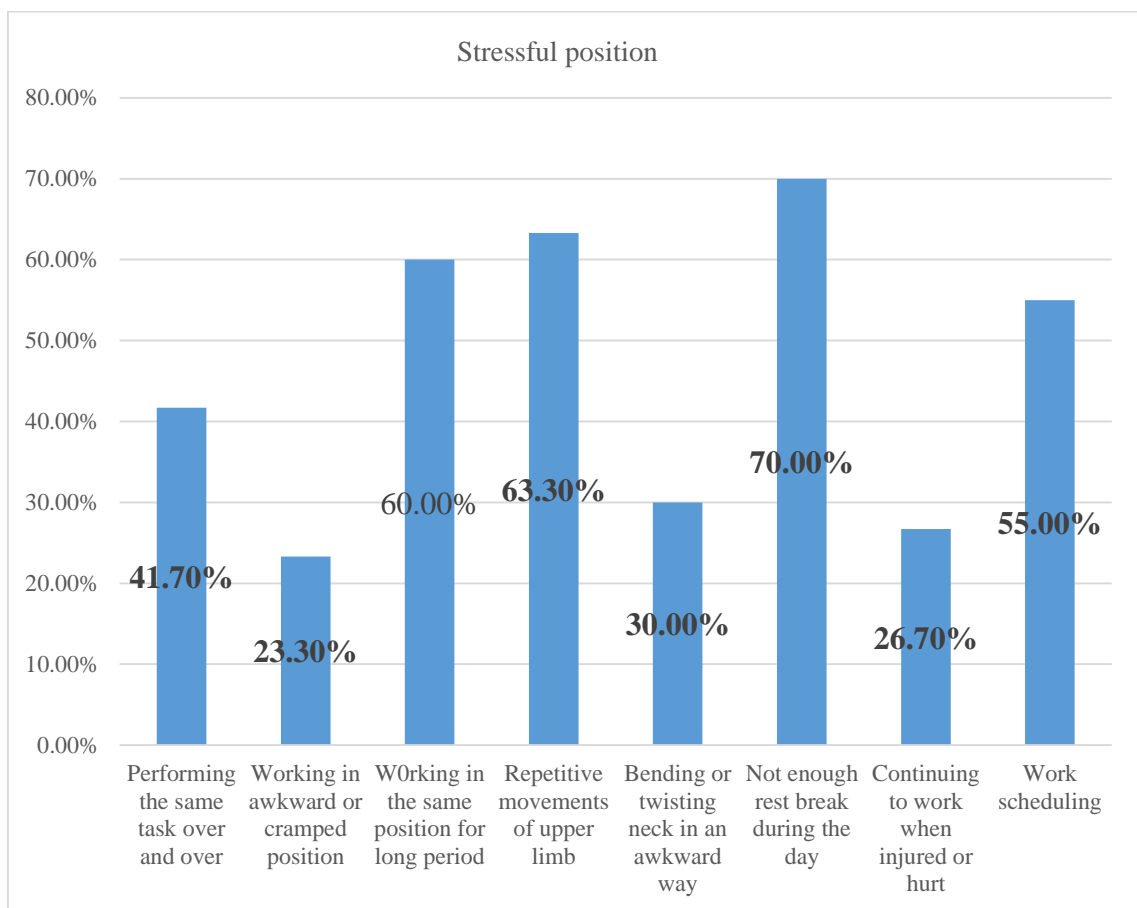


Figure 9: Stressful position of WRMD

Work interruption

Analysis showed that n=6 (10.00 %) participants out of 57 participants had work interruption due to WRMD. (Figure 10)

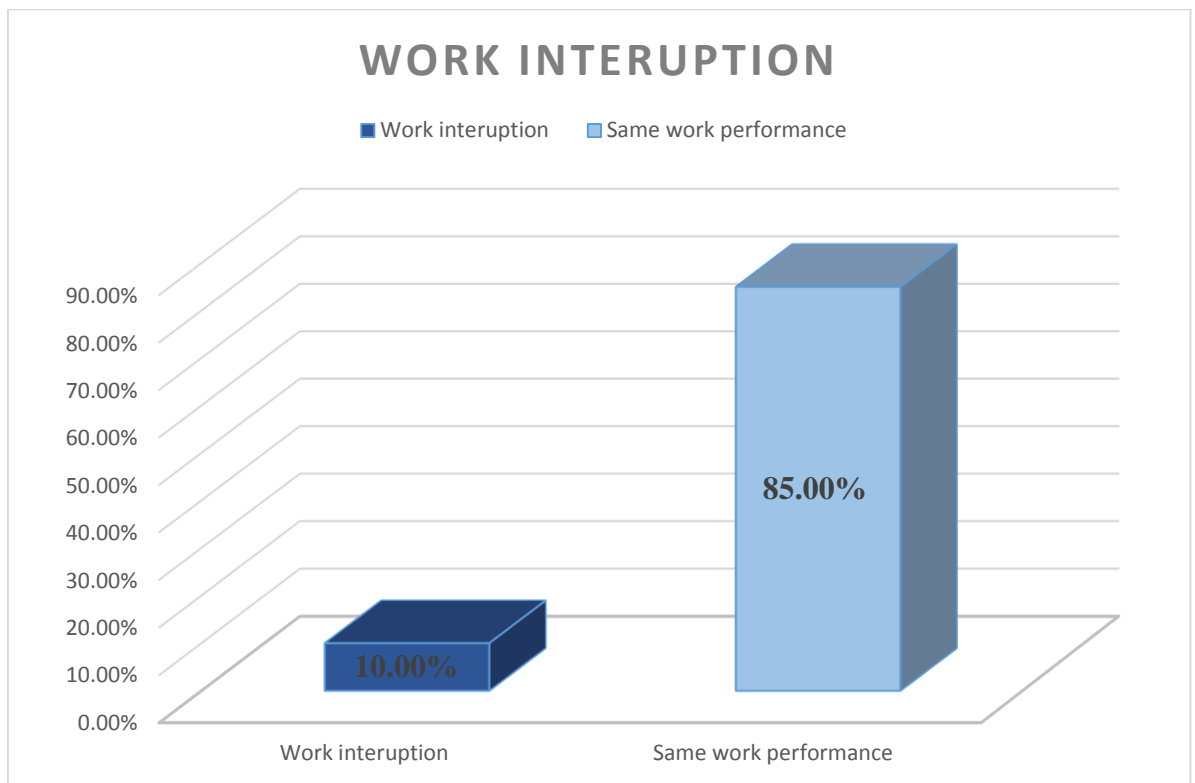


Figure 10: Work interruption

Reduce work performance

Outcome reveals that n=49 (81.70%) participants out of 57 participants working performance had reduced due to WRMD. (Figure 11)

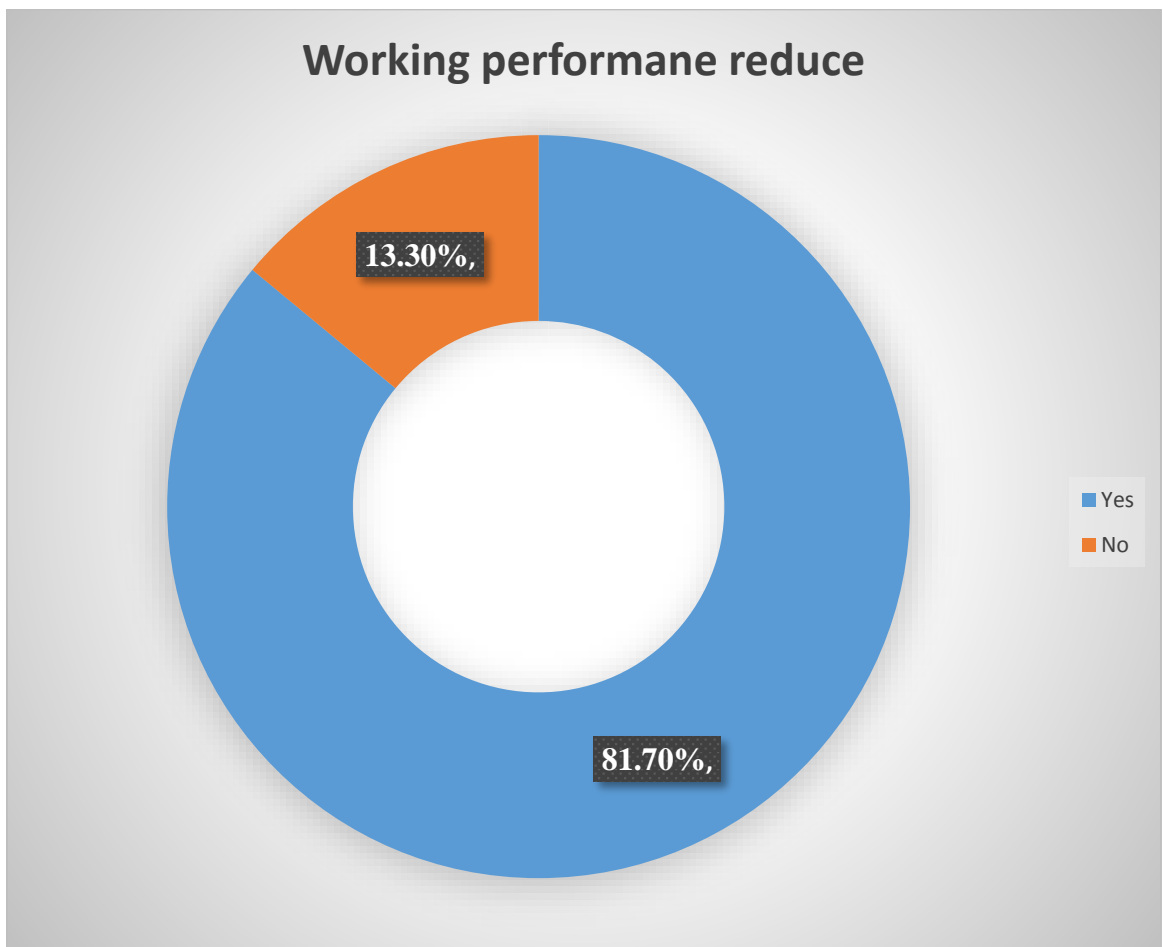


Figure 11: Reduce work performance

Job satisfaction

Among 57 participants, in terms of work place environment 12 participants were not satisfied at all, whereas 42 participants were moderately satisfied and 3 participants are totally satisfied. So, in percentage, 20% were not at all satisfied, 70% were moderately satisfied and 10% totally satisfied with the work place environment (Figure -12).

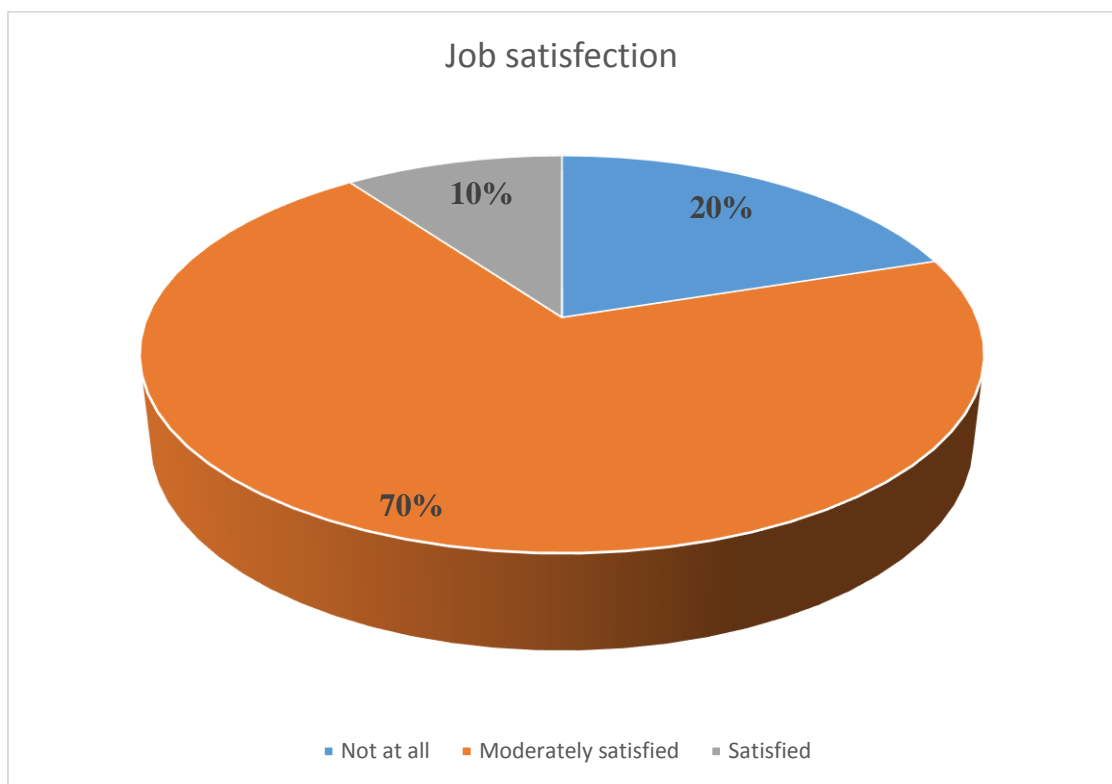


Figure 12: Job satisfaction

Maintain correct posture

Analysis showed that among 57 participants n=10, (17.5%) participants can maintain correct posture, n=38, (66.7%) participants could not maintain correct posture and n=9, (15.8%) could maintain correct posture sometimes during work time. (Figure 13)

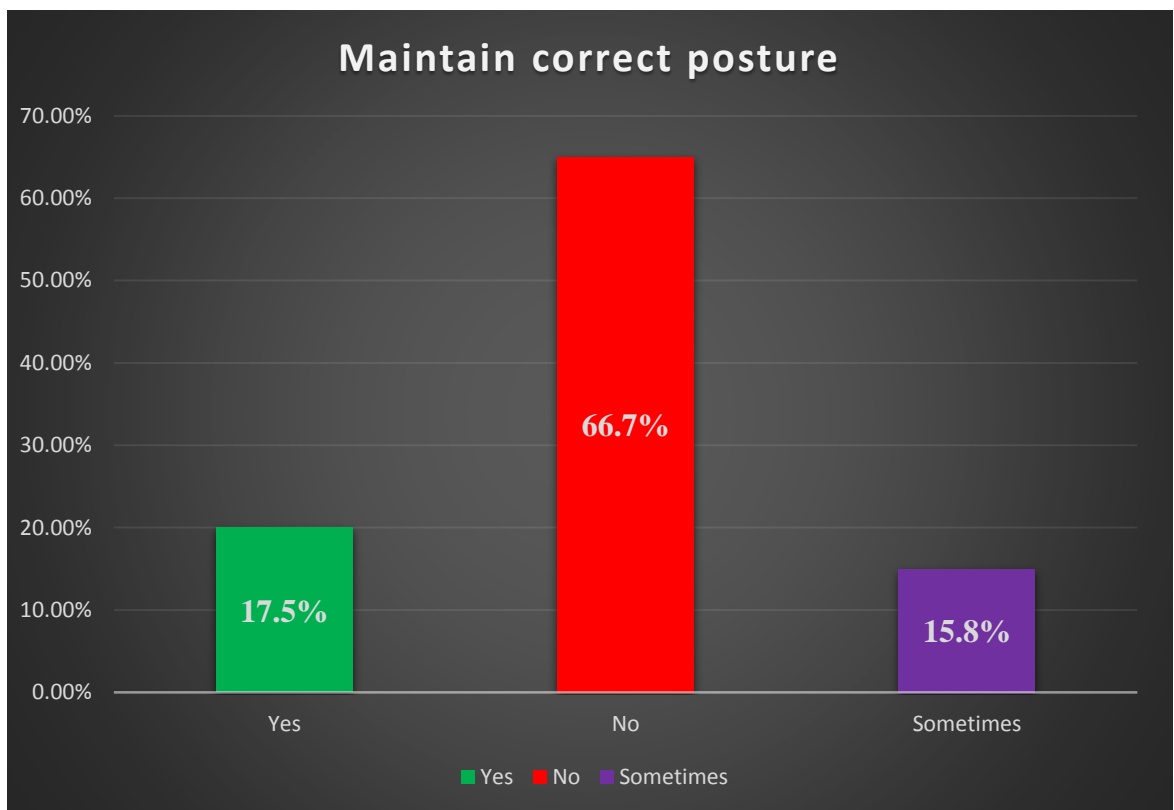


Figure13: Maintain correct posture

Most using working posture

Among 57 participants n=36, (63.2%) participants were working in standing posture n=20, (35.1%) participants were in forward bending position and n=1, (1.8%) participants were in sitting. So the most using working posture is standing. (Figure 14)

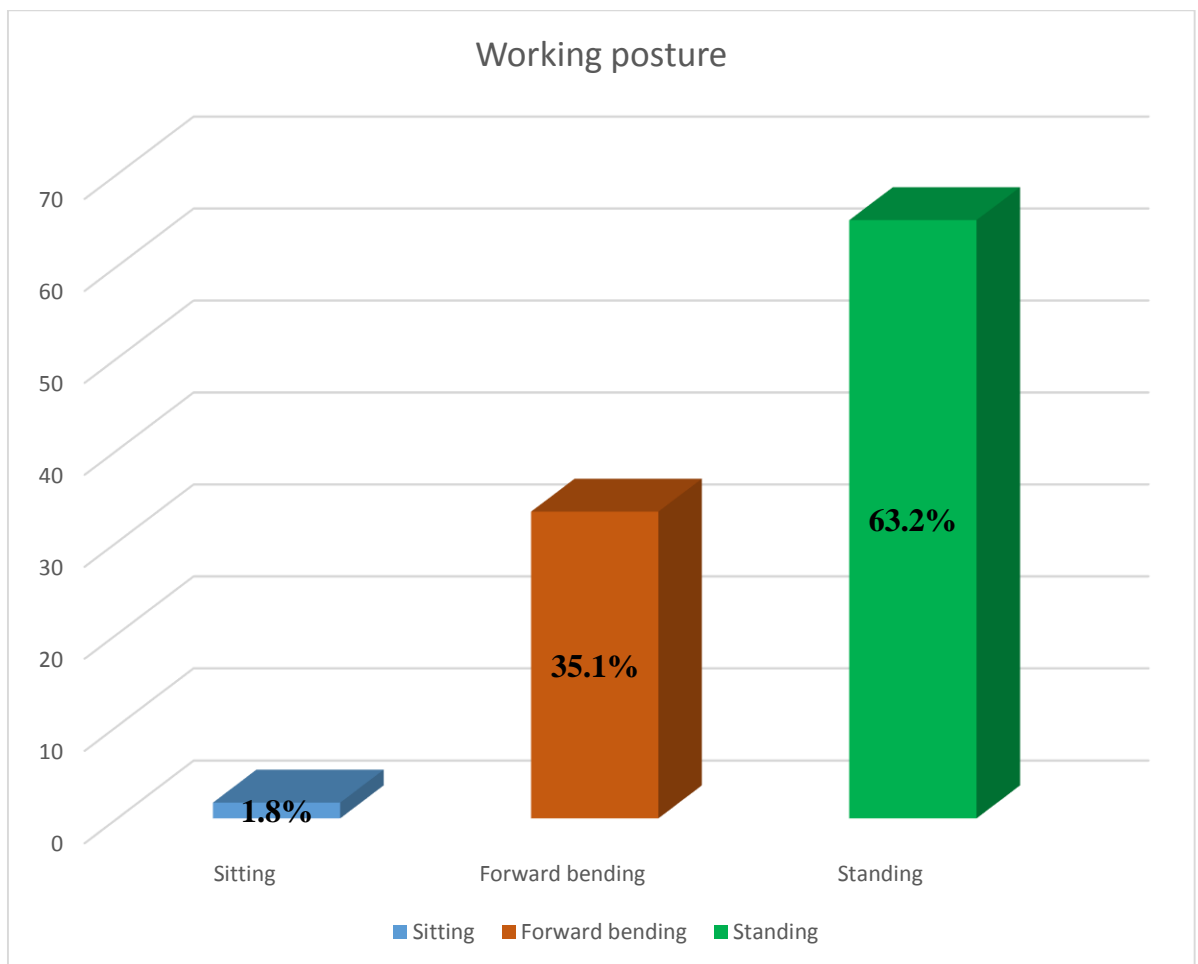


Figure 14: Most using working posture

Pain worsening posture

Among 57 respondents who had WRMD, from them the most 48 (80%) were reported their posture as bending which may increase pain. 8 (13.3%) respondents told about standing, 1 (1.7%) reported sitting posture (Figure -15).

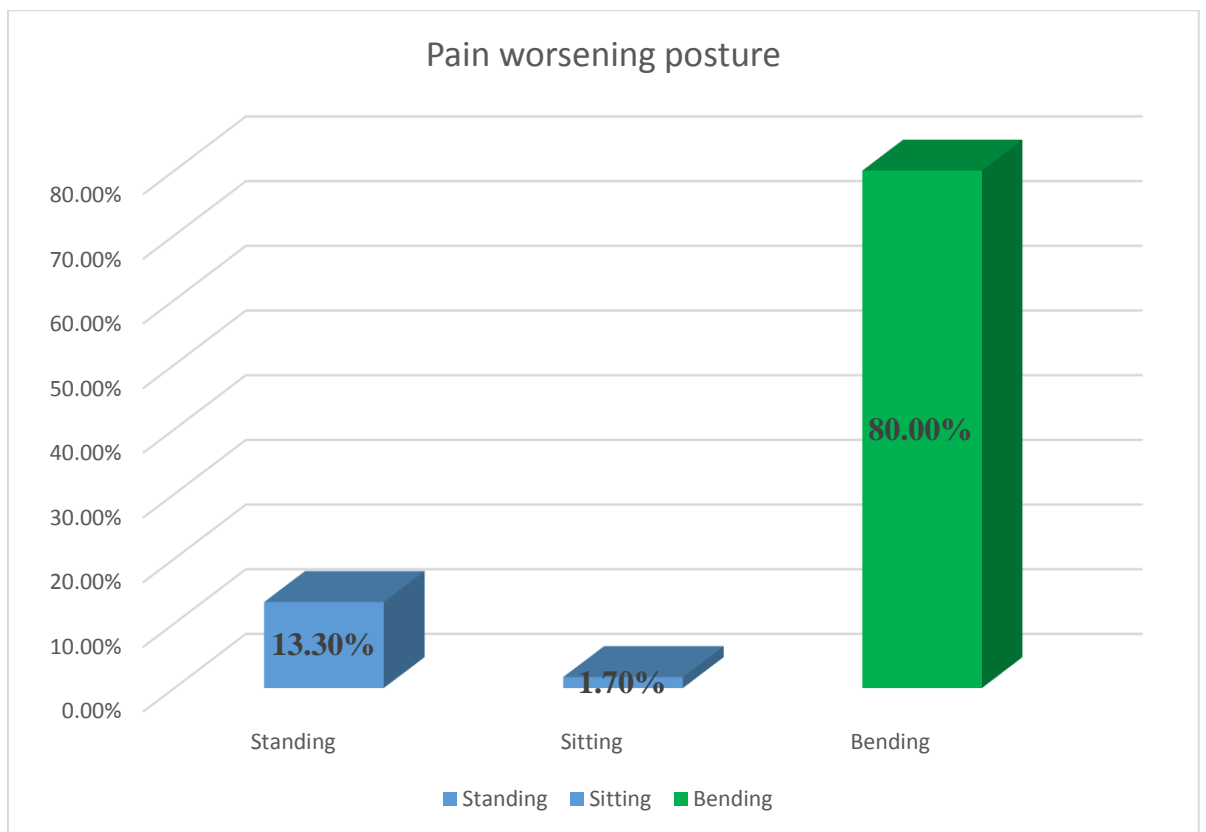


Figure 15: Pain worsening posture

Pain relievers Posture

Among 57 respondents out of 60 who had WRMD, from them the most 48 (80%) were reported their posture as lying which may relive pain. 8 (13.3%) respondents told about sitting, 1 (1.7%) reported walking posture where their pain relievers (Figure -16)

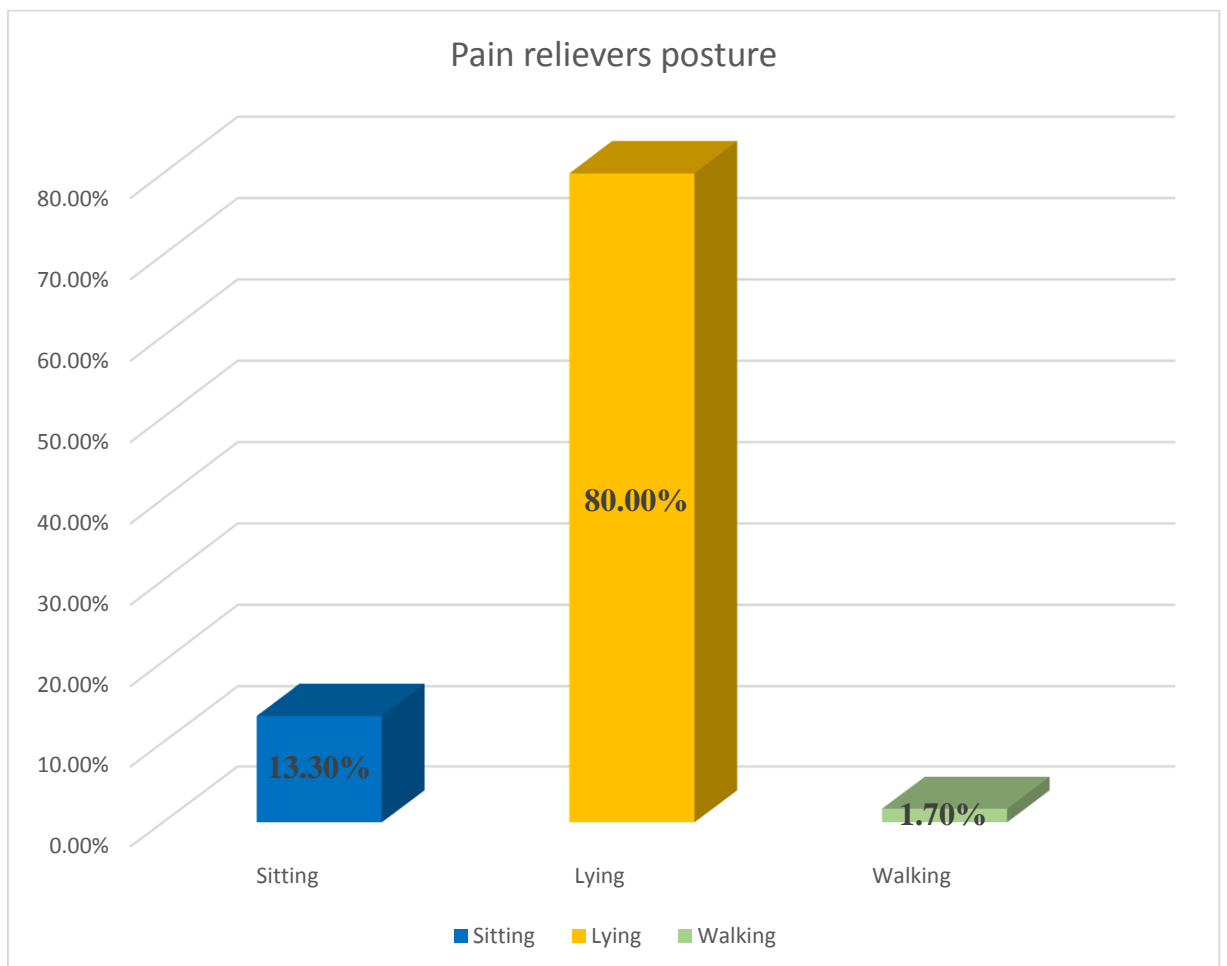


Figure 16: Pain reliever's posture

ADL effect

Among 57 participants, 4 (7%) participants were told that their clinical practice hamper not at all, 32 (56.1%) participants were told mildly hampered and 17 (29.8%) participants were told moderately hampered and severely hampered 4(7%)(Figure-17).

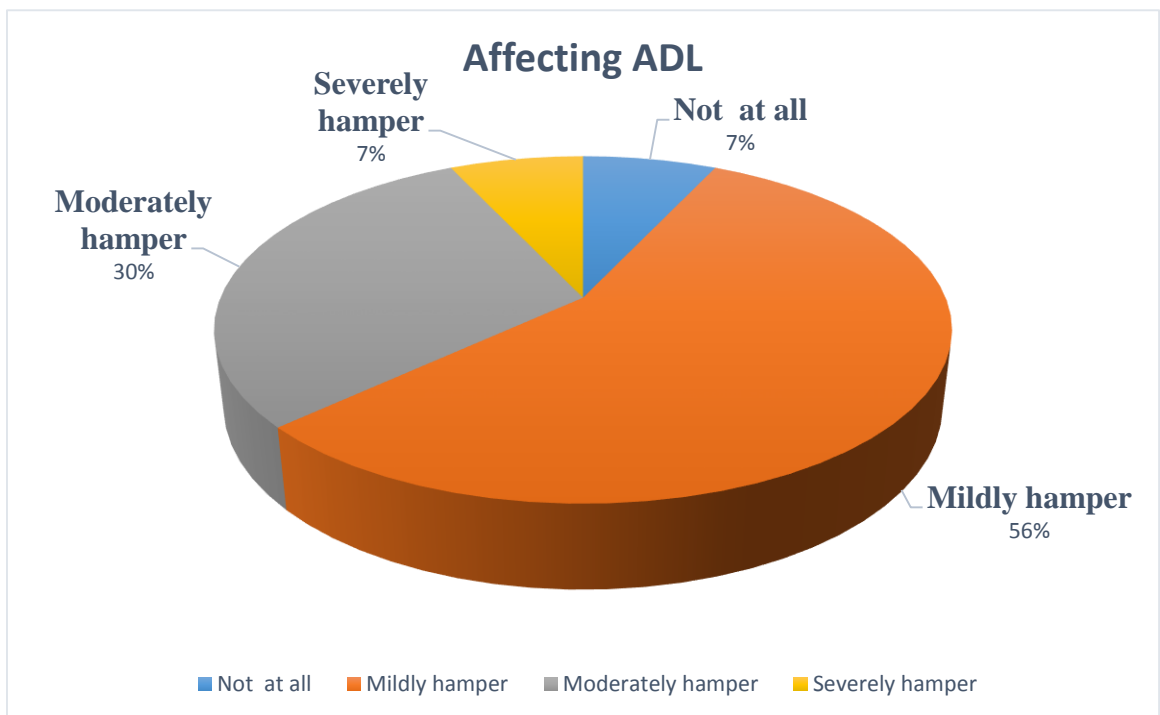


Figure -17: ADL Effect of the Participants

Table-04

Among 57 participants 43 (75.4%) suggested mobile bed, 3(5.3%) sitting arrangement, 8(14.0%) adequate space and 3(5.3%) all suggestion which can reduce their work related musculoskeletal disorder sufferings and improve clinical practice also.

Suggestion	Frequency	Percent
Mobile bed	43	75.4
Sitting arrangement	3	5.3
Adequate space	8	14.0
All	3	5.3
Total	57	100.0

Suggestion**Hypothesis**

Researcher had tried to focus association between age and work related musculoskeletal disorder, gender and work related musculoskeletal disorder, body weight and work related musculoskeletal disorder, job experience and work related musculoskeletal disorder. But the analysis did not show any significance among the variables. So the researcher failed to generate any hypotheses.

The aim of the study was to identify the prevalence of work related musculoskeletal disorder among the clinical physiotherapist of neurology unit at CRP. The researcher took 60 samples and tries to find out the prevalence of work related musculoskeletal disorder among physiotherapists.

In this study the prevalence was 95%. Among 60 participants 57 were affected and 3 were unaffected. At a study on Canadian message therapist (Albert et al., 2008) found the prevalence of work related musculoskeletal disorder was 85%, where which is similar to most other countries. A survey conducted at an annual physiotherapy meeting had 74% having had work related musculoskeletal disorder in their life time (Rugelj, 2003). In a survey carried out among Iranian Physiotherapist, prevalence was 69% (Rezaee et al., 2010). In another study of Malaysia work related musculoskeletal disorder prevalence 84.1% which developed only after starting work at the hospital (Wong et al., 2010).

In this study among the 57 participants who have suffered from work related musculoskeletal disorder lowest age was 22 years and highest age was 38 years. Most affected age is 26 years ($p=0.21$).

Increasing age has been found to be a risk factor (ages 20 and 21 years when compared with the younger physiotherapists), in particular among males (Nyland and Grimmer, 2003). This adds to the results by Karachi et al (2007), where LBP increases significantly with an increase in age ($p=0.03$). The mean age of students with LBP was 20.2 years (95%CI; 19.5-23.6).

No significant difference could be detected between gender groups as an associated factor of LBP versus no LBP. There was a significant association between LBP prevalence at one-month ($p=0.01$) and LBP prevalence at one-week ($p=0.01$) among female subjects. Another factor, that was associated with LBP, was the length of university study undertaken by the subjects. (Nyland and Grimmer, 2003).

Among the participants in these study 43(71.7%) suffered in low back pain, 21(35%) suffered in neck pain,8(13.3%) suffered in shoulder pain, 26(43.3%) suffered in upper back pain, 12(20%) suffered in knee pain, 10(16.7%) suffered in wrist pain, 9(15%) suffered in ankle pain,4(6.7%) suffered in elbow pain&3(5%) suffered in hip pain. So the greater number of the participants is suffered in low back pain. This result is comparable to Byron, E et al, (2012) indicated that maximum prevalence of WMD among physical therapists was in the following anatomical areas: low back (45%), wrist/hand (29.6%), upper back (28.7%), and neck (24.7%). The job factor rated most likely to contribute to job-related musculoskeletal disorders was "lifting or transferring dependent patients." The prevalence of work related musculoskeletal disorder in physical therapists also was affected by work setting, practice specialty, age of patient, and gender of therapist.

A cross sectional study in Norway showed that obesity is associated with low back pain. It is also more common in males between the ages of 35 and 55 years old. (Samat et al., 2011).Obesity is one of the individual's risk factor for work related musculoskeletal disorder(Bork et al., 2005) suggested that prevalence of work related musculoskeletal disorder is related with body weight when treating a patient.

Near about two third (60%) female participants showed greater prevalence of work related musculoskeletal disorder in neurology unit physiotherapists at CRP. But literature says that men are more vulnerable to work related musculoskeletal disorder than female. In a research project that was published at 2008 by Adegoke et al. showed that 63.5% male and 36.5% female were suffered from work related musculoskeletal disorder at Nigeria. The statistics by (Health and safety executive, 2008) showed that male are more vulnerable to WRMD than and statistics is 2900 male in every 100000 males and 2400 females in every 100000 females.Female gender appears to be positively correlated with severity of musculoskeletal pain.

Most of the participants who suffered from work related musculoskeletal disorder common stressful positions were not enough rest break during the day(70%) followed by repetitive movement of the upper limb (63.3%),working in the same position for long period(60%). Babatunde (2008) showed in his research that among the all risk factor performing excessive practice in one day (83.5%), working in same position for long period (71.3%), performing manual techniques (67.8%), working in awkward or

cramped position (64.6%), bending or twisting back in awkward way (62.6%), not having enough rest break during the day (61.7%), continuing to work when injured (52.2%), performing same task over (52.2%) and inadequate training in injury prevention (29.6%). (Warren et al., 2005) found in his research the common risk factors were performing the same tasks over and over, working in the same position for long periods, not enough rest breaks during the day and repetitive movement of upper limb and working in the same position for long period.

Musculoskeletal pain has been found to be a major health problem for neurology unit physiotherapists at CRP and most affected body parts were lower back in 71.7% participants, upper back 43.3% participants, neck 35% participants, knee 20% participant, elbow 6.7%, wrist 16.7%, hips/thighs/buttocks 5% participant, shoulder 13.3% participants and ankles/feet 15% participants.

Analysis showed that among the 57 participants out of 60 participants who suffered from work related musculoskeletal disorder n=39(65%) participants felt their work related musculoskeletal disorder in the first year of work, n=12 (20%) participants felt from first 5 years of work, n=5, (8.3%) participants felt in the 5-15 years of work and n=1, (1.7%) participant don't know when he/she first experienced.

A study of Pakistan showed that majority of participants, that is, 69% experienced their work related low back pain within the first two years of clinical practice, 14.2% had first experienced during 2-4 years of practice while 5.7% had it within 4-6years of work. Only 2.3% had their first encounter of work related low back pain after 6 years of graduation. (Javed et al., 2013).

In this study 11.70% participants have mild symptoms, 75% moderate symptom and 8.30% had severe symptom.

Another study showed that, generally, the onset of low back pain was steady, for 61.9% participants. On a Visual Analog Scale (VAS), 55.7% described their pain as moderate, 33% as mild and 11.4% as severe. Regarding the frequency of experiencing pain, 47.2% responded occasionally while 31.3 % often experience the pain. (Javed et al., 2013).

Limitations of the study

There were some situational limitations and barriers while considering the study. Those are as follows:

Though the expected sample size was 342 for this study but due to resource constrain researcher could manage just 60 samples which is very small to generalize the result for the population of the neurology unit physiotherapist.

There are a no literatures about work related musculoskeletal disorders among the neuro physiotherapists in the perspective of Bangladesh so it is difficult to compare the study with the other research.

The researcher was able to collect data only neuro unit of CRP for a short period of time which will affect the result of the study to generalize population.

The questionnaire was developed only through searching sufficient literature but considering the context of the demography of the population a pilot study would substantial before developing questionnaire.

Time and resources were limited which have a great deal of impact on result.

Identify the common work related musculoskeletal disorder among neurology unit physical therapists at CRP were highest in the low back, upper back, and neck. The job factor related most problematic for the physical therapists in our study was prolong floor sitting, perform same task over and over, working in awkward or cramped position, repetitive movement of upper & lower limb, Bending or twisting in neck & back in an awkward way, not enough rest breaks during the day, inadequate training in injury prevention. Although physical therapists have knowledge and clinical expertise in musculoskeletal injuries, these skills do not establish immunity to their own work-related musculoskeletal disorders. Thus, specific strategies should be developed to reduce work related musculoskeletal disorder in the practice of physical therapy and to prevent hypothetically disabling conditions. The results of this study indicate that particular attention should be given to techniques for manual handling of patients and to hand-intensive manual therapy techniques. Further investigation is needed to develop preventive measures that presume the health of workers in an occupation devoted to the promotion and restoration of health. Nor Azlin et al., 2010 showed that Work-related injuries are significantly higher among the physiotherapists in Malaysia compared with many other countries. Female therapists reported a higher incidence of work-related musculoskeletal disorders in this study, and work-related musculoskeletal disorders were more common among therapists working in the neurology unit specialty. This study contributes to the understanding of work-related disorders among physiotherapists from a south-east Asian perspective where the profession is in its development stage.

A recommendation evolves out of the context in which the study was conducted. The purpose of the study was to estimate the work related musculoskeletal disorders among the neurology unit physiotherapists at CRP. Though the research has some limitations but researcher identified some further step that might be taken for the better accomplishment of further research. For the ensuring of the generalization of the research it is recommended to investigate large sample. In this study researcher only took the neurology unit physiotherapist at CRP. So for further study researcher strongly recommended to include the neurology unit physiotherapists from all over Bangladesh.

In this study investigator only identified the common work related musculoskeletal disorders among the neurology unit physiotherapist at CRP, so it is recommended for further study to identify the work related musculoskeletal disorders among the neurology unit physiotherapists.

Due to limitation of time investigator was not able to do pilot study. But pilot study is very much important for the validity of questionnaire. For this it is strongly recommended that if any further study will be done in this area then pilot study should be done to format the questionnaire.

Beside this in this study the ratio of male and female participants were unequal. So it is recommended for further study to take the participants equally for comparison of gender and work related musculoskeletal disorders.

REFERENCES

- Adegoke, B.O., Akodu, A.K. and Oyeyemi A.L., (2008). Work-related musculoskeletal disorders among Nigerian Physiotherapists. *Biomed Central Musculoskeletal Disorder*, 9:112-120.
- Albayrak, A., Kazemier, G., Meijer, D.W. and Bonjer H.J., (2007). Current state of ergonomics of operating rooms of Dutch hospitals in the endoscopic era. *Minimally Invasive Therapy and Allied Technology*, 13(3):156-160.
- Arnold, M., Radawiec, S., Campo, M. and Nordin, M., (2011). Changes in functional independence measure rating associated with safe pt. handling and movement program. *Rehabilitation Nursing*, 36(4):138–44.
- Al Eisa, E., Buragadda, S., Shaheen, A.M., Ibrahim, A. and Melam, G.R., (2012). Work related musculoskeletal disorders: causes prevalence and response among Egyptian and Saudi physical therapist. *Middle East Journal Scientific research*, 12(4):523–29.
- Albert, W.J., Jackson, C.N., Carolyn, A. and Duncan (2008). A survey of musculoskeletal injuries amongst Canadian massage therapists, *Journal of Bodywork and Movement Therapies*, 12: 86-93.
- Alexopoulos, E.C., Stathi, I.C. and Charizani, F., (2008). Prevalence of Musculoskeletal disorder in dentists, *Biomed Central Musculoskeletal disorder*, 5:16, doi: 10.1186/1471-2474-5-16.
- Buddhadev, N.P. and Kotecha, I.S., (2012). Work related musculoskeletal disorders. A survey of physiotherapists in saurashtra region. *National Journal Medical Research*, 2(2):179.
- Barai, G., (2007). Effect of Education Manual on Functional Rehabilitation of patient with complete paraplegia', *Bangladesh Physiotherapist Journal* .1(3)
- Bowling, A., (2007), *Research Method in Health: Investigating and Health Services*, Open University Press, Buckingham.
- Bailey, D.M., (2006). *Research for the health professional: a practical guide*, second ed. F.A Davis Company, Philiphia. 24 (8).

- Bork, B.E., Cook, T.M., Rosecrane, J.C., Engelhardt, K.A., Thomason, M.E.J., Wauford, I.J. and Worly, R.K., (2005). Work related musculoskeletal disorders among physical therapists. *Physical Therapy*, 76(8):827-835.
- Babatunde, O.A., Adegoke, Ashiyat, K., Akodu, Adewale, L. and Oyeyemi, (2008). Work-related musculoskeletal disorders among Nigerian Physiotherapists. *BioMed Central Musculoskeletal Disorders*; 9:112.
- Cromie, J.E., Robertson, V.J. and Best, M.O., (2004). Work-related musculoskeletal disorders in physical therapists: prevalence, severity, risks, and responses. *Physical Therapy*, 80(4):336-351.
- Campo, M., Weiser, S., Koenig, K.L. and Nordin, M., (2008). Work-related musculoskeletal disorders in physical therapists: a prospective cohort study with 1-year follow-up. *Physical Therapy*, 88(5):608-619.
- Cromie, J.E., Robertson, V.J. and Best, M.O., (2007). Work related musculoskeletal disorders and the culture of physical therapy. *Physical Therapy*, 82(5):459-472.
- Cromie, J.E., Robertson, V.J., and Best, M.O., (2002). Occupational health in physiotherapy: general health and reproductive outcomes. *Australian Journal of Physiotherapy*, 48(4):287-94.
- Cromie, J.E., Robertson, V.J., and Best, M.O., (2000). Work related musculoskeletal disorders in physical therapists: prevalence, severity, risks and responses. *Physical Therapy*, 80(4):529-530.
- Centre for the Rehabilitation of the paralyzed (CRP) 2006 - 2007, Patient Information, and Annual report 2006-2007.
- Centre for the Rehabilitation of the paralyzed (CRP) 2005- 2006, Physiotherapy Service', Annual report 2005-2006. Dhaka.6-8.
- Darragh, A.R., Huddleston, W. and King, P., (2009). Work-related musculoskeletal injuries and disorders among occupational and physical therapists. *American Journal of Occupational Injury*, 63: 351-362
- Department of Labor & Bureau of Labor Statistics (2011), Workplace injuries and ill-nesses & Musculoskeletal Disorders and Workplace Factors: BLS, Viewed 18May, 2011, <<http://www.cdc.gov/niosh/pdfs/97-141.pdf>>.

- Ekstrom, R.A., Osborn, R.W. and Hauer, P.L., (2008). Surface electromyographic analysis of the low back muscles during rehabilitation exercises. *Journal of Orthopedic and Sports Physical Therapy*, 38 (12): 736-745.
- Falavigna, A., Teles, A.R., Mazzocchin, T., Braga, G.L., Kleber, F.D. and Santin, G.T., (2011). Increased prevalence of LBP among physical therapy student compare to medical students. *Euro spine Journal*; 20(3):500–5.
- Glover, W., McGregor, A., Sullivan, C. and Hague, J., (2005). Work- related musculoskeletal disorders affecting members of the Chartered Society of Physiotherapy. *Physiotherapy*, 91:138-147.
- Hayes, M.J., Cockrell, D. and Smith, D.R.,(2009).A systematic review of musculoskeletal disorders among dental professionals', *International Journal of DentalHygiene*, 7:159–165.
- Holder, N.L., Clark, H.A., Diblasio, J.M., Hughes, C.L., Scherpf, J.W., Harding, L. and Shepard,K.F., (2010). Cause, prevalence, and response to occupational musculoskeletal injuries reported by physical therapists and physical therapist assistants. *Physical Therapy*, 79(7):642-652.
- Hicks, C.M., (2005), *Practical Research Method for Physiotherapists*, 3rded.Churchill Livingstone, New York.
- Hicks, C.M., 2000. *Research Methods for Clinical therapist: applied project design and analysis*, Churchill Livingstone, New York
.http://csp.org.uk/director/physiothrapyexplained/whatisphysiotherapy.cfm
- *Healthy Back Exercises: Strengthen and Stretch*, (2011), spineuniverse, avialble:<http://www.spineuniverse.com/wellness/exercise/healthy-backexercises-strengthen-stretch>, [viewed 29 August 2012].
- Javed, S.,Sultan, A.J., Khan, M.U. and Rahim, M., (2013).Frequency of work related low back pain among physical therapists. *Pakistan Journal of Rehabilitation*. 2(2):57-67.
- King, P., Huddleston, W. and Darragh, A.R., (2009). Work-related musculoskeletal disorders and injuries: differences among older and younger occupational and physical therapists. *Journal of Occupational Rehabilitation*.19:274-83, doi: 10. 1007/s10926-009-9184-1.

- Mary, F. & Ann, E. (2006). Inflammation and the pathophysiology of work-related musculoskeletal disorder.
- Maire, M., and Ross-Motta, J., (2009). Work-related Musculoskeletal Disorders, Ecology research group, University of Oregon.
- Molumphy, M., Unger, B., Jensen, G.M. and Lopopolo, R.B., (2006). Incidence of work related musculoskeletal low back pain in physical therapists [abstract]. *Physical Therapy*, 65:482-486.
- Mead, J., (2003). 'The responsibilities of being PT' in SB porter ed, Tide's PT, Butter Hainemann, New Delhi. 21-22.
- Nkhata, L.A., Zyaambo, C., Nzala, S.H. and siziya, S., (2010). Work related musculoskeletal disorder: prevalence, contributing factor and coping strategies among physical therapy personal in Lusaka, Kitwe and Ndola district, Zambia. *Med Journal Zambia*, 37(4):262-7.
- Nourdin, N.A. and leonard, J.H., (2011). The work related injuries among public hospitals – a South East Asian Picture. *Clinic Sao Paulo*; 66(3):373–78.
- Nor Azlin, Nordin, M., Joseph, H. L. and Ng, C.T., (2010). Work-related injuries among physiotherapists in public hospitals—a Southeast Asian picture. 66(3):373-378 DOI:10.1590/S1807-59322011000300002
- Nyland, L.J. and Grimmer, K.A., (2003). Is undergraduate physiotherapy study a risk factor for low back pain? A prevalence study of LBP in physiotherapy students. *BioMed Central Musculoskeletal Disorder* 2003, 4:22.
- Punnett, L. and Wegman, D.H., (2012). Work-related musculoskeletal disorders: The epidemiologic evidence and the debate. *Journal of Electromyography and Kinesiology*, 14:13-23.
- Peter, V., (2006). Musculoskeletal Disorders: What are the causes and controls in construction? *Construction safety magazine & Musculoskeletal Disorders*. 11 (3).
- Part R., (2009), Musculoskeletal disorders of the knee of workers, available: <http://www.ncbi.nlm.nih.gov/pubmed/19961084> [viewed 3 January, 2012]
- Podniece, Z., (2008), 'Work-related musculoskeletal disorders: Prevention report', 2nd edition, viewed 5 April 2011.

- Riihimaki, H., (2005). Hands up or back to work–future challenges in epidemiologic research on musculoskeletal diseases. *Scand Journal of Work Environment Health*, 21:401-403.
- Rahman, Z.A. and Atiya, A.S.,(2009). Prevalence of work-related upper limbs symptoms (WRULS) among office workers. *Asia Pac. Journal of Public Health*, 21: 252-258. DOI: 10.1177/1010539509341423
- Ritchie, (2007). Physiotherapists at work. RM30, 2008 .<http://www.bcphsio.org>.
- Rezaee, M., Ghasemi, M., Jafari, J.M. and Izadi M., (2010). Low Back Pain and Related Factors among Iranian Office Workers, *International Journal Of Occupational Hygiene*, 3(1) 23-28.
- Rozenfeld, V., Ribak, J., Danziger, J., Tsamir, J. and Carmeli, E.,(2010). Prevalence, risk factors and preventative strategies in work-related musculoskeletal disorders among Israeli physical therapists. *Physiotherapy Research International*, 15 (3): 176-184
- Rundell S.D., Davenport T.E. and Wagner, T.,(2009). Physical therapist management of acute and chronic low back pain using the World Health Organization's international classification of functioning, disability and health. *Physical Therapy*, 89 (1): 82-90.
- Rugelj, D., (2003). Low Back Pain and Other musculoskeletal problems among physiotherapists. *Applied Ergonomics* 18 (1), 27.
- Samat, A.R., Shafei, M.N., Yaacob, N.A. and Yusoff, A.,(2011). ‘Prevalence and Associated Factors of Back Pain among Dental Personnel in North Eastern State of Malaysia’, *International Journal of Collaborative Research on Internal Medicine & Public Health*, vol. 3(7).
- Salik, Y. and Özcan, A., (2004). Work-related musculoskeletal disorders. A survey of physical therapists in Izmir-Turkey. *BioMedCentral Musculoskeletal Disorder*, 5:27.
- Shah, S. and Dave, B., (2012). Prevalence of LBP and its associated risk factors among doctors in Surat. *International Journal of Health Sciences and Research*, 2(1):91– 102.

- Smith, D.R. and Leggat, P.A., (2007). Musculoskeletal disorders in nursing. *Australian Nursing Journal*, 11:1-4.
- Stanton, T.R., Fritz, J.M., Hancock, M.J., Latimer, J., Maher, C.G., Wand, B.M., Parent, E.C., (2011). *Physical Therapy*.91 (4):496-509. doi: 10.2522/ptj.20100272. Epub 2011 Feb 17.
- Skotte, J.H., Essendrop, M., Hansen, A.F. and Schibye, B. A., (2009). Dynamic 3D biomechanical evaluation of the load on the low back during different patient-handling tasks. *Journal of Biomechanics*. 35:1357–1366.
- Sommerich, C.M., McGlothlin, J.D. and Marras W.S., (2006). Occupational risk factors associated with soft tissue disorders and low back pain, a review of recent investigations in the literature, <http://www.cdc.gov/niosh/docs/97-141/default.html>.
- Torp, S., Riise, T. and Moen, B.E., (2006). The impact of social and organizational factors on workers' coping with musculoskeletal symptoms. *Physical Therapy*; 81:1328–1338.
- Tanya, C., Julie, F.P., Alan, T., Sally, C., Paul, E. and Philip G. C. (2008). Variability in depression prevalence in early rheumatoid arthritis. *BioMed Central Musculoskeletal Disorders*, **10**:18 doi: 10.1186/1471-2474-10-18.
- WHO (1985), "Identification and Control of Work-related Diseases", Geneva, Switzerland, World Health Organization. WHO Technical Report Series 174.
- Wang, P.C., (2009). 'Self-reported pain and physical sign for musculoskeletal disorders in the upper body region among Los Angeles garment workers', *Work*, vol-34, pp. 79-87.
- Wong, T.S., Teo, N., and Kyaw, M.O., (2010). Prevalence and Risk Factors Associated with Low Back Pain Among Health Care Providers in a District Hospital, Malaysia *Orthopedic Journal* 4(2):23-26.
- Warren, G., Alison, M., Claire, S. and Jan, H., (2005). Work-related musculoskeletal disorders affecting members of the Chartered Society of Physiotherapy. *Physiotherapy*, 91(3):138-147.

- West, D.J. and Gardner , D., (2005). Occupational injuries of physiotherapists in North and Central Queensland. *Australian Journal of Physiotherapy*, 47: 179-186.

February 17, 2016
The Chairman
Institutional Review Board (IRB)
Bangladesh Health Professions Institute (BHPI)
CRP-Savar, Dhaka-1343, Bangladesh

Subject: **Application for review and ethical approval.**

Sir,

With due respect I would like to draw your kind attention that I am a student of Bachelor of Science in Physiotherapy at Bangladesh Health Professions Institute (BHPI)- an academic institute of CRP under Faculty of Medicine of University of Dhaka (DU). I have to conduct a thesis entitled, "Common work related musculoskeletal disorder among the physiotherapists of neurology unit at CRP", Under honorable supervisor Farjana Sharmin Rumana, Lecturer, Department of Physiotherapy, In charge of neurology unit, CRP, Savar, Dhaka. The purpose of the study is to find out the prevalence of work related musculoskeletal disorder among the physiotherapists of neurology unit.

Questionnaire will be used that will take about 10 to 15 minutes. Data collectors will receive informed consents from all participants. Any data collected will be kept confidential.

Therefore I look forward to having your kind approval for the thesis proposal and to start data collection. I can also assure you that I will maintain all the requirements for study.

Sincerely yours,

Saima Mozammel Happy

Saima Mozammel Happy
Bachelor of Science in Physiotherapy (B.Sc. PT)
Session: 2011-2012, DU Reg. No: 1728
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Farjana Sharmin

Recommendation from the thesis supervisor:
Farjana Sharmin Rumana
Lecturer, Department of physiotherapy
In charge of neurology unit
CRP, Savar, Dhaka

Attachment: Thesis Proposal including measurement tools and process and procedure for maintaining confidentiality, Questionnaire (English and Bengali version), Information sheet & consent.



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)

(The Academic Institute of CRP)

Ref.

CRP-BHPI/IRB/04/17/66

Date: 05/04/17

To
Saima Mozammel Happy
Bachelor of Science in Physiotherapy (B.Sc. PT)
Session: 2011-2012, DU Reg. No:1728
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal – Common work related musculoskeletal disorder among the physiotherapists of neurology unit at CRP.

Dear Saima Mozammel Happy,

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application on February 17, 2016 to conduct the above mentioned thesis, with yourself, as the Principal investigator. The Following documents have been reviewed and approved:

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

Since the study involves answering a questionnaire that takes 10 to 15 minutes, have no likelihood of any harm to the participants, the members of the Ethics committee has approved the study to be conducted in the presented form at the meeting held at 08:30 AM on February 25, 2016 at BHPI.

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

Best regards,

Muhammad Millat Hossain

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

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন : ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স : ৭৭৪৫০৬৯

CRP-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org

Permission Letter

August 10, 2016

The Head of the Physiotherapy Department.
Centre for the Rehabilitation of the Paralyzed (CRP)
Chapain, Savar, Dhaka-1343.

Through: Head, Department of Physiotherapy, BHPI.

Subject: Prayer for seeking permission of data collection to conduct my research project.

Dear Sir,

With due respect and humble submission to state that I am Saima Mozammel Happy, student of 4th Professional, B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). According to course curriculum, we have to conduct a research for the partial fulfillment of our degree. My research project entitled on **“Common work related musculoskeletal disorder among the physiotherapists of Neurology unit”** under the supervision of Farjana Sharmin Rumana, In charge of Neurology unit, physiotherapy department; CRP. So I need to take permission to collect data for my research project from the physiotherapists who are working in Neurology unit at CRP -Savar and CRP- Mirpur. I would like to assure that anything of my study will not be harmful for the participants.

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

Sincerely Yours

Saima Mozammel Happy
4th Professional B.Sc. in Physiotherapy
Roll-24, Session: 2011-2012
Bangladesh Health Professions Institute (BHPI)

Approved

(Signature)
23/08/16
Mohammad Anwar Hossain
Associate Professor &
Head of Physiotherapy Dept.
CRP, Chapain, Savar, Dhaka-1343

Forwarded
9/10/08/16
Md. Obaidul Haque
Associate Professor & Head of the Department
Department of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

(Signature)
24/08/16
Farjana Sharmin
Sr. CPT
10-08-16
Nowab Reza Md. Rashid
Sr. Physiotherapist & In-charge
Physiotherapy Dept. CRP-Mirpur

Consent Form

Assalamualaikum\ Namashker,

I am Saima Mozammel Happy, 4th Professional, B.Sc. in Physiotherapy student at Bangladesh Health Professions Institute (BHPI) under the Faculty of Medicine, University of Dhaka. To obtain my Bachelor degree, I have to conduct a research project and it is a part of my study. My research title is “**Common work-related musculoskeletal disorder among the physiotherapists of neurology unit**”. I would like to know about some personal & other related questions about your musculoskeletal pain .To fulfill my research project I need to collect data. So, you can be a respected participant of this research and the conversation time will be 10-15 minutes. I would like to inform you that this is a purely academic study and will not to be used for any other purposes. I assure that all data will be kept confidential. Your participation will be voluntary. You may have the rights to withdraw consent and discontinue participation at any time from this study. You also have the rights to reject a particular question that you don't like.

If you have any query about the study, you may contact with my supervisor Farjana Sharmin Rumana, In charge of neurology unit, CPR, Savar, Dhaka-1343.

Do you have any questions before I start?

So, I can proceed with the interview.

Yes No

Signature of the participant and Date.....

Signature of the researcher and Date.....

Signature of the witness and Date.....

Questionnaire to identify prevalence of common work related musculoskeletal disorders among the physiotherapists of neurology unit:

Part- A: Personal details:

1. Name :
2. Age (as at last birthday) : _____
3. Weight (kg) : _____
4. Gender:

1.Male

2.Female

5. Job experience:

Part-B: Symptoms and risk identification (please give a tick on your answer)

6. How long have you been working as a clinical physiotherapist?

[a] Less than 5 years [b] Less than 10 years [c] More than 10 years

7. How many hours do you work per day as a physiotherapist?

[a] 8 hours [b] 10 hours [c] More than 10 hours

8. Have you ever experienced work- related musculoskeletal disorders in any part of your body?

[a] Yes [b] No

9. If yes, when did you first experience this work-related musculoskeletal disorder?

[a] 0-1 year [b] 1-5 years [c] 5-15 years [d] >15 years [e] Don't know [f] Not applicable

10. What words best describe your symptoms? (Please give a tick on your answer)

[a] Aching [b] Cramp [c] Pain [d] Tingling [e] Numbness [f] Stiffness
[g] Not applicable

11. What is the severity of your pain?

[a] Mild [b] Moderate [c] Severe [d] Not applicable

12. Make the severity of your pain on the following scale (VAS Scale)

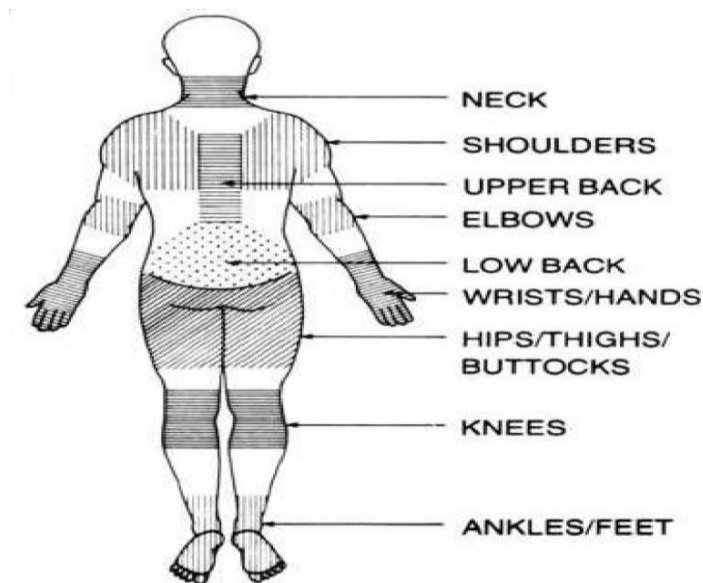
0

10

13. Does pain hamper your clinical practice as a physiotherapist?

[a] Yes [b] No [c] Not applicable

Please fill the body chart correctly



14. Did you stay away from work because of pain?

[a] Yes [b] No [c] Not applicable

15. Have you take any sick leave due to
Backpain/Neckpain/Shoulder/Elbow/Wrist/Hip/Ankle pain?

[a] Yes [b] No [c] Not applicable

16. Had your working performance reduced due to pain?

[a] Yes [b] No [c] Not applicable

17. Are you satisfied with the physical environment (structural facilities) of your
workplace?

[a] Not at all [b] Moderately satisfied [c] Satisfied [d] Not applicable

18. This list describes factors that could contribute to work-related
musculoskeletal. In your opinion, how have the following factors
contributed to your work-related musculoskeletal disorder? (Please give
a tick on your answer)

[a] Performing the same task over and over	[b] Working in awkward or cramped position
[c] Working in the same position for long period	[d] Repetitive movements of upper limb
[e] Bending or twisting your neck in an awkward way	[f] Not enough rest break during the day
[g] Continuing to work when injured or hurt	[h] Work scheduling(over time, irregular shift, length of workday)

19. Can you maintain correct posture during your practice?

[a] Yes [b] No [c] Sometimes

20. Which posture do you work most of the time during clinical practice?

[a] Sitting [b] Forward bending [c] Standing

21. Which posture makes your pain worse?

[a] Standing [b] Sitting [c] Lying [d] Bending [e] Walking

22. Which posture relieves the pain?

[a] Standing [b] Sitting [c] Lying [d] Bending [e] Walking [f] Not applicable

23. How does your pain affect your ADL?

[a] Not at all [b] Mildly hamper [c] Moderately hamper [d] Severely hamper

24. What do you like to suggest in order to improve the physical environment (structural facilities) of your workplace?

[a] Mobile bed [b] Sitting arrangement (chair & table) [c] Adequate space

(Free floor space) [e] All

Thank you sir for your assistance...

