

**WORK RELATED MUSCULOSKELETAL COMPLAINS
AMONG THE HEALTH CARE PROFESSIONALS WORKING AT
CRP**

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

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BHPI, CRP, Savar, Dhaka



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

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CRP**

Submitted by **Protiva Sarker**, 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 the department of Physiotherapy of Bangladesh Health Professions Institute (BHPI).

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Acronyms

BHPI	Bangladesh Health Professions Institute.
BMI	Body mass index
BMRC	Bangladesh Medical Research Council
CRP	Centre for the Rehabilitation of the Paralysed.
IRB	Institutional Review Board
LBP	Low Back Pain
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

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Abstract

Purpose: To identify the prevalence of work related musculoskeletal complains among the health care professionals working at CRP. **Objective:** To identify how many health care professionals experience musculoskeletal disease, to find out most affected age group, to identify the Stressful positions, to find out most affected body part among the health care professionals. **Methodology:** The study design was cross sectional. Total 108 samples were selected by convenience sampling. **Results:** Data was analyzed by using SPSS version 20. 95.4% participants suffered from musculoskeletal disease and 4.6% had not suffered from musculoskeletal disorder. Among 103 participants all of the nurses suffered from musculoskeletal disease. 96% Occupational therapists, 94.4% Physiotherapists, 91.7% Doctors and 91.7% speech language therapists suffered from work related musculoskeletal pain and discomfort. The participants who were in between 24-30 years most commonly suffered from work related musculoskeletal disorder (71.9%). Among the 103 participants lower back=28.6%, neck= 14.9%, upper back=13.3%, shoulder=10.0%, knee=5.8%, ankle and feet= 5.4%, hip= 5.0%, thigh= 4.1%, leg=3.7%, wrist and hand= 3.3%, forearm=2.5%, elbow=2.1% and arm=1.3% were found who were suffer from pain or discomfort in different body part. 68% participants who's job experience was less than 5 years those were mostly suffer from work related musculoskeletal disorder. Most of the participants experienced work related musculoskeletal complains in their first 1-2 years of work (45.9%). Most stressful position was bending position (41.6%) which makes their symptom worse. Most common pain relieving posture was lying which was found among the 69.9% participants. 91.3% participants thought that ergonomic improvements were needed. **Conclusion:** Work related musculoskeletal disorders represent a high prevalence for health care profession. In this survey there was a high prevalence of LBP among the health care professionals. In order to reduce spine problems, correct postural practices, relaxation interval sessions during work could be utilized. Health care professionals must focus on proper technique posture and adhere to a regimen of self-care to reduce the risk of pain.

Keyword: work related musculoskeletal disorder, health care professional

1.1 Background

Musculoskeletal disease in the daily activities has a great impact in workplace and it's a growing problem in our modern societies. It's represents that it is the second largest cause of short term or temporary work disability (Yasobant & Rajkumar, 2014). Millions of the people over the globe suffered from severe long term pain and physical disability due to musculoskeletal disease (Islam et al, 2015). Low back, neck and arm pain have a high prevalence in musculoskeletal disorder and its affects individuals, employees and society (Harcombe et al., 2014)

The word musculoskeletal disorders circle a key from of inflammatory situation that affects the muscles, tendons, ligaments, joints, peripheral nerves and supporting blood vessels with consequent aches, pain or discomfort (Tinubu et al., 2010). It found in physical labor especially when controlling the loads, inadequate posture and continues physical demand also with psychological demands are the powerful evidence in low back musculoskeletal diseases, also there has evidence of association with musculoskeletal diseases in upper body parts (Fonseca & Fernandes, 2010).

The people who are suffering from work related musculoskeletal diseases are get treatment from health care specialist and it more specific to occupational risk factors. The true rates are difficult to collect, but the health care professionals are suffering to determine work related musculoskeletal disease rate other then working population. The observations of 12 months in work related musculoskeletal disease result reveals that the low back (61.1%), was the bad impacts of anatomical region, after that neck (43%), shoulder (32.1%), low back (78%), hips (30.6%), and hand(26.5%) and the elbow (12.7%) was the least affected body site. From health care workers reports work related musculoskeletal disease showing the high prevalence of low back pain and low rates of elbow disorders (Nelson & Baptiste, 2006).

Tinubu et al. (2010) presented three primary risk factors that have been associated with work related musculoskeletal diseases these are repetition movement, awkward posture and high force level. A series of personal and external factors that have been

included in the etiology of work related musculoskeletal disease. The patterns of work related musculoskeletal diseases showed higher level among nurses (84.5%), and physiotherapists (83.3%), then physicians (25.3%) and low back pain was the most complaint (71.6%), among health care professionals followed by shoulder(46.8%), and then neck (42.2%), The upper back (14.7%), and the elbow (8.3%) were the less affected. Prolonged sitting and standing and working in an awkward posture were most general ergonomic hazards (Ganiyu et al., 2015).

Yasobant & Rajkumar, (2014) claimed that work related musculoskeletal diseases are responsible for morbidity in many working population. Apart from lowering the quality of workers, life and reducing the productivities, work related musculoskeletal diseases are the most costly from of work disability it's about 40% of all costs for the treatment of work related injuries. Work related musculoskeletal diseases are considered as a multifunctional due to interactions between various risk factors which results in the conditions that defer across different occupations. Health care professions are known as a high risk for work related musculoskeletal diseases; it is one of the least studied occupations (Yasobant & Rajkumar, 2014).

Yasobant & Rajkumar, (2014) claimed that work related musculoskeletal disease is the most expensive form of work disability. It was estimated that the cost of work related musculoskeletal disorder was approximately 215 billion dollars in 1995 in the United States, 26 billion Canadian dollars in 1998 in Canada, and 38 billion Euros in 2002 in Germany. In India, musculoskeletal disease is one of the major occupational health problems and it contribute 40% of all cost towards the treatment of work injuries (Yasobant & Rajkumar, 2015).

Musculoskeletal disease is one of the major problems for patients as well as society and absence from work. Health care workers have physically and psychologically demand of work and there are the high risk of developing long term musculoskeletal diseases and sickness absence (Nelson & Baptiste, 2006). 50% of the people absences due to sickness are caused at work for the health care and social work profession's (Hengel., 2011). As a result of work related musculoskeletal diseases the nurse with 53.4% followed by doctors 12.1%, occupational therapists 25% physiotherapists

15.7% those that went on sick leave (Mbada et al., 2012). However one third of all cases of sick leave among health care workers are related to work related musculoskeletal diseases. In developed countries work related musculoskeletal diseases among the health care provide below reported and developing country like India it is negligible (Yasobant & Rajkumar, 2015).

Work disability may be explained by physical, mental and social aspects of functioning, in addition to environmental and organizational demands of a person's work and personal factors that influence his or her capacity to meet these demands. Socio-demographic factors such as age, gender and educational level are important predictors for work ability. Other factors associated with insufficient work ability are heavy physical work, high pain intensity, social and environmental workplace factors, and psychological variables. Besides these factors, some studies have focused on the relation between reconditioning and poor work ability. Reconditioning refers to a decrease of capacity over time expressed by weakened muscle strength, reduced aerobic fitness or altered coordination during activity (Yasobant & Rajkumar, 2015).

Age, gender and educational level are important tools for work ability; other factors are related with insufficient work ability and heavy environmental, physical work, high pain intensity and work place factors and also psychological variable. Sufferings from work related musculoskeletal diseases are get treatment from health care workers. The true rate are difficult to determine but it appears health care worker's do suffer work related musculoskeletal diseases at rates that are negotiable to or higher than others working person (Ayanniyi et al., 2016).

1.2 Rationale

Prevalence of musculoskeletal disorders becomes increasingly common throughout the world during the past decades. Work-related musculoskeletal disorders are one of the most important occupational health problems for Health professionals. The disorders cause long periods of work disability and treatment is often necessary. From this study health professionals will be able to identify the risks that can control and review their activities. They may provide proper recommendation for every single risk which will be helpful for them. Besides this it will help to establish ergonomic guidelines for space, equipment, furniture and environmental conditions which are mandatory in the design of workplace. This study will also help to discover the lacking area of health professionals, especially about their posture before doing any activities. They are doing their activities with poor posture, long working hours, repetitive movements of the body and poor work centre design are main risk factors for these problems. This study also may be helpful for the students to do further research as the foundation of the study on this area. So it may be helpful for physiotherapists in working in this area for delivering treatment services. Thus the study might create a future prospect of physiotherapy profession in Bangladesh. Besides this it will help to professional development which is mandatory for the current situation. It will help to discover the role and importance of physiotherapy in every sector of Bangladesh.

1.3 Research Question

What is the prevalence of work related musculoskeletal disorders among the health care professionals working at CRP?

1.4 Objectives of study

1.4.1 General objective

Identify the prevalence of work related musculoskeletal disorders among health care professionals who are working at CRP.

1.4.2 Specific objectives

1. To identify the prevalence of musculoskeletal disorders in different health care professionals who are working at CRP.
2. To identify the percentage of male and female members who are suffering from work related musculoskeletal disorder.
3. To find out the most affected age group.
4. To identify the job experience of health care professionals who are suffering from work related musculoskeletal disorder.
5. To identify the most affected body part of the healthcare professionals
6. To identify the Stressful positions during work.

1.5 Operational Definition

Prevalence

The degree to which something is prevalent, especially the percentage of a population that is affected with a particular disease at a given time.

Work related musculoskeletal disorder

Work-related musculoskeletal disorders 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, parasthesias, tingling , numbness and stiffness etc. Some examples of musculoskeletal disorders include back pain, neck pain, carpal tunnel syndrome, tendonitis, tenosynovitis etc.

Work-Related Musculoskeletal Disorders are described as the non-traumatic maladies of the muscles, tendons, ligaments, joints, nerves, and supporting structures such as the intervertebral disc. Although, the work-related etiologies for soft-tissue disorders are multifarious and intricate, however, work activities such as repetitive forced motions, awkward postures, use of vibrating tools or equipment or by manual handling of heavy, awkward loads are commonly implicated (Ayanniyi et al., 2016).

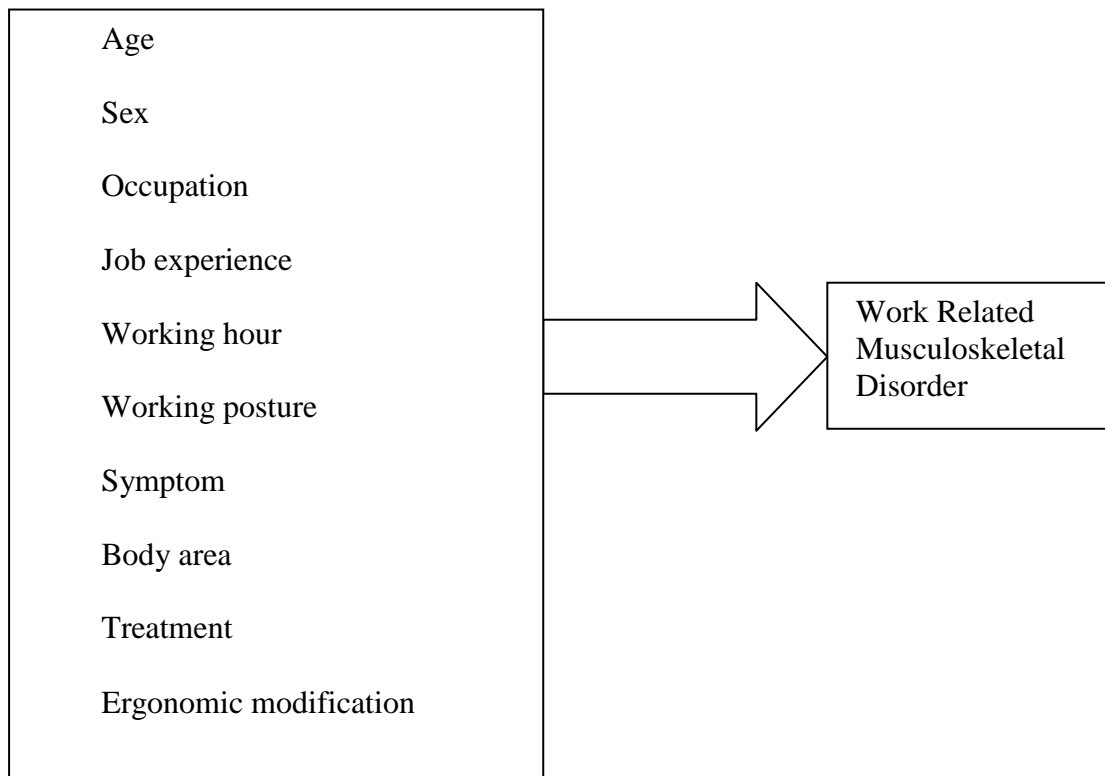
Health care professionals

The members of health care professions are Doctor, Physiotherapist, Occupational therapist, Speech and language therapist, Nurse.

1.6 Conceptual Framework

Independent variables

Dependent variable



All over the world work related musculoskeletal disease symptoms are a major health issues in many occupations (Szeto et al., 2009). Work related musculoskeletal diseases are totally different problems in the tendons, synovial, membranes (joint tissues), muscles, nerves, fascia and ligaments with or without degeneration reasons by heavy work. These are classified by the occurrence of symptoms, concomitantly or not like: pain, numbness, feeling of heaviness and fatigue. These treacherous injuries commonly affect the superior limbs, scapular region around the shoulder and cervical region, but can also affect the inferior limbs and frequent reasons of long term pain and disability among the health care personal (Lelis et al., 2012). Common presentations of work related musculoskeletal diseases are presence of discomfort, persistent pain in muscles, tendons and joints. Decrease of oxygenation in the muscle bare known as strenuous work posture which symptoms are due to repeated movements and prolonged awkward or body position. Work related musculoskeletal disease has an impact on the physical and also on the psychological and social aspects of the practitioners (Khan et al., 2015).

Profession, gender, weight, age, years of experience, hours worked per week, and patient contact hours per week as potential risk factors for injury (Darragh et al., 2009). Literature reports strong links of factors like age, physical fitness, smoking, excess body weight and occupational factors with musculoskeletal diseases. Relationship has been presented between physical demand of work and musculoskeletal diseases (Khan et al., 2015). It was also found that over-weight and obese professionals have a greater chance of developing work related musculoskeletal diseases (Yasobant & Rajkumar, 2015) Physiotherapists with a BMI over 25 reported the highest prevalence of work-related injuries (80%) (Nordin et al., 2011).

Excessive use of musculoskeletal system is the main reason damaged caused by work related musculoskeletal diseases and its inadequate backup and comprise clinical conditions workers are mainly victims, when they are submitted to inadequate work conditions and its results is disequilibrium between the queries of the abilities to respond to these requirements are organized by characteristics of work place (Lelis et

al., 2012). Repetitive hard work can be reason for physical injuries for unhealthy work environment. Professional can affected by musculoskeletal diseases, that can results in caused by pain in feet, legs, hands, shoulder, joints, back pain, disk herniation, knee problems, arm/shoulder, tendinitis are the main symptoms for their exposure to physiological burdens. Findings the fundamental cause link these problems select the treatment and rehabilitation in work place ((Lelis et al., 2012). Person who handling the heavy work load in manually by physical forces during pushing or pulling the load, then it comes bare all high risk behavior that it comes are all high risk behavior that are associated with work related musculoskeletal diseases. Health care personal engage such kind of high risk activities throughout the day when they transferring the patients, lifting the patients and repositioning the patients continuously. On the other hand nursing personnel move and handle the patients differently from physical therapist and occupational therapists. For move and handle the patients they are guided training as a way to restore function and improve independence. Performing the techniques both specialists are get training from their professional activities (Darragh et al., 2009).

During the course of their daily work routine the health care professionals are vulnerable to sustain musculoskeletal diseases in the work place (Adegoke et al., 2008). The health and wellbeing of workers give the suggestion that long working hour adversely affect in a growing body. Few observational studies have examined the impact of long workers risk for occupational injuries and illness. Some studies have find the results of a relation between long working hours are increased risk of occupational injuries among works of health care professionals in these study, long hours of work, overtime are determined to affect the risk of workplace accidents by various intermediary conditions in affected workers, such as fatigue, stress, and drowsiness (Dembe et al., 2005). A working day of more than 11 hours was significantly associated with neck pain whereas a long working week was not associated with neck pain. In a long intuitive study delivered that, working hours of 13 hour is mainly schedule related factors associated with musculoskeletal disease or more, off-shifts, weekend work, during time off and overtime these increase in risk not explained by psychological demand but were largely recommend for physical demand (Pelissier et al., 2014).

The unwillingness of the workforces has huge impact in work related injuries and illness or sickness has led to such regarding their relationship. Physiological, psychological and medical changes associated with aging affect the ability of aged individuals to deliver the function associated with daily activities. On the process of aging describe the many systematic and degenerative changes in the structure and function of the human body. The study points to an increased risk for injury due to age -related changes, there is also general consensus that as age increase, both the injury rate and number of injury decline (King et al., 2009). These symptoms are first developed by physiotherapists before the age of 30 years and the maximum of these series began within 5 years of the graduation. The physical needed nature of the physiotherapy profession may contribute to the occurrence of work related musculoskeletal diseases and results in a high prevalence (Adegoke et al., 2008).

The older workers may explain their lower injuries rate by their experience, maturity and judgment. Although it appears to be increase the risk of server and fatal work-related injuries in older workers. Research is about mixed longer recovery periods but older workers receive surgical intervention for their injuries and age related changes in cognitive function health and new petition ability due to their experience subsequent disability, within the five years of graduation 46% of the respondents experienced their first work related musculoskeletal diseases on the other hand 1.6% had it more than 15 years of the respondents fill on set work related musculoskeletal diseases while sudden 23.8% and 1.6% is resulted from an accident (Adegoke et al., 2008). Low back, neck and shoulder are the main symptoms for younger workers and low back, hand, neck and knees are the symptoms of older workers. Younger workers more often reported pain in the neck and shoulder while the older workers reported pain in the hands more often than the younger workers (King et al., 2009). The occurrence of injuries at workplace different between the senior levels and the junior levels therapists. Previous studies have stated the incidence of work injuries is the highest within the first 5 years of practice and it is very common in junior physiotherapists and newly qualified graduate (Nordin et al., 2011). It may be occurred sue to lack of orientation to the work stations and or various working styles of the youngsters bas compared to the older professionals, who are well adapted to the work stations and mostly follow safe working principles. These professionals are involved in both clinical as well as academic work 1.1 times higher chance of

developing work related musculoskeletal diseases that compared to those who are exclusively involved in clinical work. The participants who work in single shift have less chance of developing work related musculoskeletal diseases as compared to those who work in dabbled shifts (Nordin et al., 2011). The occurrence of injuries in junior physiotherapists also inter linked with the need based for interventions services that are aimed at reducing injury rate among the particular group (Nordin et al., 2011). The onset of work related musculoskeletal diseases was gradual in 65.9% of the respondents, sudden in 23.8% and resulted from an accident in 1.6% (Adegoke et al., 2008).

Most of the available information on physiotherapy-based work injuries are reported from Western and European countries where manual therapy is widely practiced. Manual therapy use is increasing among Asian nations, especially in Malaysia, and this may expose the therapists to a high level of risk for work-related injuries (Nordin et al., 2011). The life time prevalence of work related musculoskeletal diseases among physiotherapists has been reported to be 68% in the United Kingdom , 55% and 91% in Australia, and 85% in Turkey (Adegoke et al., 2008). Because the physiotherapists are treating an average of 15 to 20 patients per day for 8 working hours, the risk of work-related injuries may be more significant because of this high workload. Work related musculoskeletal diseases were highest among therapists working in pediatric areas (87.5%). The other clinical areas that reported higher rates of work related musculoskeletal diseases were cardiopulmonary practice (71.4%), neurology (70%) and musculoskeletal physiotherapy (71.4%). Lower back (48%), neck (33%), upper back (23%) and thumb injuries (23%) are the various injuries that have been reported as work-related injuries in physiotherapists (Nordin et al., 2011). The lower back was the site of the highest percentage (51.7%) of work-related injuries, followed by the neck (46.5%) and the thoracic spine (44.8%). The elbow (8.6%) and the hand-wrist (12.0%) were rarely affected by injuries. Perceived manual techniques (58.6%) and the lifting or transferring of patients (41.3%) were listed as the two techniques with the largest contribution to work-related injuries (Nordin et al., 2011). Occupational therapists are at risk of work-related injuries because of the demanding nature of their work. Work-related injuries amongst occupational therapists are commonly involved in the body regions: lower back (50%), neck (33%) and shoulders (22%) (Islam et al., 2015).

Adverse symptoms and disorders of the musculoskeletal system represent an important cause of occupational morbidity for nurses around the world. Musculoskeletal symptoms are well-known to affect nurses in many countries. The prevalence of musculoskeletal disease at any body part during our investigation (93.6%) was slightly higher than previous nurse studies conducted in tropical Australia (92.6%), Japan (78.4%) and China (70.0%). It was also higher than the rate documented by researchers in Sweden where 84% of professional nurses suffered either neck, shoulder, upper or lower back-related musculoskeletal symptoms and the USA where 72.5% reported musculoskeletal disease at the neck, shoulder or back. Musculoskeletal symptoms were most commonly reported at the shoulders during our study (74.5%) (Smith et al., 2005). Work related musculoskeletal diseases among the nurses at any body region were 78% and 66.1% respectively. Work related musculoskeletal diseases occurred mostly in low back (44.1%), neck (28.0%), and knees (22.4%). Work related musculoskeletal diseases are common among health care workers, with the nursing population that constitutes about 33% of the hospital workforce at particularly high risk and accounting for 60% of the reported occupational injuries (Tinubu et al., 2010).

It is difficult to provide adequate prevention of work-related diseases in physicians because most reviews reporting on diseases and disorders are based on all health care workers and do not differentiate for physicians the frequently reported prevalence for hand and wrist pain was 8–33 and 0%, 17% for shoulder pain, and 9–28% for neck pain. Moreover, the annual prevalence of low back pain was between 33 and 68%. An overview of the incidence and the prevalence of musculoskeletal complaints among hospital physicians may lead to more adequate prevention of work-related diseases and consequently provide a safer and healthier environment for the physicians (Hengel et al., 2011).

In general, females are physically weaker than males, and this may place them at a disadvantage during patient care tasks, particularly when lifting and transferring patients. Females are also exposed to pregnancy-related stress, which commonly affects the lower back region. The prevalence of work related musculoskeletal disease among female physiotherapists to be in the range of 73% to 100%. In general, females are physically weaker than males, and this may place them at a disadvantage

during patient care tasks, particularly when lifting and transferring patients (Lelis et al., 2012). As healthcare work often is performed by women with low physical capacity, as manifested by low aerobic fitness and low muscle strength, the imbalance between physical work demands and physical capacity may lead to excessive loading of the musculoskeletal system, hence increasing the risk of overuse injury (Jakobsen et al., 2014). Females are also exposed to pregnancy-related stress, which commonly affects the lower back region (Nordin et al., 2011). It was found that female healthcare professionals have 1.9 times higher risk for developing musculoskeletal diseases than male healthcare professionals (Nordin et al., 2011).

Work-related pain may affect clinical longevity. The impact of work-related pain on work is not so easy to define. The effects of work-related pain on job satisfaction, career longevity, productivity, and quality of care also have not been explored. They altered their schedules, avoided or adapted certain techniques, and factored their symptoms into clinical decision making. The prevalence of work related pain reported in earlier studies ranged from 40% to 80%. 1 year prevalence of work related pain 58%. Additionally, 20.7% of the therapists studied had a newly developed case of work-related pain with a severity of at least 4/10 on a visual analog scale (ratings of 0–10) and that lasted at least 1 week or was present at least once per month. In fact, less than one fifth of therapists with work-related pain lose any work time and most continue to work while injured or in pain (Hengel et al., 2011). Therapists also are less likely to seek care, take time off work, or file a workers' compensation claim because of the ability to self-treat, to recognize early symptoms of an injury and to access clinical colleagues. They also may self-treat symptoms, use colleagues to apply physical agents, and self-prescribe exercise and treatment programs (Darragh et al., 2009). These factors help explain why therapists choose to continue working while in pain more than 70% of physical therapists and occupational therapists with work-related pain reported altering their work habits because of their pain. Approximately one third to one half of therapists with work-related pain reported that it interfered with their work (Hengel et al., 2011).

Hospital work is known to involve high ergonomic exposures and risks of musculoskeletal disorders and other work-related injuries (Boyer et al., 2009). Strategies to prevent or minimize work-related musculoskeletal injuries associated

with patient handling are often based on tradition and personal experience rather than scientific evidence (Nelson et al., 2006). The most common ergonomic hazards reported were prolonged sitting, standing, forward bending of trunk and neck flexion, whereas lifting, pulling or pushing at work and repetitive and/or forceful work were the least common reported issues (Yasobant & Rajkumar, 2015). This implies that ergonomic interventions aiming to reduce the physical demands and hence reduce or prevent the work-related musculoskeletal disorders (Jakobsen et al., 2014). Ergonomic exposures include the use of excessive force, as in lifting, pushing, or pulling in awkward, constrained postures. Back, neck, shoulder, and knee problems are the most common complaints among medical and nursing personnel (Chhabra, 2016). A combination of interventions in the clinical setting and in the work environment makes it possible to reduce the disability period significantly), compared with the results obtained through the usual clinical approach, and thereby also to improve workers' quality of life. Recent studies indicate that rehabilitation interventions closely linked to the workplace; including a modification to the form or nature of the work, hasten the return to work of individuals with musculoskeletal disorders (Durand et al., 2007). This implies that ergonomic interventions aiming to reduce the physical demands and hence reduce or prevent the work-related musculoskeletal disorders might be insufficient when implemented as a single strategy (Jakobsen et al., 2014).

The most common ergonomic hazards reported by nurses were forward bending of trunk (97.2%), neck flexion of $>20^\circ$ (83.3%) and prolonged standing for >20 min (80.6%). Back and neck were the most commonly exposed regions among nurses that accounts for 48% risk of developing work related musculoskeletal diseases (Yasobant & Rajkumar, 2015). The four most important preventive strategies commonly adopted by physiotherapists in response to sustaining musculoskeletal disorder at work as: therapists adjusting plinth or bed height, therapists modifying their position or the position of their patients, obtaining assistance when handling heavy patients, and ceasing a patient's treatment if such treatment aggravates or provokes their symptoms(Adegoke et al., 2008). The major ergonomic hazards for physiotherapists are forward bending of trunk (100%), neck flexion (95%) and prolonged standing (85%) (Adegoke et al., 2008). More than 70% of physical therapists and occupational therapists with work-related pain reported altering their work habits because of their

pain. Approximately one third to one half of therapists with work-related pain reported that it interfered with their work. The alteration of work habits in response to work-related pain has not been explored in therapists (Hengel et al., 2011). Musculoskeletal diseases reported by physicians was much lower (18.3%). Elbow pain (28%), back pain (19%), and shoulder and wrist pain (12%) were the main complaints. The major ergonomic hazards reported were prolonged sitting (80%), neck flexion of $>20^\circ$ (64%) and repetitive work (52%). This group has a risk of only 8% for developing work related musculoskeletal disorder because of lesser exposure and lack of ergonomically hazardous tasks (Yasobant & Rajkumar, 2015). The effects of work-related pain on job satisfaction, career longevity, productivity, and quality of care also have not been explored (Hengel et al., 2011). Some workers whose job details requires sitting, do not use their back rest while working. However, non-usage of seat back rest could also be due to poor or inappropriate ergonomic design of such chairs. Non-usage of back rest among deskbound workers is implicated as a risk factor for musculoskeletal injury over a long time (Ayanniyi et al., 2016). Besides physical, biomechanical and ergonomic stressors, their etiology includes psychosocial and organizational risk factors, such as high occupational stress, inadequate social support, monotonous activities, anxiety and depression, among others (Lelis et al., 2012)

Maintaining a healthy workforce is a cornerstone of any prosperous society (Andersen et al., 2012). In general, work related musculoskeletal diseases impact on work was minor. Work related musculoskeletal diseases produce different levels of functional disability; they result in increased absenteeism rates (Lelis et al., 2012). For nonfatal occupational injuries in the United States, 18.6% of all new cases occurred in the health care and social assistance sectors; hospitals even topped the list of nonfatal injuries and illnesses per year (US labour statistics). Moreover, for the health care and social work professions, 50% of the absences due to sickness are caused at work or by work. Health care workers are exposed to several factors that can explain the heightened risk for illnesses and sick leave. For example, the awkward work postures and manual material handling of hospital staff lead to an increased risk for occupational musculoskeletal injuries (Hengel et al., 2011). Work related musculoskeletal diseases are diseases that are difficult to treat and are motives for sick leave. Nursing work can provoke often irreversible physical injuries,

involving partial or permanent leaves of absence and disabilities (Lelis et al., 2012). No more than 25% of the physical therapists took sick leave because of work related musculoskeletal diseases (Alrowayeh et al., 2010). It is estimated that almost one-third of all cases of sick leave among healthcare workers are related to musculoskeletal diseases (Chhabra, 2016). It appears that even in developed countries work related musculoskeletal diseases are under-reported among healthcare providers (Alrowayeh et al., 2010). It is much neglected in developing countries (Yasobant & Rajkumar, 2015). Musculoskeletal complaints are the second most common reason for consulting a doctor, accounting for up to 10-20% of primary care consultations in some countries. Work related musculoskeletal diseases are important to be studied and prevented as regularly occurring pain or discomfort that is ignored can cause the cumulative physiological damage. This in turn can lead to an injury or a career-ending disability. Especially, co morbidity of chronic complaints is highly related to increase cost of disorders (Khan et al., 2015). Partial sick leave has been used to give employees the possibility to combine work and sickness benefits. However, there is a lack of evidence regarding functional ability in workers on partial sick leave compared to those on full sick leave (Nelson & Baptiste, 2006). Sickness absence is considered as a global measure of health (Kivimaki et al., 2003). Long-term sickness absence has serious socioeconomic consequences accounting for up to three quarters of sickness absence costs (Andersen., et al., 2012).

In general, occupations with high physical work demands show elevated prevalence of musculoskeletal pain. Because the tasks of a healthcare worker are particularly physical demanding with awkward postures and high loadings on the back, the incidence of musculoskeletal pain is high. For example, among more than 8000 healthcare workers, 28%, 23% and 12% experienced severe pain in the neck/shoulders, low back and knees, respectively. Further, the risk for long term sickness absenteeism was increased by 47-92% when experiencing severe pain in these body regions. Accordingly, strenuous perceived physical exertion during healthcare work is a risk factor for developing severe or chronic pain in the low back and in the neck and shoulder. This is not surprising considering biomechanical loadings during patient handling tasks frequently exceed the recommended safe limits for maximal acceptable compression forces on the back (Jakobsen et al., 2014).

Professionals perform multivariate and fragmented activities, accompanied by an overload and accelerated work rhythm; submitted to the high requirements in the work environment, their chances of developing musculoskeletal pain in some body regions are high (Lelis et al., 2012). In general, occupations with high physical work demands show elevated prevalence of musculoskeletal pain (Jakobsen et al., 2014). Low back pain is considered one of the most important occupational problems in healthcare personnel. Nevertheless, a high prevalence of upper limb musculoskeletal disease has also been reported in some studies. To the best of our knowledge, the results of research on upper limb musculoskeletal disease and biomechanical overload in healthcare personnel has not been recently reviewed (Occhionero et al., 2014). High perceived job stress was consistently associated with all upper limb problems (Pelissier et al., 2014).

Accordingly, strenuous perceived physical exertion during healthcare work is a risk factor for developing severe or chronic pain in the neck (Jakobsen et al., 2014). Strenuous shoulder movements were reported by 46% of participants, and they proved correlated with neck pain. In physiotherapists, neck symptoms, compared with other groups, are among the lowest, ranging from 12% to 47.6%. Repetitive movements, maintaining the same position for prolonged period of time and transferring patients, were subjectively evaluated by these operators as significant risk factors of their profession found a correlation with working in the same position for long periods the same task repeatedly and an insufficient number of breaks during the working day (Occhionero et al., 2014). Injury to the neck 14% was occupational therapist (Darragh et al., 2009), 23.3% was nursing staff, 40% was Medical doctors (Khan et al., 2015). Sustained static and/or awkward posture was perceived as the factor most commonly associated with neck symptoms (Szeto et al., 2009).

Strenuous shoulder movements as well as primarily repetitive movements reported by 46% of nursing personnel were considered to be correlated with shoulder pain. A relatively low prevalence was observed in physical therapists: 10–42% (Occhionero et al., 2014). Injury to the shoulder 17% was occupational therapist (Darragh et al., 2009), 23.3% was nursing staff, 26.7% was Medical doctors (Khan et al., 2015). Strenuous perceived physical exertion during healthcare work is a risk factor for developing severe or chronic pain in the shoulder (Jakobsen et al., 2014).

The elbow is a less-studied body segment in the literature and the least affected by musculoskeletal diseases in the groups examined. In physiotherapists, the prevalence was the lowest, varying between 2% to 16% and nurses vary greatly, from 3% to 52% (Occhionero et al., 2014). High job demands and monotonous work were associated with hand/wrist problems (Pelissier et al., 2014). The prevalence observed in physiotherapists was low: 12–36% but a relation with performing the same task repeatedly. In the nurse group, prevalence is quite similar: between 22% and 61% (Occhionero et al., 2014). Injuries to the hand 21% and wrist 14% occupational therapist (Darragh et al., 2009), 16.7% Nursing staff , 30.0 % Medical doctors (Khan et al., 2015).

The most commonly reported musculoskeletal disorder was lower back pain among all groups of health care professionals (Khan et al., 2015). The lifetime prevalence of LBP (at least one episode of LBP in a lifetime) in developed countries is reported to be up to 85%. Accordingly, strenuous perceived physical exertion during healthcare work is a risk factor for developing severe or chronic pain in the low back (Jakobsen et al., 2014). The highest prevalence of work related musculoskeletal diseases among physical therapists is reported to be in the lower back area (Alrowayeh et al., 2010). LBP management presents a major challenge to healthcare professionals working at primary care level (Jakobsen et al., 2014).

Medical doctors (53.3%) and Nurses (50%) (Khan et al., 2015) are at high risk for musculoskeletal diseases, especially low back pain (Harcombe et al., 2014). Occupational therapists reported the low back as the most frequently injured body part. Patient lifting accounted for 71% of injuries to occupational therapists, and injuries to the trunk, including back and shoulder. 30 % occupational therapist reported LBP (Darragh et al., 2009). The reported prevalence among physical therapists in the United States (45%), Nigeria (69.8%), the United Kingdom (37.2%) , and Australia (62.5%) (Alrowayeh et al., 2010). Canada (49%), Kuwait. a (70%) (Adegoke et al., 2008). Workstyle score was significantly associated with the symptom severity in the low back region (Szeto et al., 2009). Elements of clinical practice which have been suggested as risk factors include treatments which demand repetitive movements or continuous bending, lifting/transferring dependent patients, responding to unanticipated or sudden movements by patients, performing manual

therapy, restricted workplace, understaffing, age and sex. Scientific literature from various parts of the world has also reported significant association between occupational risk factors involving high repetition rates, excessive forces, and awkward postures and musculoskeletal disorders. The low back was reported as the most common site of work related musculoskeletal diseases (Adegoke et al., 2008).

3.1 Study design

A cross sectional study design was selected to carry out the research. This design involves identifying group of people and then collecting the information that requires when they use the particular service. For this reason a quantitative research model in the form of a cross-sectional design is used. Cross-sectional study was selected because in this way it is possible to identifying a defined population at a particular point time in. 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). For that, a quantitive methodology was selected. Informed consent form will be given prior to data collection. The sample frame used to select a sample and the response rate determine how well results can be generalized to the population as a whole Cross-sectional studies are carried out at one time point or over a short period. They are usually conducted to estimate the prevalence.

3.2 Study site

The study was conducted in Center for the Rehabilitation of the Paralysed (CRP), Savar. This area had been chosen and there were the samples which meet inclusion & exclusion criteria of the study. Centre for the Rehabilitation of the Paralysed (CRP), it is situated in Savar, which 20 km away from Dhaka. The founder of CRP is a British physiotherapist Valerie Taylor. It was founded in 1979 by the help of a small group of Bengalis.

3.3 Study area

Musculoskeletal conditions of the health care professionals.

3.4 Study population

The study populations were 169 those health care professionals whose were working at CRP, Savar, Dhaka.

3.5 Sampling Procedure

In the study where used convenient sampling technique because considering the inclusion, exclusion criteria and the number of health care professionals working at CRP, Savar, Dhaka it would be difficult to find the expected number of subjects.

3.6 Sample size

Sampling procedure for cross sectional study done by following equation-

$$n = \frac{Z^2 pqN}{e^2(N - 1) + Z^2 pq}$$

Here,

$$Z = 1.96$$

$$P = 26.4\% = 0.264 \text{ (Prevalence} = 26.4\%)$$

$$q = 1 - p$$

$$e = 0.05$$

$$N = 169 \text{ (Mamun, A., personal communication, October 2016)}$$

So the researcher aimed to focus his study by samples following the calculation above initially. The sample size was 108. 108 samples were collected according to the inclusion and exclusion criteria.

3.7 Inclusion criteria

1. Patient who were medically stable.
2. Age range 20-65 years.
3. People who were willing to participate in the study.
4. Working experience was at least 1 year.
5. All kinds of musculoskeletal complain having participants were selected.

3.8 Exclusion criteria

1. Patient who were medically unstable.
2. Age range below 20 or above 65 years.

3. Who were not willing to participate in the study.

4. Woman who were pregnant.

5. Had any pathological disease/ malignancy.

3.9 Data collection instrument and tools

Data collection method is Structured close ended questionnaire and tools are pen, papers, consent form, watch, Numerical pain rating scale, pen drive, file and printer.

3.10 Participant selection procedure

Health care professionals who were involve in different sector at Centre for the Rehabilitation of the Paralyzed (CRP), Savar.

3.11 Method of data collection

Finding the appropriate number and type of people to take part in the study is called sampling (Hicks, 2000). In this study data were collected by face to face interview technique and by using structured questionnaire. The investigator went to therapists to take permission if they are interested to take part in this study. Firstly, the investigator introduced her and the research project and its purpose. Researcher also clarifies to all participants that they can withdraw from the study at any time. Participants were ensuring that any personal information was not be published anywhere. Then investigator met with individual health care professionals to find out if they were interested in participating. Researcher took permission from each participant by using a written consent form. After getting consent from the participants, questionnaire was using to identify the complaint and collect information. For data collection, the investigator used only questionnaire in Bangla format with the possible easiest wording. According to the participants understanding level, sometimes the questions were described so that the patients can understand the questions perfectly and answer accurately. All the data were collected by the researcher own to avoid the errors.

3.12 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. There were 33 questions relating to work related musculoskeletal disorders among the health care professionals.

Questionnaire is a method of collecting information whereby subjects answer a set of questions usually predefined by the researcher (Hicks, 2000). Questionnaire must be kept in short that the respondent will finish it but long enough to obtain the desired information and the question should be sequenced in a logical order that they follow one another (Baily, 1997).

The survey technique using a specially advised questionnaire as it is highly appropriate way of conducting such a study (Hicks, 2000). Bowling (1997) claimed that a basic underlying of questionnaires is that researchers and respondents share the same theoretical frame of reference and interpret the words, phrases and concepts used in the same way. Hicks (2000) claimed that the value of questionnaire is largely governed by the skill of the question- setter, devoid of ambiguities and bias and to provide a comprehensive and appropriate answer structure. Too often respondents get irritated by answer formats which do not meet their needs and consequently they refuse to fill in their replies. Bailey (1997) claimed that always enclosed the questionnaire in a stamped, addressed envelope. This will greatly increase the response rate. Make sure that cover letter tells the recipients why they should interested in the study and what benefits they can expects from participating.

3.13 Duration of Data Collection

The duration of data collection was approximately 04 weeks. Bailey (1997) claimed that self administered questionnaires are generally limited to 30 minute and always give a deadline for returning the questionnaire- approximately 2 weeks after it has been received. Research shows that recipients rarely return questionnaire after 2 weeks. Within four weeks the researcher conducted research with the participants and collected the data.

3.14 Data analysis

After completing the initial data collection every questionnaire had been checked again to find out any mistake or unclear information. The data analysis was performed in SPSS version 20, Microsoft office word and Microsoft office excel. Data was calculated as percentages and presented by using bar graph, pie charts etc. The result of this study was consisted of quantitative data. By this study a lot of information was collected.

3.15 Rigor

During the data collection and data analysis the researcher always tried not to influence the process by his own perspectives, values and biases. No leading questions were included in the questionnaire. When conducting the study the researcher took help from the supervisor when needed.

3.16 Ethical consideration

The research proposal was submitted to the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI) and approval was taken from the board. The whole process of this research project was done by following the Bangladesh Medical Research Council (BMRC) guidelines and World Health Organization (WHO) Research guidelines.

Participants were selected for this study according to selection criteria and informed properly. The researcher obtained consent to participate from every subject. A signed informed consent form was received from each participant. During data collection it was ensured that participants were not influenced by data collector. Patient and researcher sign willingly and voluntarily into the study. Participants were informed that they are completely free to decline answering any question during the study and free to withdraw their agreement and participation at any time from the study. The confidentiality maintained and the benefits of the study to future participant and therapist were explained. The study was conducted in a clean and systematic way.

Prevalence of work related musculoskeletal disorder

Analysis demonstrated that 95.4% (n=103), participants had been suffering from work related musculoskeletal disorder in different body part and 4.6% (n=5), participants had not been suffering from work related musculoskeletal disorder out of 100% (n=108) participants.

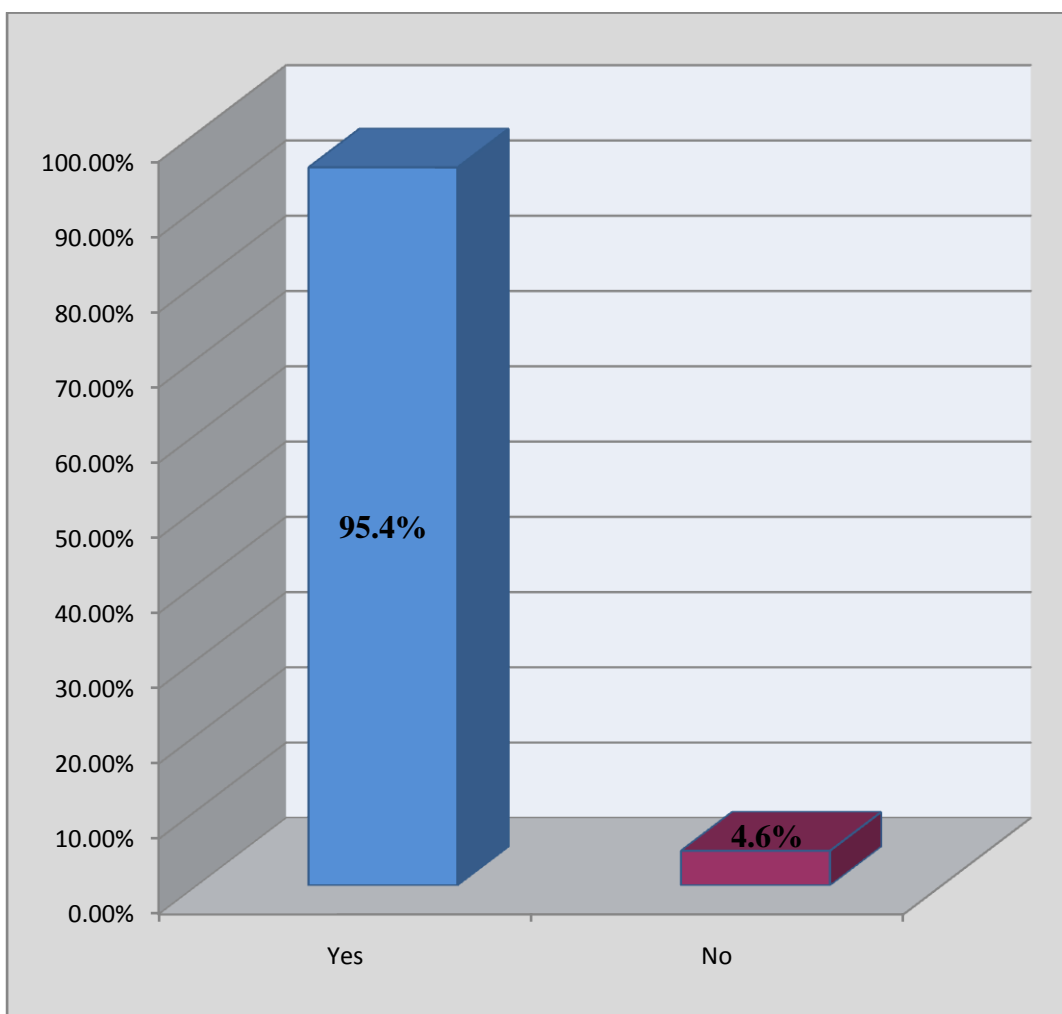


Figure-1: Prevalence of work related musculoskeletal disorder

Gender

The result reveals that among the 108 participants 44.4% (n=48) were male and 55.6% (n=60) were female. Among the 103 participants who were suffered from work related musculoskeletal disorder and comprising the respondents were largely female were 54.4% (n=56) and 45.6% (n=47) were male.

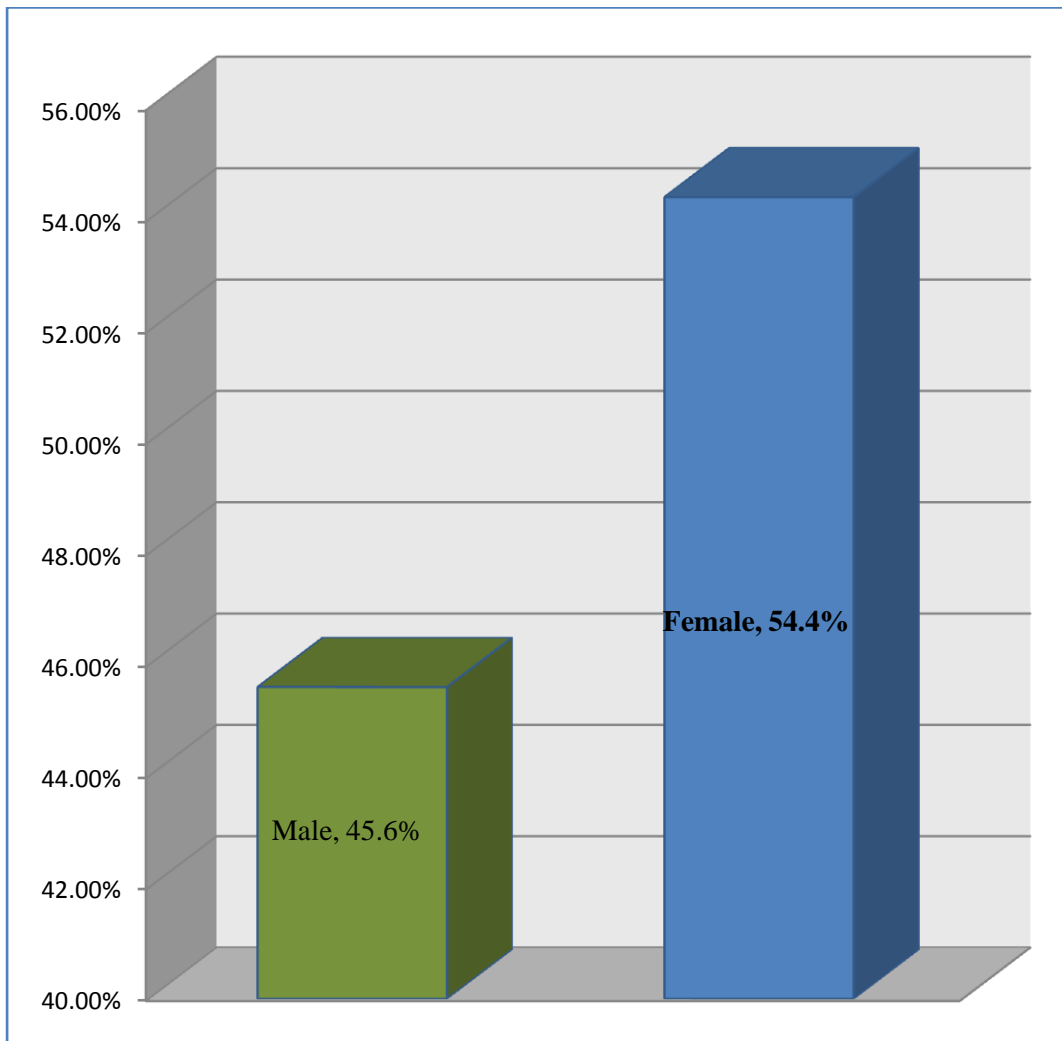


Figure-2: Gender of the participant

Age:

The age of the respondents (n=108) in this study ranged between 24 to 51 years with the mean age was 29.56 (SD ± 4.890) years. Work related musculoskeletal disorder among the health care professionals (n=103) with the age of 24-30 years (71.9%) were mostly affected by work related musculoskeletal disorder followed by 31-35 years (16.5%) . The least affected age was 46-51 years (1.00%).

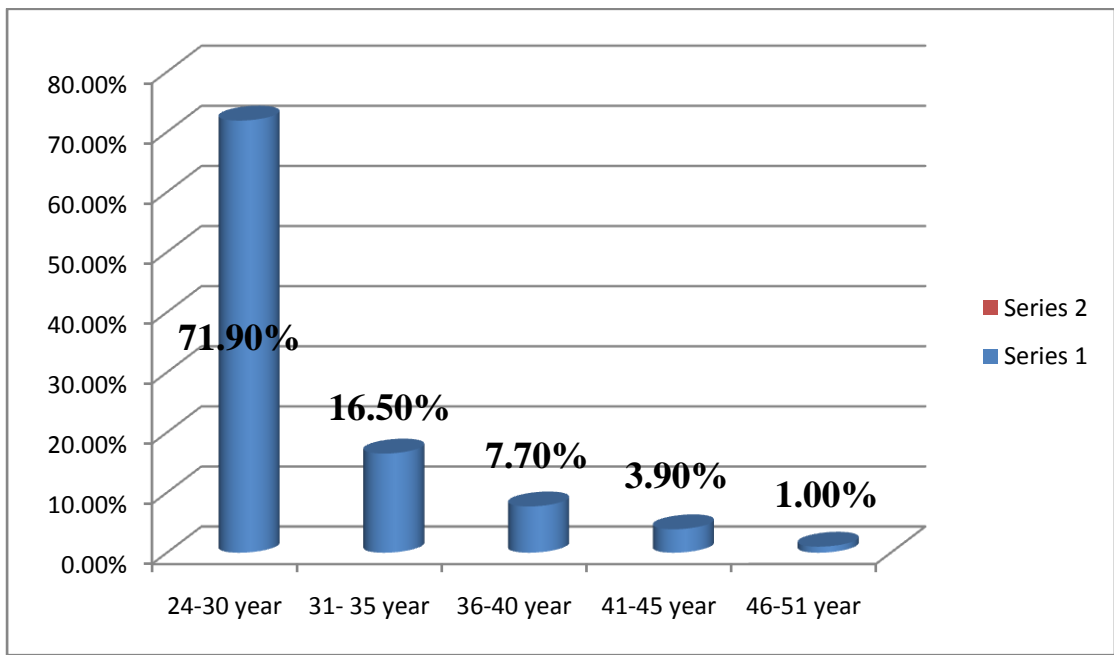


Figure-3: Age of the participants

Weight

After analysis researcher found that among the entire participant the lowest weight was 39 kg and the highest weight was 92 kg. Analysis showed that 103 participants out of 108 participants who had suffered from work related musculoskeletal disorder 3.90% (n=4) participants were in between 35kg-44kg, 22.40 % (n=23) participants were in between 45kg – 54kg, 28.10% (n=36) were in between 55kg -64 kg, 27.20% (n=28) were in between 65kg-74kg, 7.8% (n=8) were in between 75kg-84kg, 3.9 % (n=4) were in between 85kg-94kg.

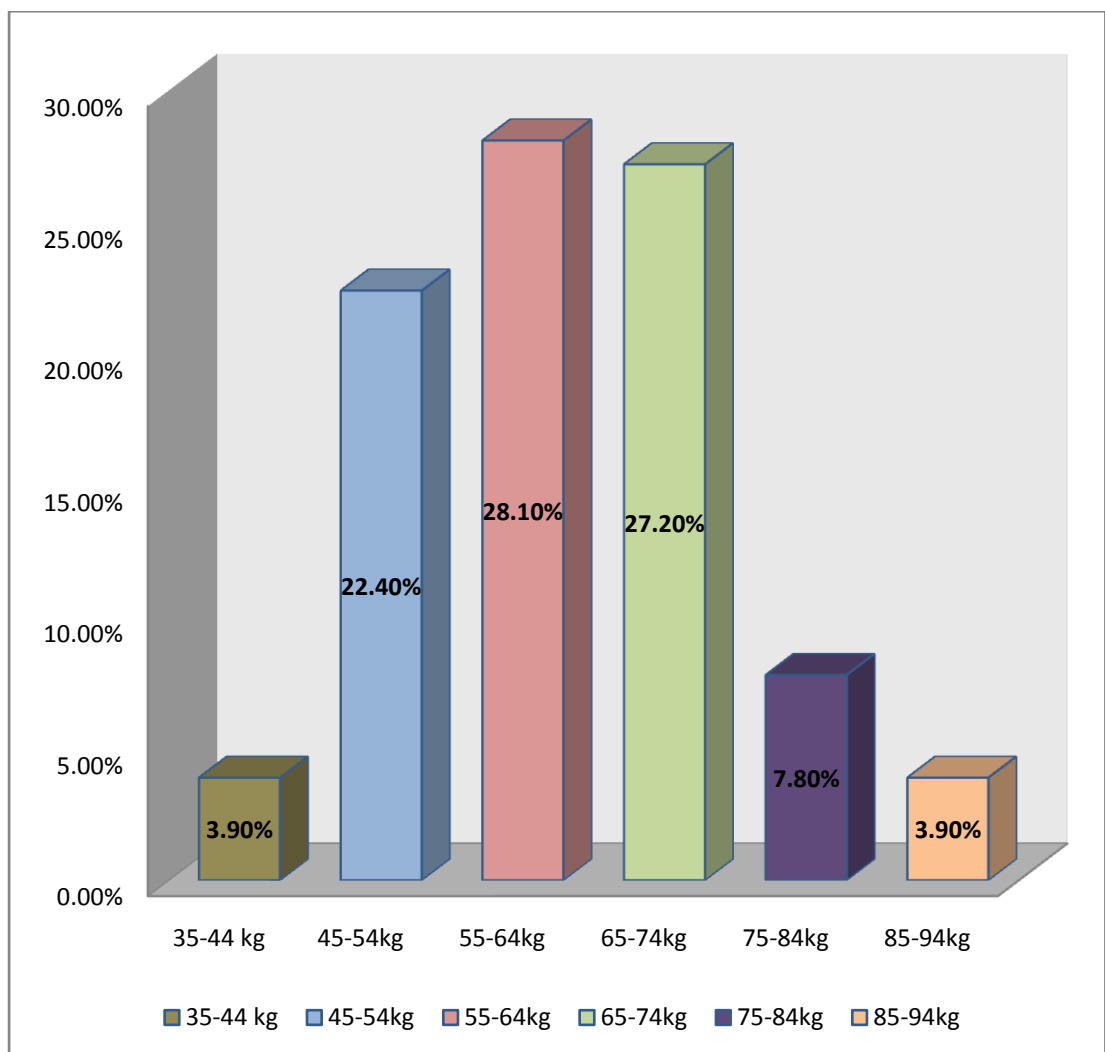


Figure-4: weight of the participants

Occupation

The result reveals that among the 108 participants there were 11.1% (n=12) Doctor, 33.3% (n= 36) Physiotherapist, 23.1% (n=25) Occupational therapist, 11.1% (n=12) Speech and language therapist, 21.9% (n=23) Nurse. Among the affected participants 10.7% (n=11) were Doctor, 33.0% (n=34) were Physiotherapist, 23.3% (n=24) Occupational therapist, 10.7% (n=11) Speech and language therapist, 22.3% (n=23) Nurse.

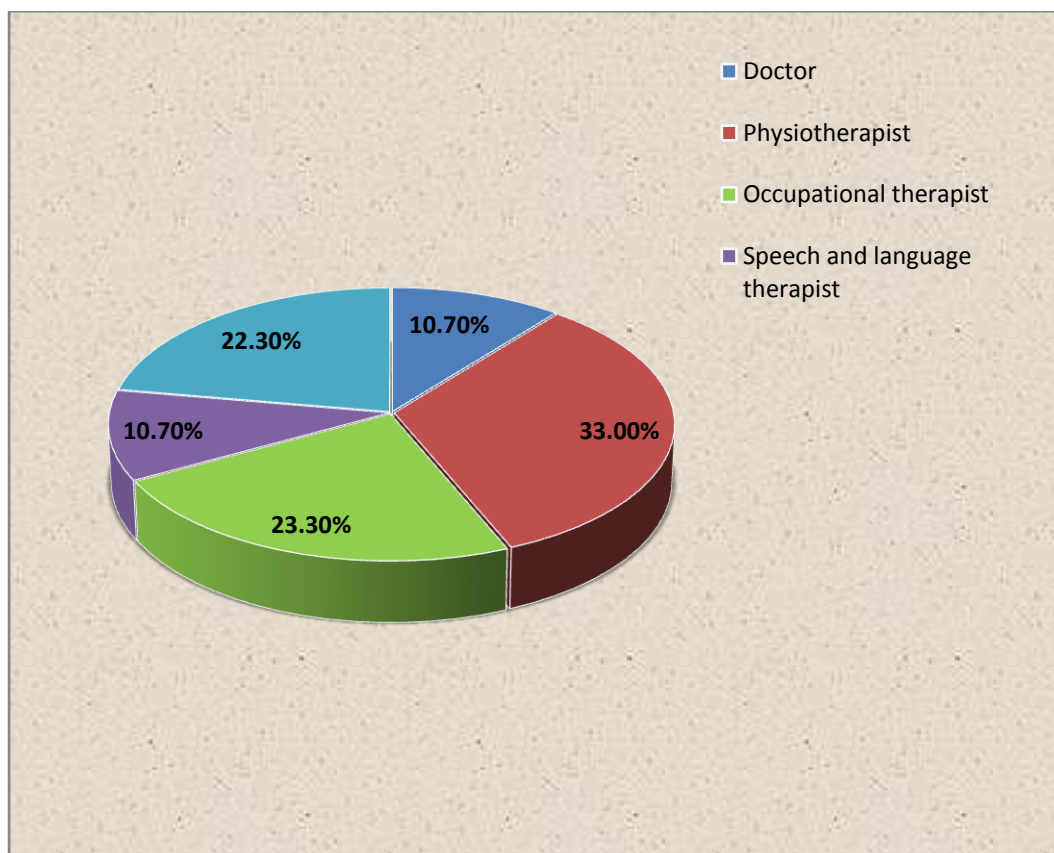


Figure-5: Occupation of the participants

Prevalence of musculoskeletal disorder in different health care professionals

Outcome showed that there was 91.7% (n=11) doctors, 94.4% (n=34) physiotherapists, 96% (n=24) Occupational therapists, 91.7% (n=11) speech language therapists and 100% (n=23) nurses were suffer from work related musculoskeletal pain and discomfort in different part of the body.

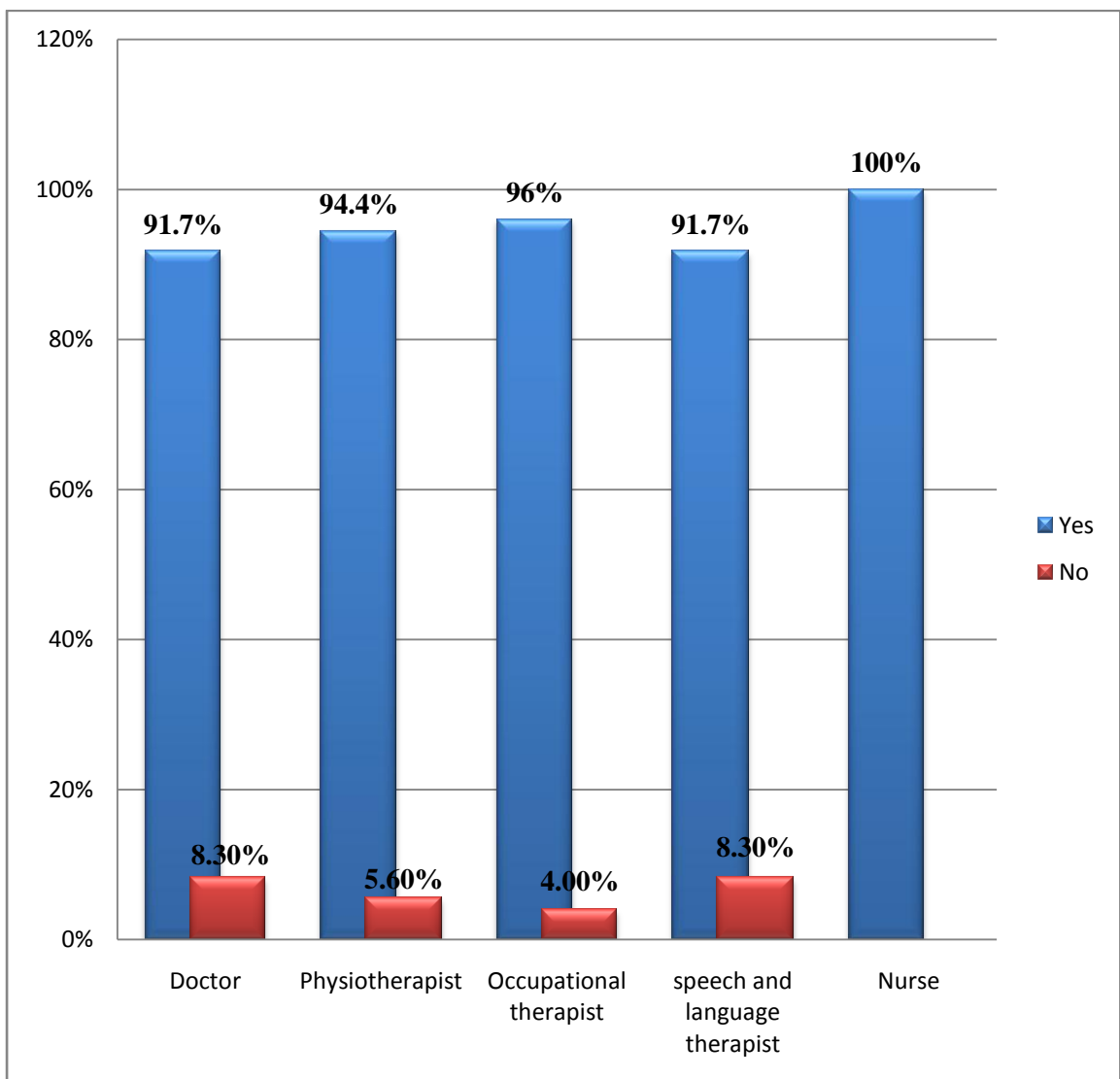


Figure-6: Musculoskeletal disorder in different health care professionals

Job experience:

Outcome reveals that among 108 participants 69.4% (n=75) participants had job experience less than 5 years, 30.6% (n=33) participants had job experience more than 5 years. Their mean job experiences were 1.31 years (SD \pm .463). Among the 103 participants, job experience less than 5 years were reported by 68.0% (n=70) participants and more than 5 years were reported by 32.0% (n=33) participants. Mean job experience of the affected group was 1.32 years (SD \pm .469). So majority of the health care professionals suffered from work related musculoskeletal disease suggested less than 5 year job experience.

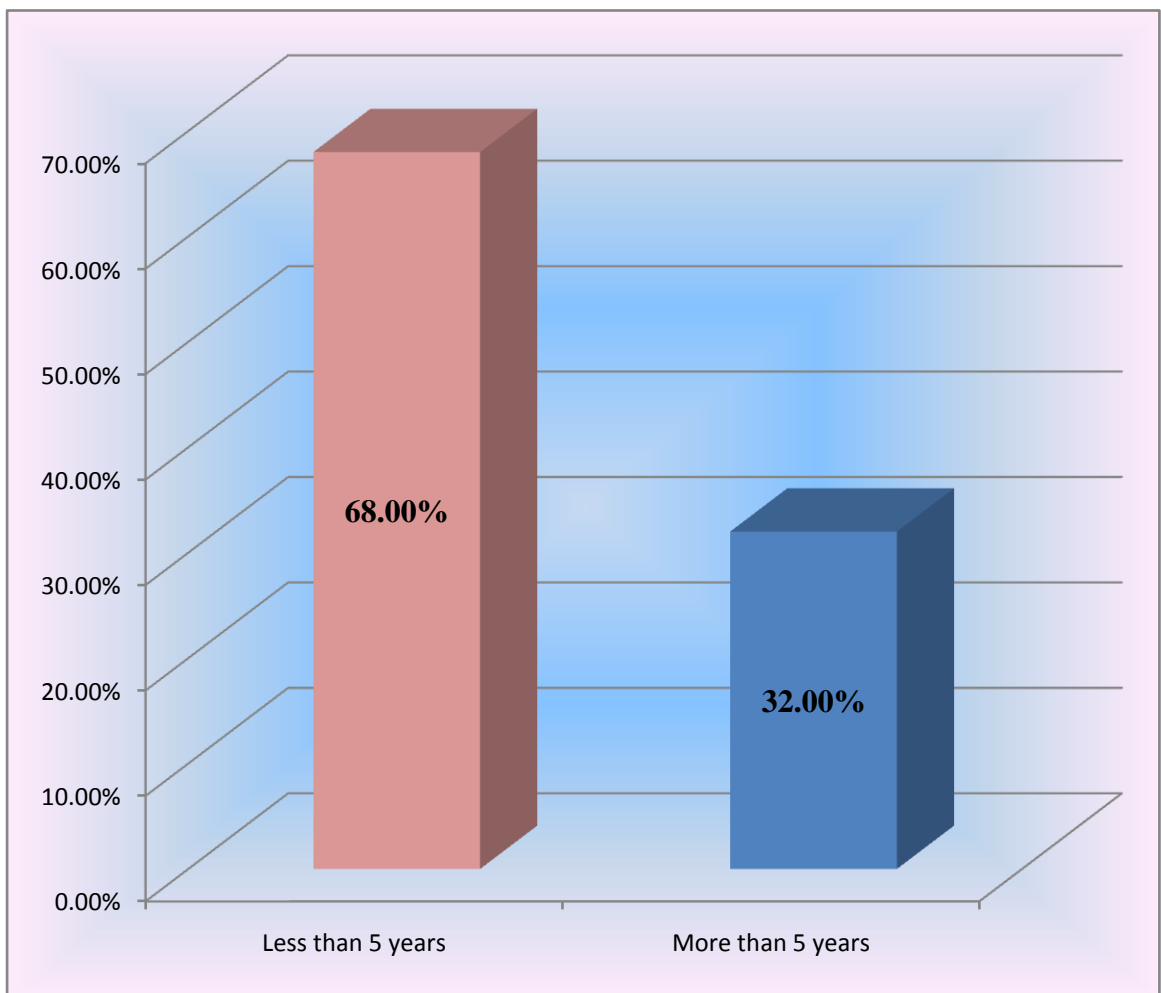


Figure-7: Job experience of the participants

Working hour

Final analysis demonstrates that among the 108 participants, 68.5% (n=74) respondents were working 8 hours, n=34 (31.5%) respondents were working more than 8 hours. Among the 103 participants most of the respondents (68.9%, n=71) were working 8 hours and the rest of the respondents (31.1%, n=32) were working more than 8 hours.

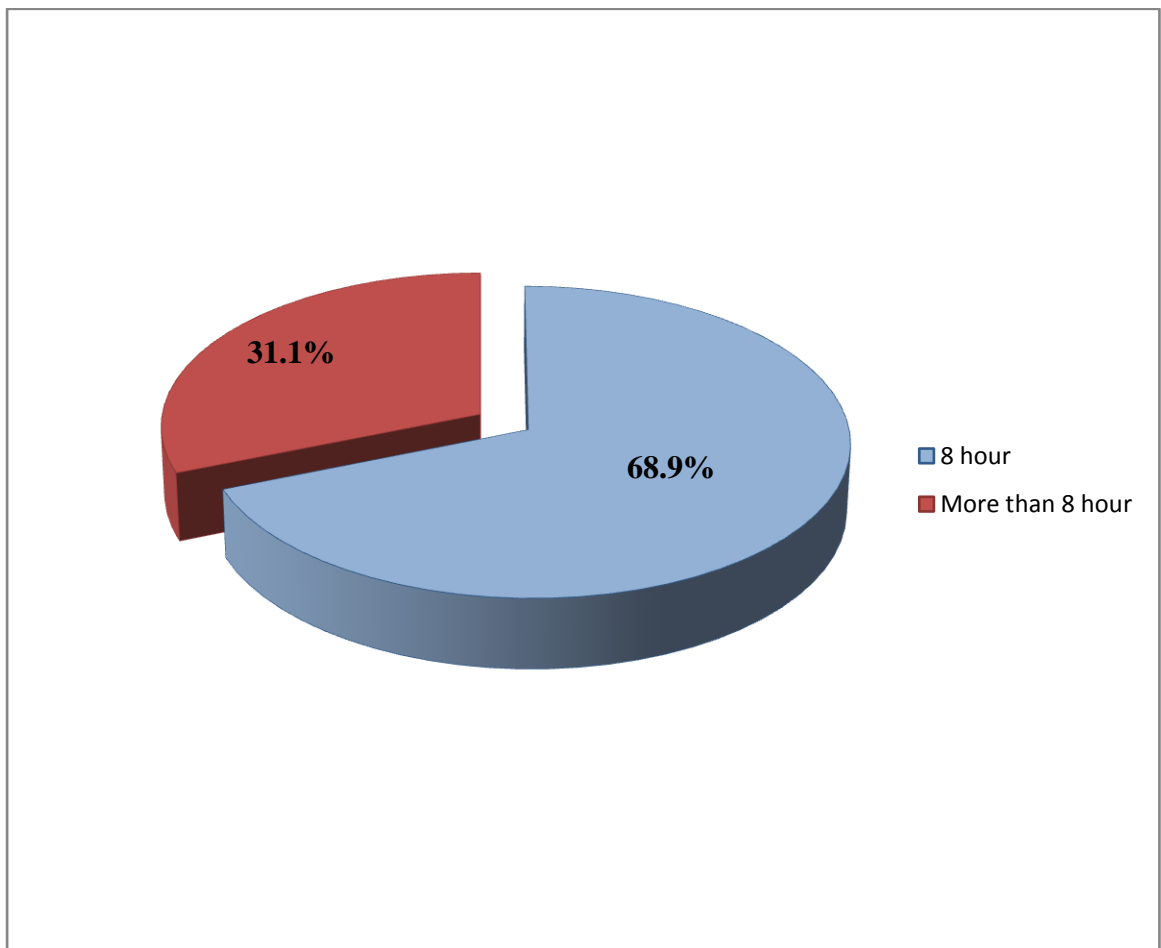


Figure-8: Working Hour

Working posture:

Study proved that 103 participants were suffering from work related musculoskeletal disease among 108 participants. Sitting (38.9%, n=51) was the most adopted posture during work followed by 24.4% (n=32) bending posture, 35.1% (n=46) standing posture and 1.5% (n=2) other posture responses were found that posture in which they worked most of the time.

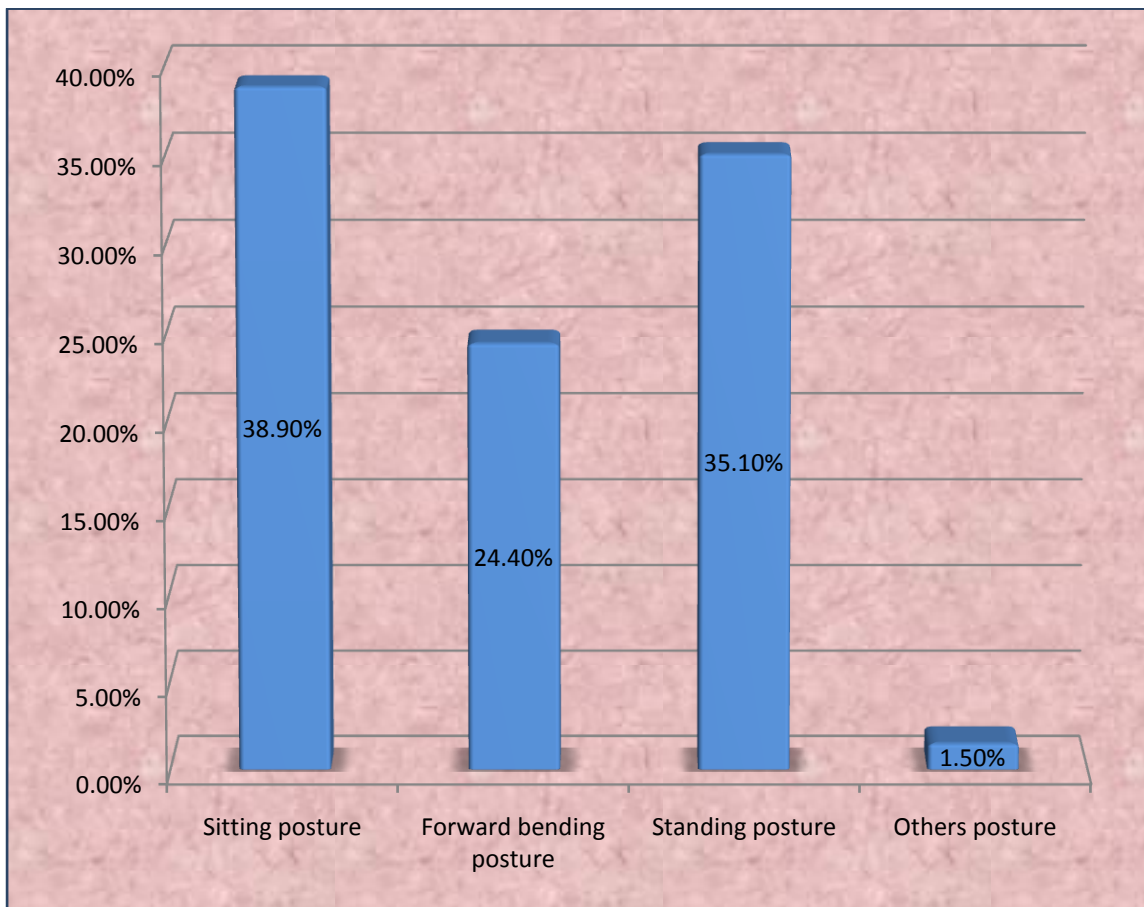


Figure-9: working posture in which work most of the time

Postural Awareness

Analysis reveals that, most of the participants 49.5% (n=51) were maintain posture sometimes but not for all times among the 103 participants out of 108. 14.6% (n=15) participants were maintained posture for all time and 35.9% (n=37) participants were not maintain posture during work.

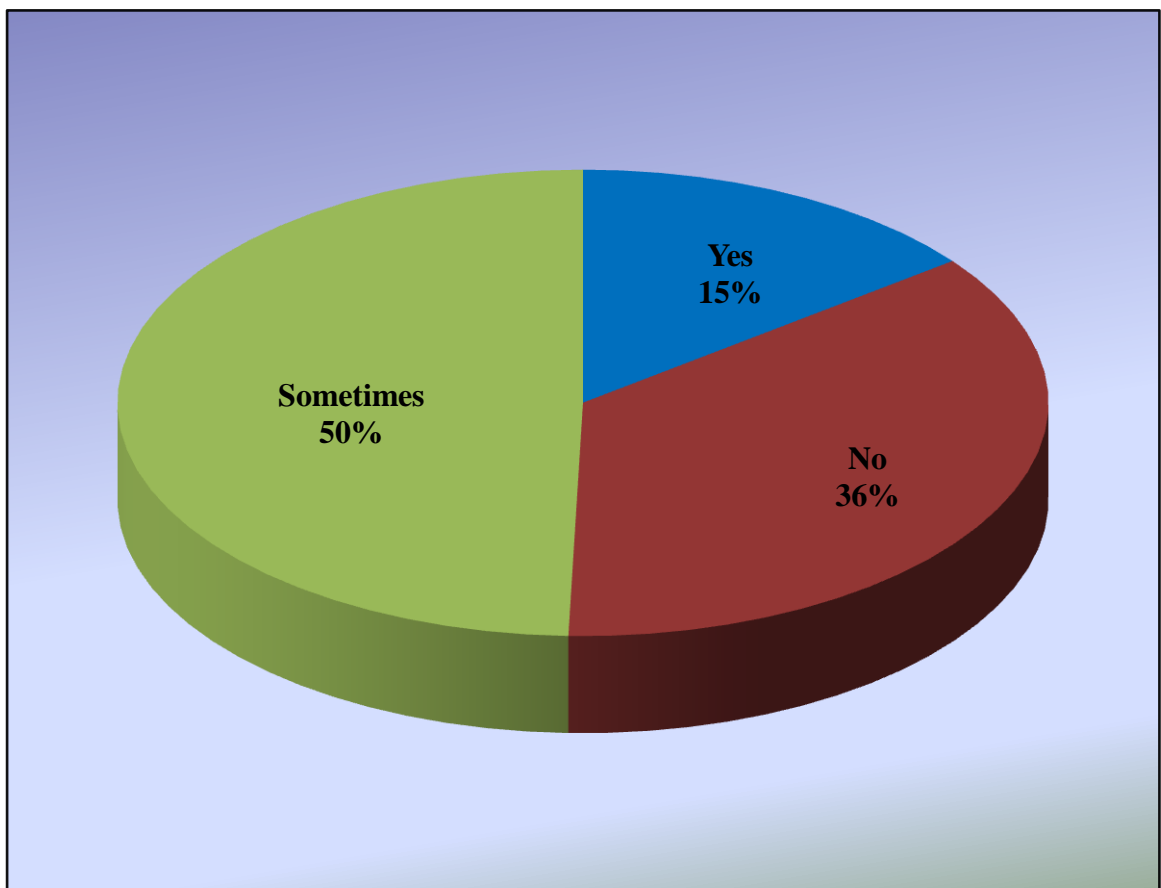


Figure-10: Postural awareness

Severity of pain:

Analysis demonstrated that more than half (58.3%, n=60) of the participant who had pain, reported their pain as moderate among the affected participants. Only 26.2% (n=27) of them had suffered from mild pain and the rest (15.5%, n=16) had severe pain among the 103 participants.

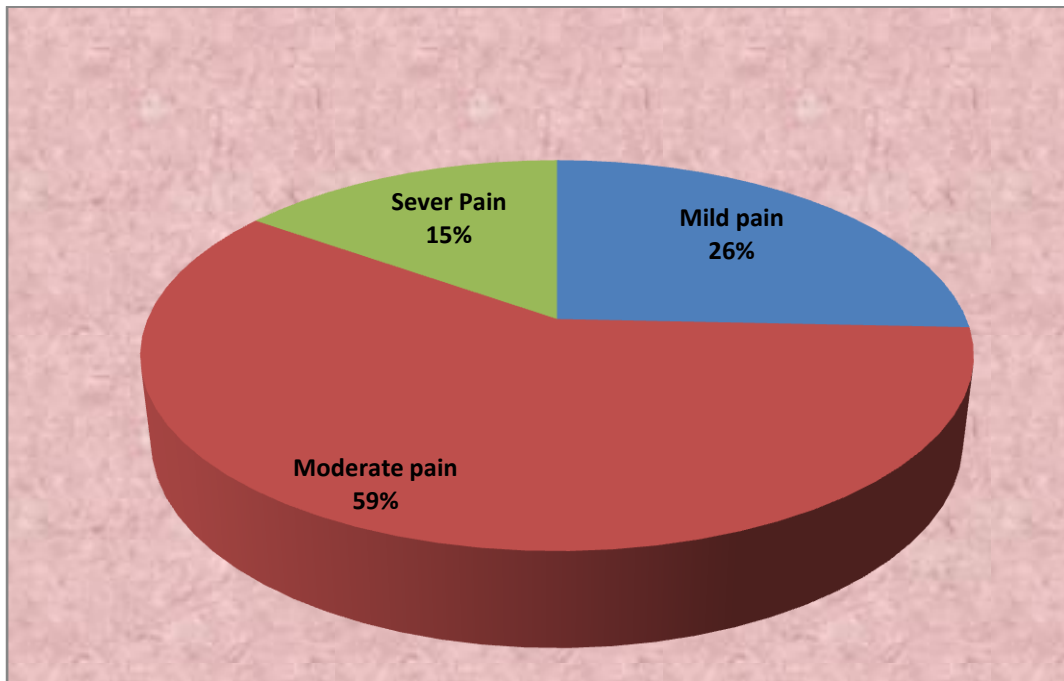


Figure-11: Severity of pain

First experience of work related musculoskeletal disorder

Analysis showed that among the 103 participants out of 108 participants who suffered from work related musculoskeletal disorder, all most half (49.5%, n=51) of the participants felt their work related musculoskeletal disorder in the first year of work, 37.9% (n=39) participants felt from 1-5 years of work, 6.8% (n=7) participants felt in the 5-15 years of work and 5.8% (n=6) participants didn't know about their first experience.

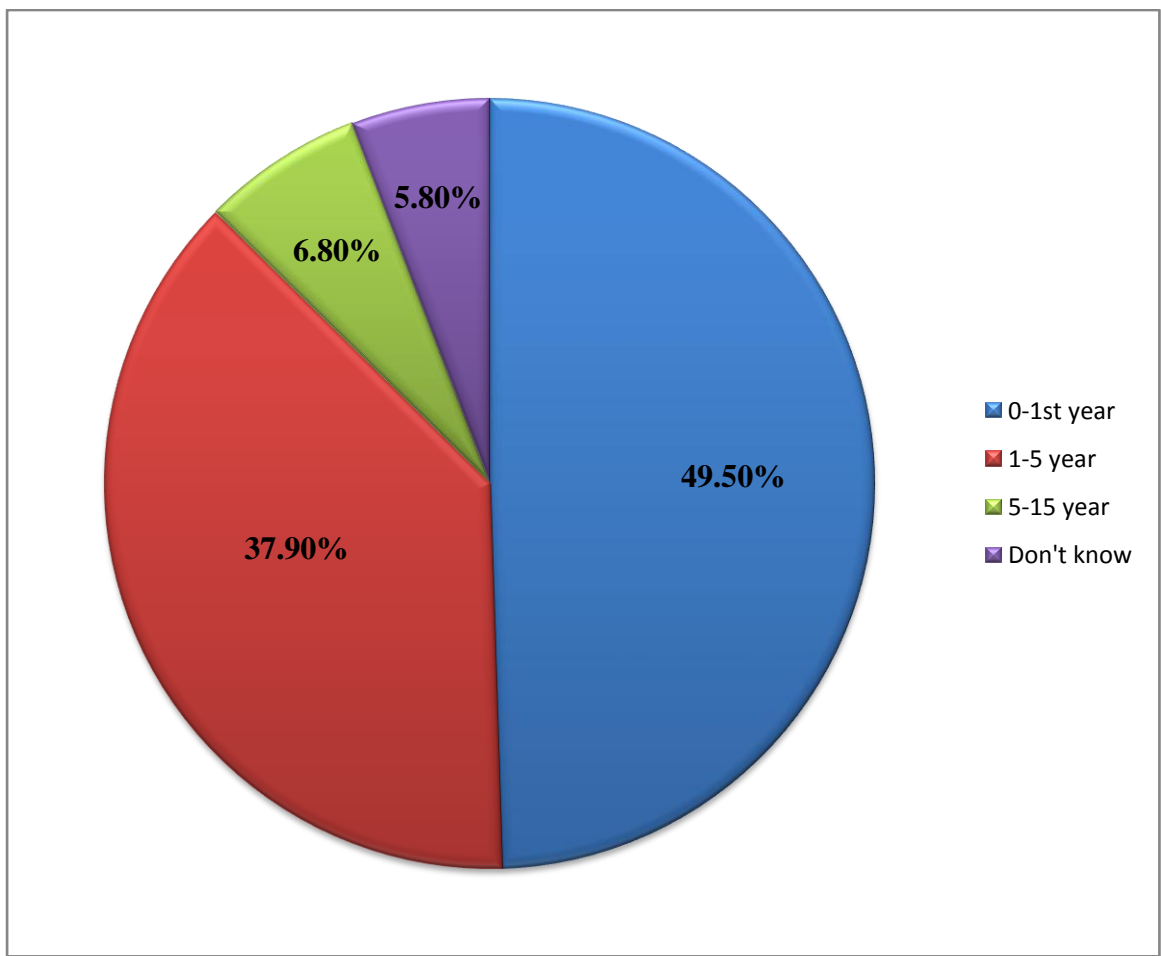


Figure-12: First experience of WRMSD

Symptoms

Analysis demonstrated that 103 participants out of 108 participants who suffered from work related musculoskeletal disease. Majority of them 70.2% (n=87) suggested pain, followed by 8.9% (n=11) with cramp, 5.6% (n=7) with tingling, 15.3% (n=19) with spasm responses were found among the participants suffered from these type symptoms aching. So most health care professionals suffered symptom was pain.

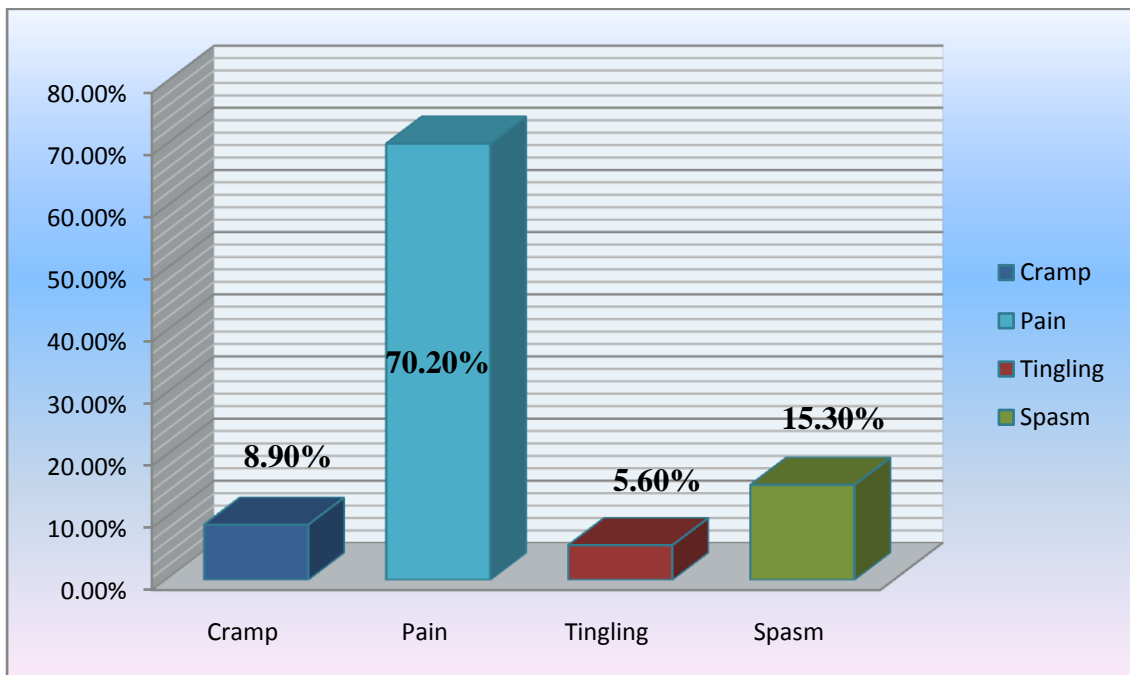


Figure-13: Common symptoms

Affected body part among the health care professionals

After analysis researcher found that among the 103 participants, the most common area of work related musculoskeletal disorder was lower back (28.6%, n=69) followed by neck (14.9%, n=36), upper back (13.3%, n=32), shoulder (10.0%, n=24) and lest common area was arm (1.2%, n=3).

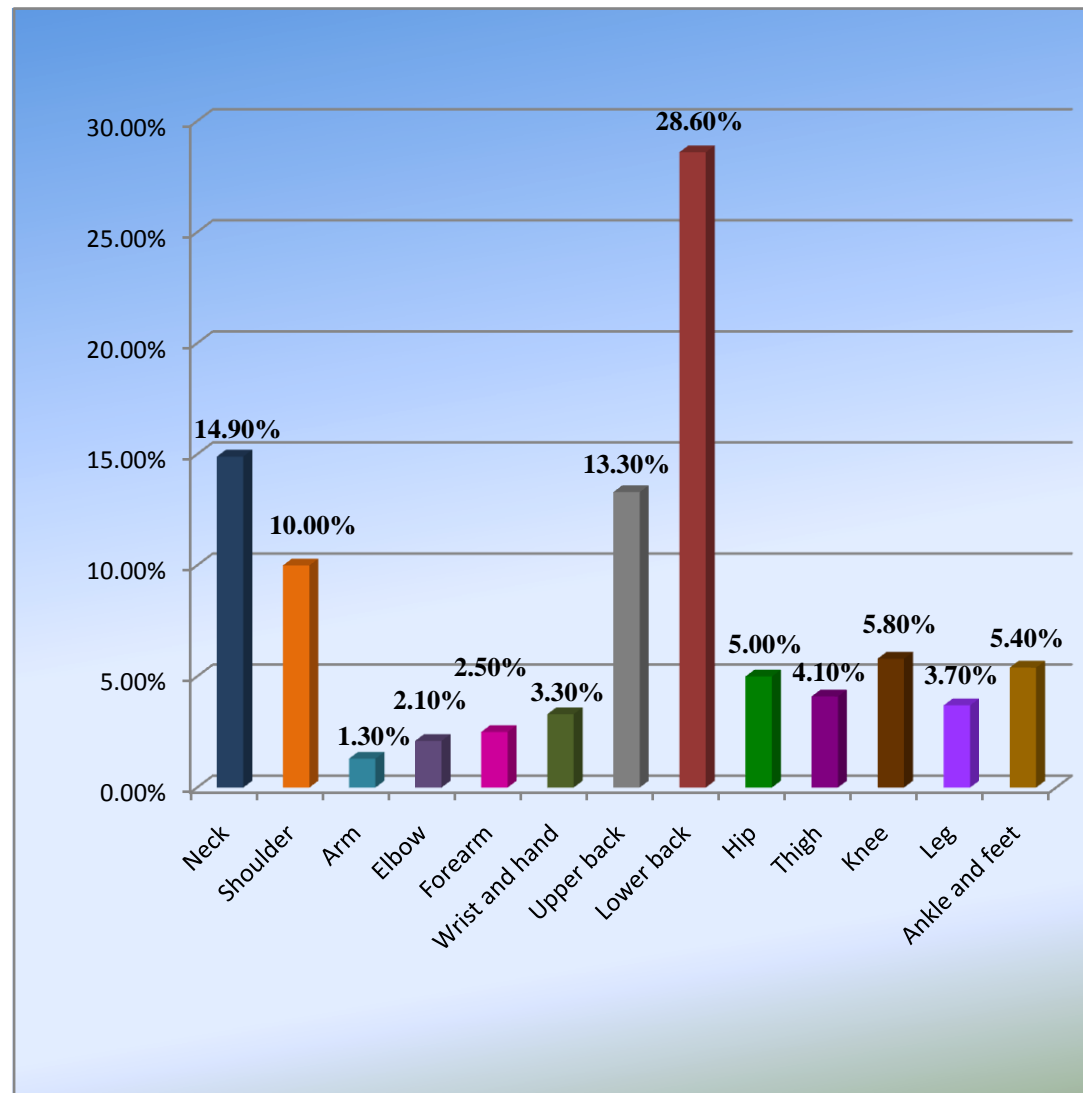


Figure-14: Affected body Part

Affected body part in different the health care professionals

Outcome reveals that most of the affected body part was lower back (50%, n=10) and 5% (n=1) responses were found which was the least affected body part among the doctors (n=11). 23.1% (n=24) responses found which was most affected body part and 1% (n=1) responses were found in which least affected body part was wrist and hand among the physiotherapist (n=36). Among the occupational therapist (n=24) researcher found most affected body part was lower back (31.1% n=14) and least affected body part was Elbow, hip, thigh, ankle and feet (2.2%, n=1). Majority of the participants responses that lower back (40%, n=10) was the most affected body part and least affected body part was neck, wrist and hand (4%, n=1) among the speech and language therapist. Most affected body part was lower back (23.4%, n=11) and least affected body part was elbow, forearm and hip (2.1%, n=1) among the nurses (n=23)

	Doctor	Physiotherapist	Occupational therapist	Speech and language therapist	Nurse
Neck	25% (n=5)	14.4% (n=15)	22.2% (n=10)	4% (n=1)	10.6% (n=5)
Shoulder		10.6% (n=11)	13.3% (n=6)	12% (n=3)	8.5% (n=4)
Arm		2.9% (n=3)			
Elbow		2.9% (n=3)	2.2% (n=1)		2.1% (n=1)
Forearm		2.9% (n=3)	4.4% (n=2)		2.1% (n=1)
Wrist and hand		1% (n=1)	4.4% (n=2)	4% (n=1)	8.5% (n=4)
Upper back	10% (n=2)	13.5% (n=14)	11.1% (n=5)	28% (n=7)	8.5% (n=4)
Lower Back	50% (n=10)	23.1% (n=24)	31.1% (n=14)	40% (n=10)	23.4% (n=11)
Hip		7.7% (n=8)	2.2% (n=1)	8% (n=2)	2.1% (n=1)
Thigh	5% (n=1)	4.8% (n=5)	2.2% (n=1)		6.4% (n=3)
knee	10% (n=2)	5.8% (n=6)	4.4% (n=2)		8.5% (n=4)
Leg		4.8% (n=5)		4% (n=1)	6.4% (n=3)
Ankle and feet		5.8% (n=6)	2.2% (n=1)		12.8% (n=6)
Total	100% (n=20)	100% (n=104)	100% (n=45)	100% (n=25)	100% (n=47)

Table-1: Affected body part in different health care professionals

Onset of pain

Analysis showed that 47.6% (n=49) participants apparent reason of symptom was sudden and 52.4% (n=54) participants apparent reason of symptom was gradual among the 103 participants out of 108 participants.

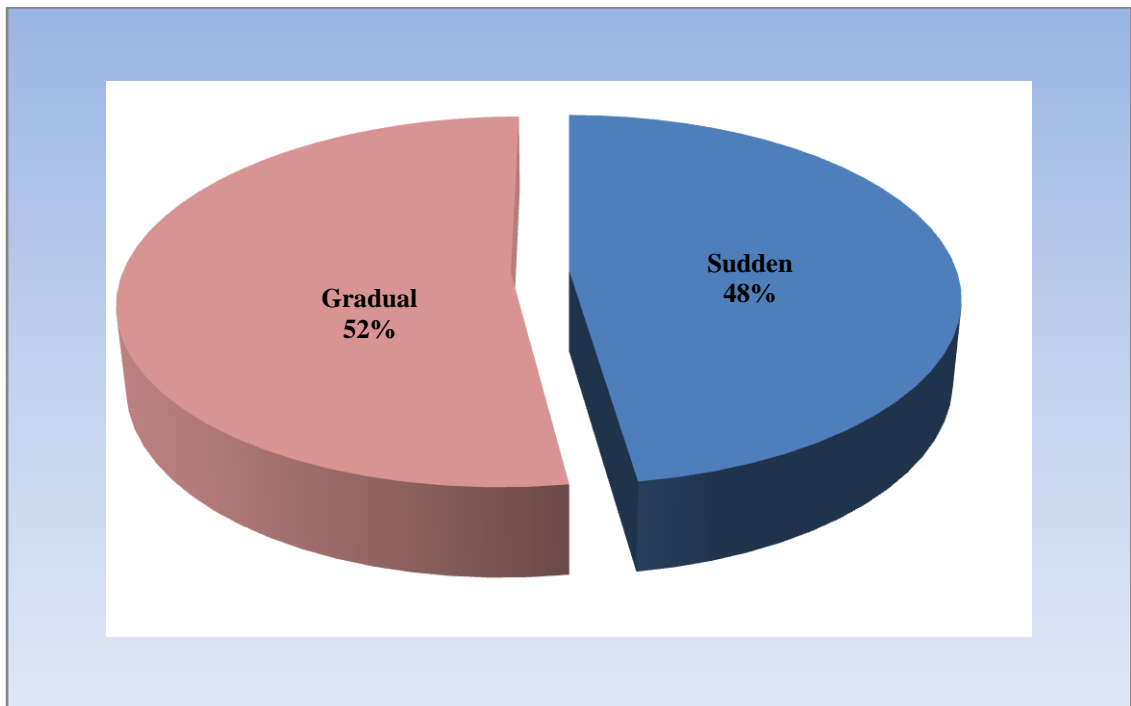


Figure-15: Onset of pain

Stressful position which makes the symptoms worse

Finding of this study revealed that among 103 participants, 41.6% (n=57) responses were found that bending posture makes their symptom worse followed by Sitting: 29.2% (n=40), 19.0% (n=26) standing, 8.0% (n=11) walking. Less common in lying (2.2%, n=3) responses were found which makes their symptom worse.

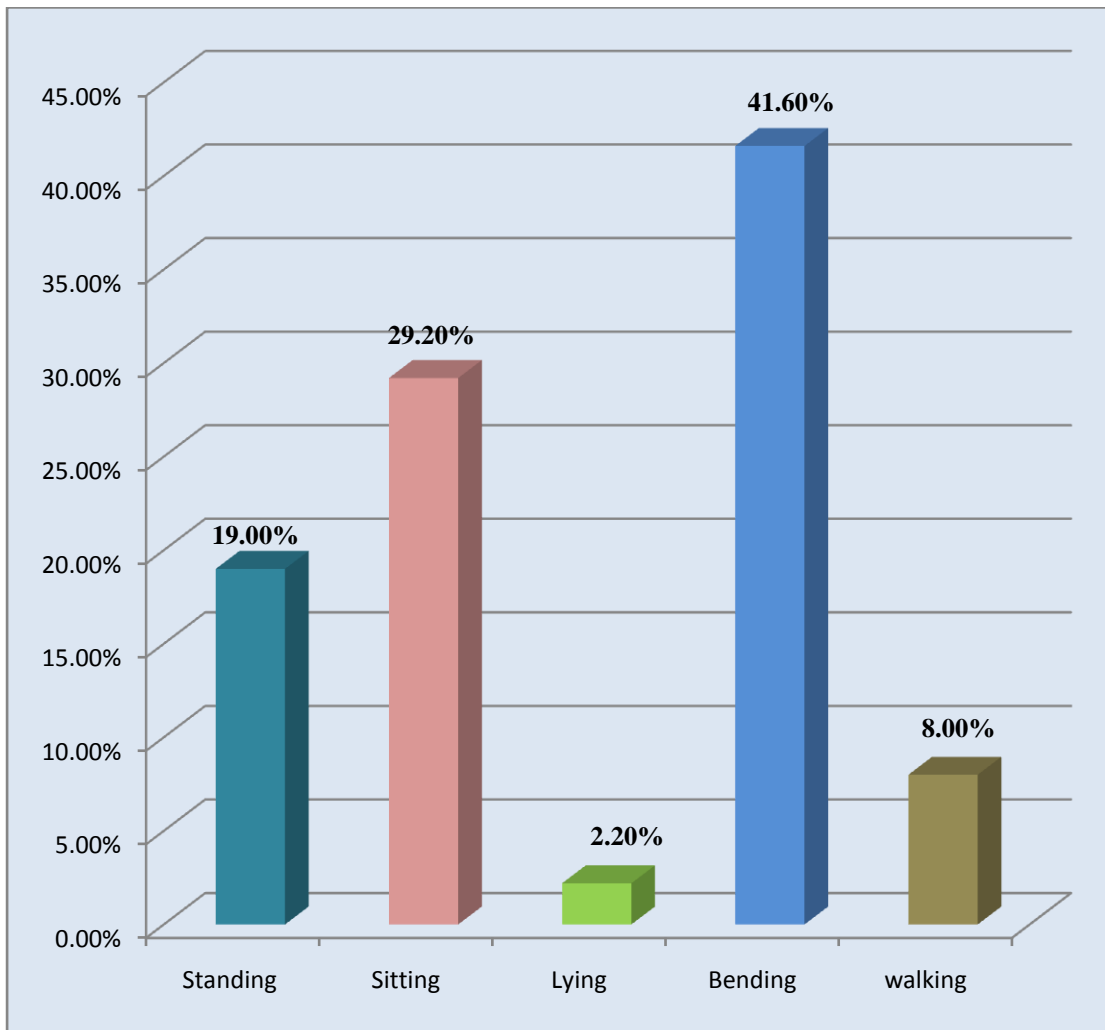


Figure-16: Stressful position which makes their symptom worse

Ease factor during Activity

Outcome showed that most of the (69.9%, n=72) participants reported that lying posture helps to relief their symptoms followed by 12.6% (n=13) in standing, 9.7% (n=10) in sitting and 6.80% (n=7). Only 1.00% (n=1) responded bending posture helps to relieve their symptoms.

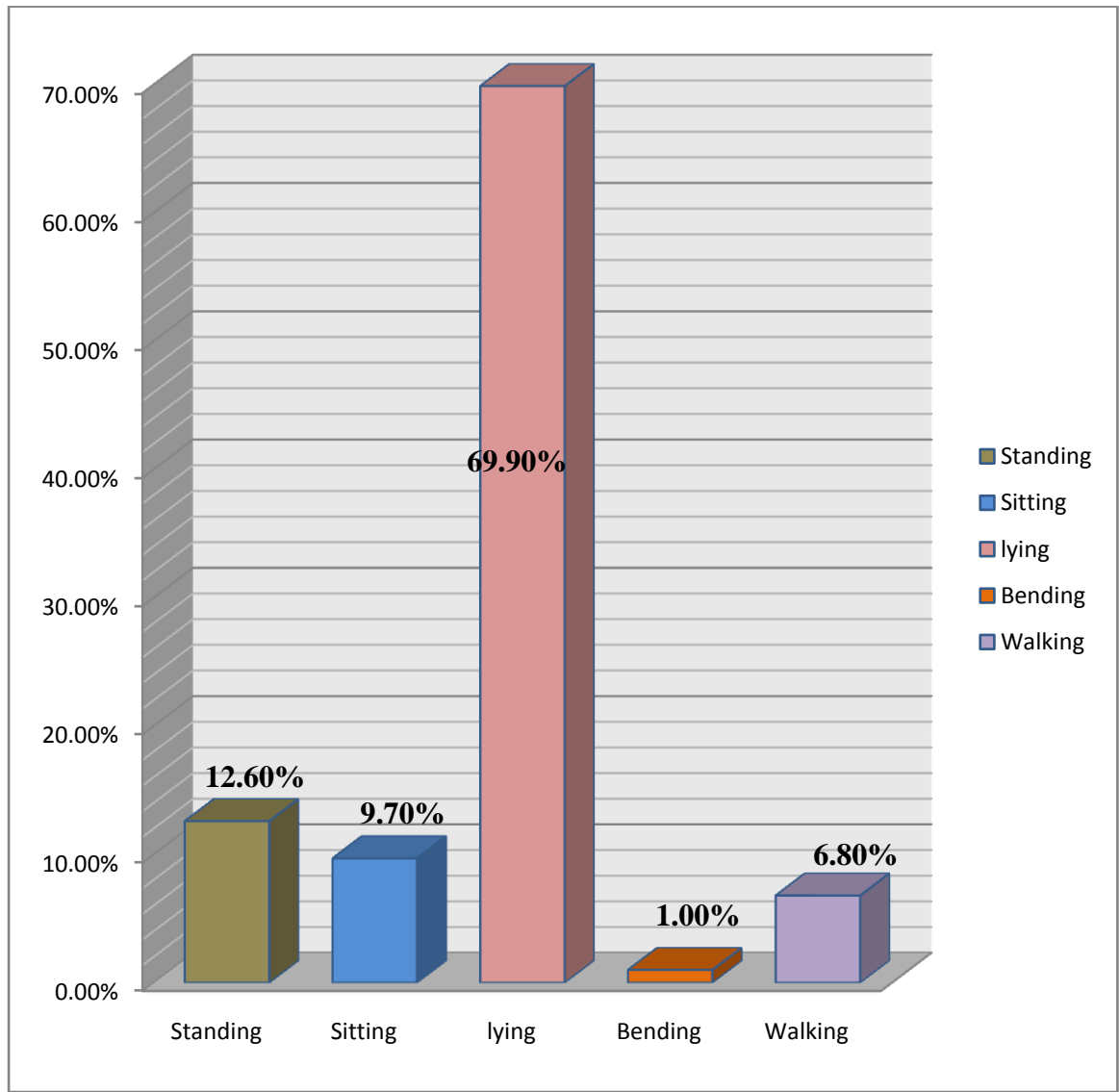


Figure-17: Ease factor

Treatment:

Analysis reveals that 73.8% (n=76) participants were taken treatment and 26.2% (n=27) participants were not taken any treatment among the 103 participants out of 108 participants.

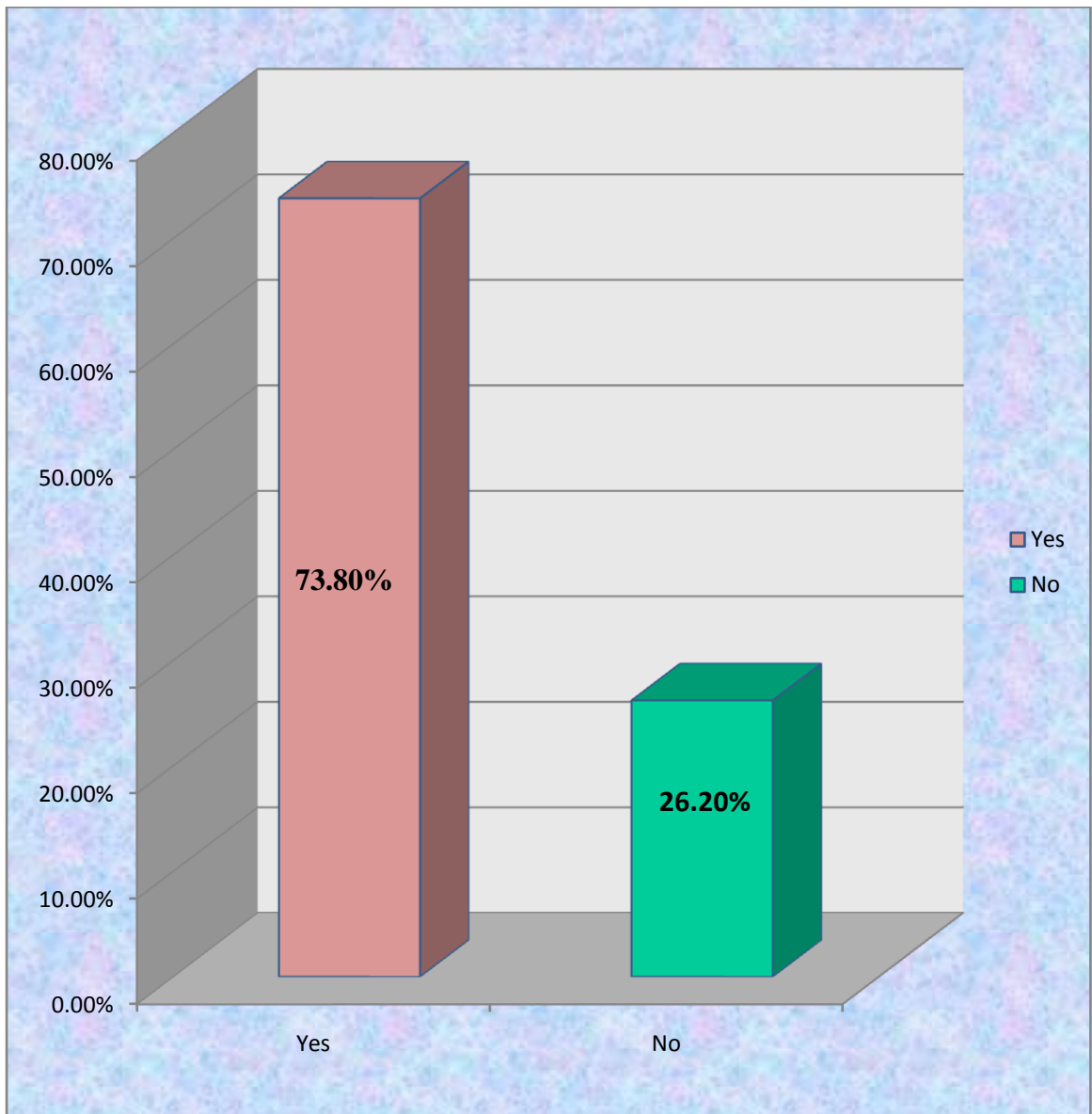


Figure-18: Treatment

Job Satisfaction

Among 103 participants, in terms of work place environment 12.6% (n=13) participants were not satisfied at all, 44.7% (n=46) participants were mildly satisfied, 27.2% (n=28) moderately satisfied and 15.5% (n=16) participants were satisfied. So, in percentage, most of the participants were mildly satisfied and then moderately satisfied.

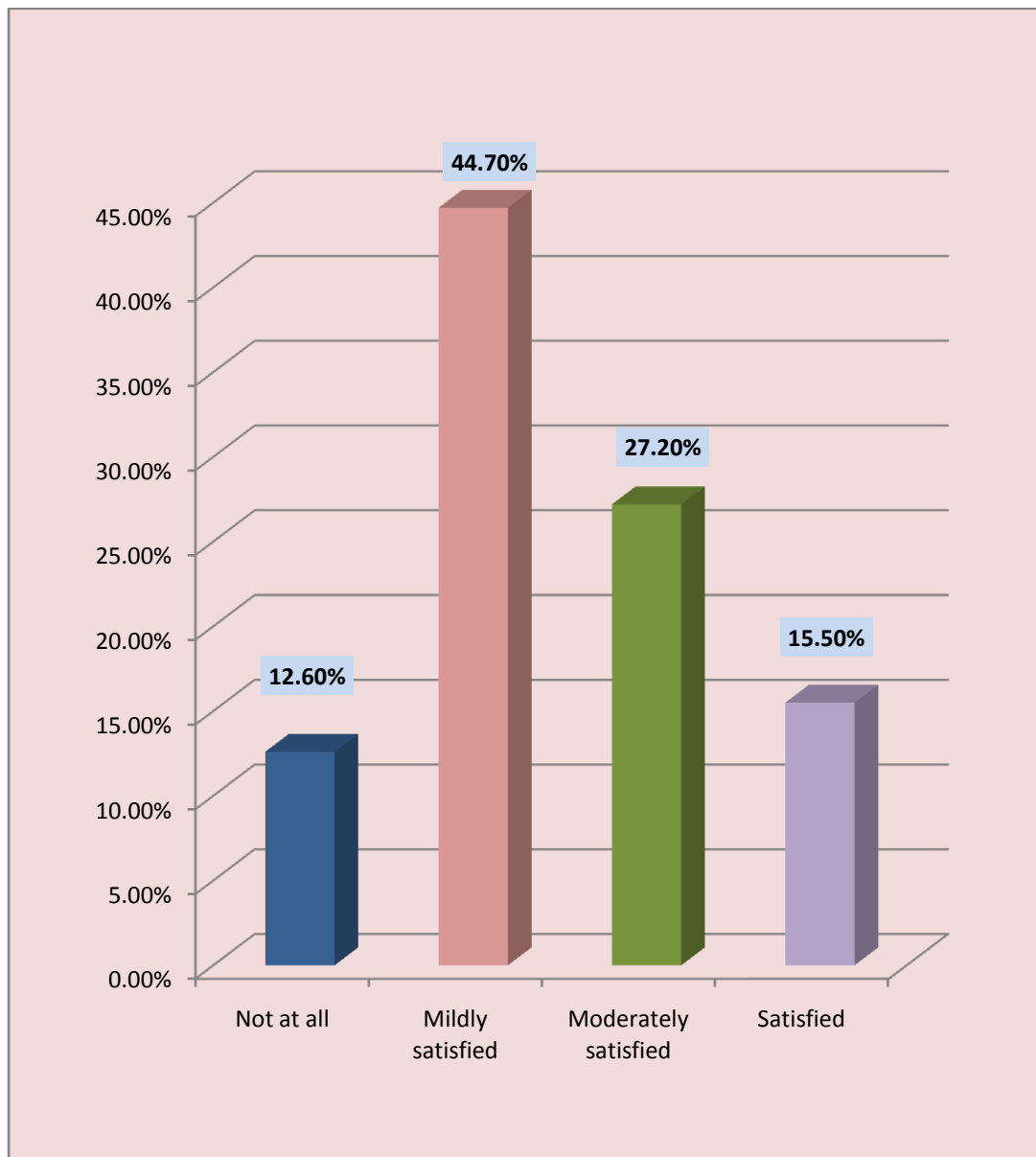


Figure-19: Job satisfactions among the participants

Sick leave:

Analysis reveals that more than half of the participants (75.7%, n=78) were not taken sick leave and 23.3% (n=24) participants were taken any sick leave among the 103 participants who were suffering from work related musculoskeletal disease out of 108 participants.

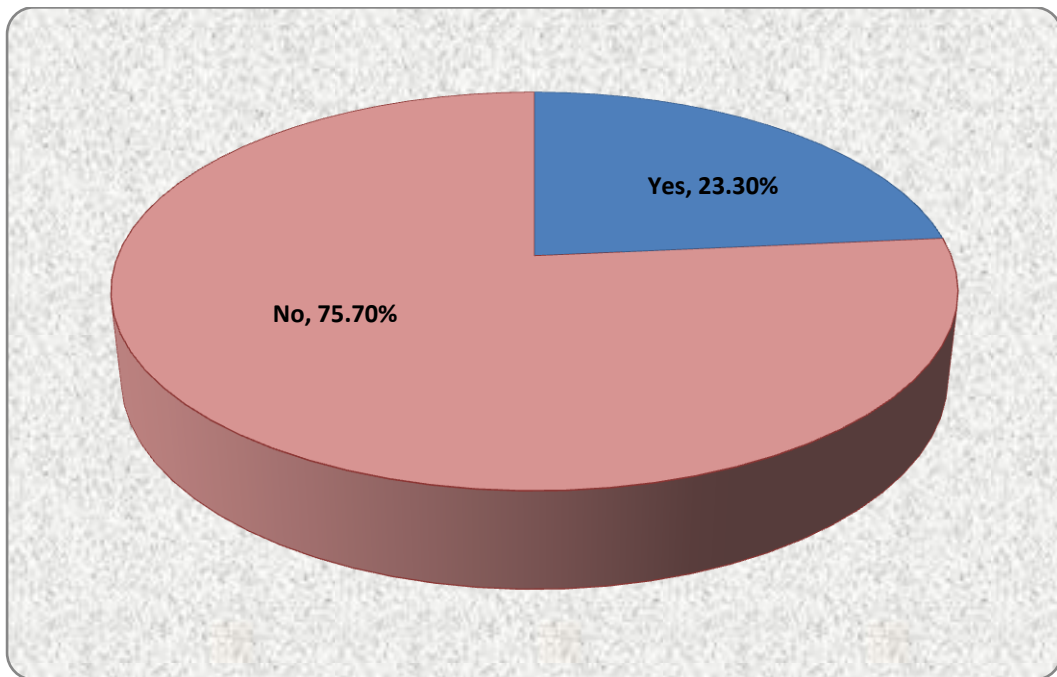


Figure-20: Sick leave among the participants

Ergonomic Improvement:

Analysis showed that most of the participants (91.30%, n=94) thought that ergonomic improvements was needed and only 8.7% (n=9) participants thought that ergonomic improvement was not needed.

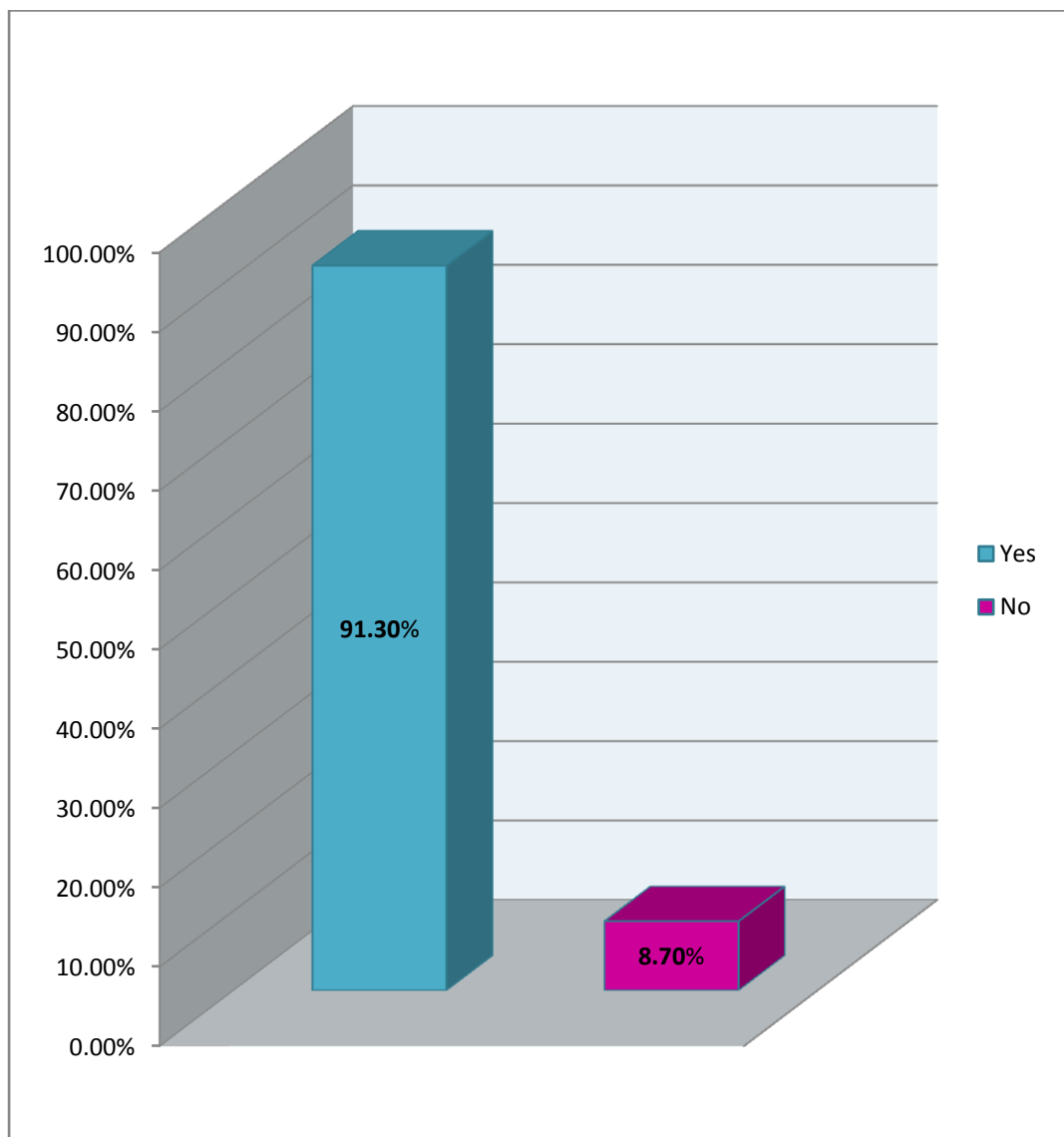


Figure-21: Ergonomic improvement

Types of ergonomic improvement:

Findings from this study reveals that more than half of the participants (53.7%,n=73) who had reported ergonomically modification on workplace is needed. 25.0% (n=34) participants reported that lumber roll is needed and the rest of 21.3% (n=29) participants reported that adjustable bed is needed.

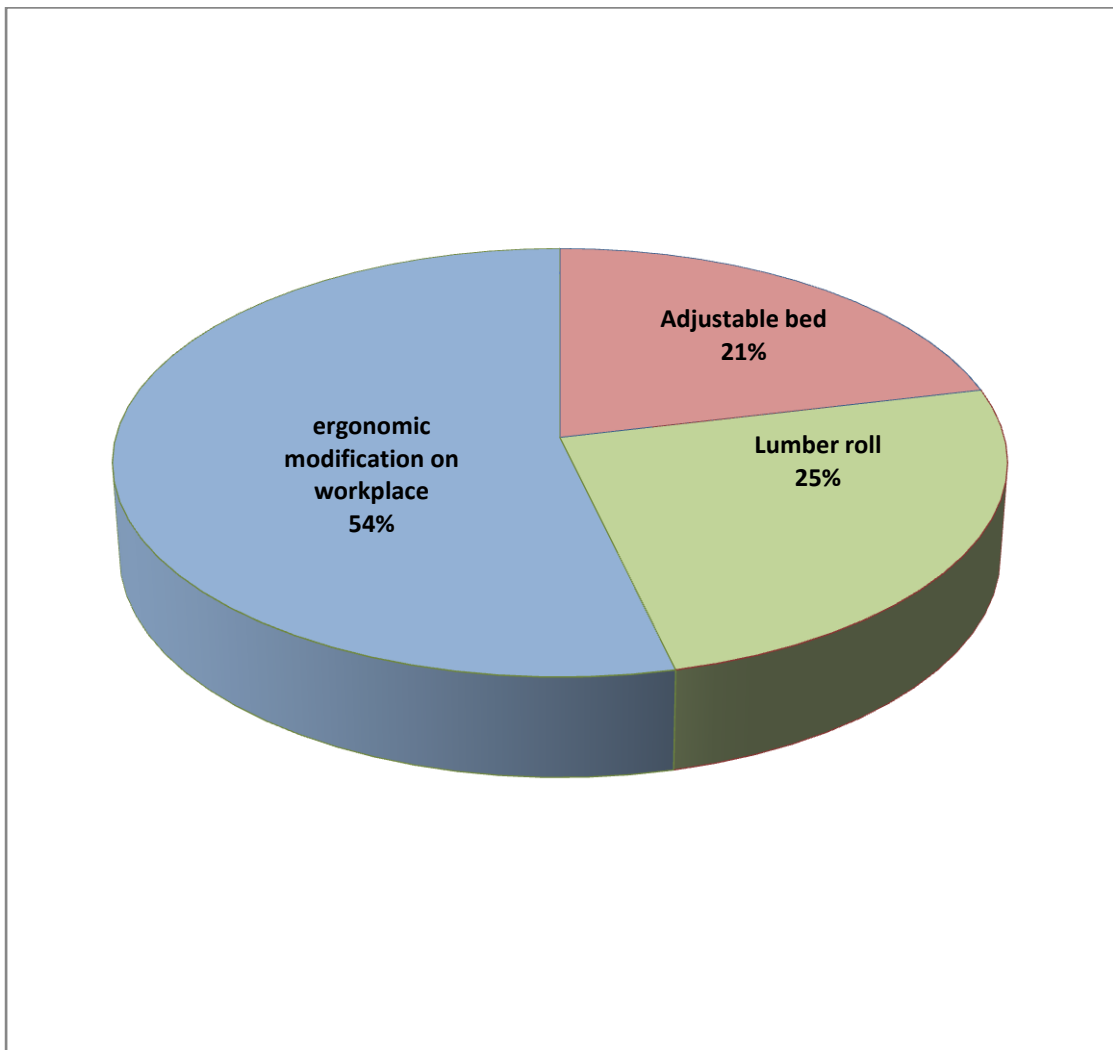


Figure-22: Type of ergonomic improvement

Musculoskeletal disorders are the most common occupational disease in all countries. Prevalence of musculoskeletal disorders varies across occupational groups and over national boundaries. The aim of the study was to identify the prevalence of work related musculoskeletal complains among the health care professionals working at CRP. The researcher took 108 samples and tries to find out the prevalence of work related musculoskeletal complains among the health care professionals. Among 108 participants there were 12 doctors, 36 physiotherapists, 25 occupational therapists, 12 speech and language therapists and 23 nurses. In this study the prevalence was 95.4%. A study conducted by Khan et al, they observed most commonly reported 90% work related musculoskeletal disorder. 84.4% reported that they had experienced work-related musculoskeletal pain or discomfort at some time in their professional lives (Tinubu et al., 2010). The response rate 75.8% reported by Ayanniyi et al. (2016). 26.4% reported by Yasobant & Rajkumar, (2014) which was much lesser than other studies.

The age of the respondents in this study was ranged between 24 to 51 years with the mean of age is 29.56 (SD \pm 4.890) years. In a contextually related study by Ayanniyi et al. (2016), the age ranged between 17 to 63 years with the mean of 22.7 (\pm 1.57) years. The most affected age the health care professionals was less than 30 years and the result 71.9%. 74% was reported by Islam et al. (2015) which is almost near percentage of this study. It was also found that professionals have a greater chance of developing work related musculoskeletal disorder. This study mentioned that younger health care professionals especially below the age of 30 were at higher risk of developing musculoskeletal injuries particularly during the first 4–5 years of their practice. We also found that the mostly affected age group was 27years (16.5%, n=17) followed by 26 and 29 years. The age group distribution and work experience reveals that younger age group of less than 30 years which was reported by Yasobant & Rajkumar, (2014) but there was large difference in another study, here found 69.6% affected age group which was more than 30 years (Ayanniyi et al., 2016). Most work practices and behaviors did not vary between senior and junior therapists. They are uniformly liable to report their injuries or symptoms, work while in pain, and informed that clinical practice increases their symptoms. All were equally unlikely to

limit patient contact time, representing that productivity was not affected differentially by growing older (king et al., 2009).

In this study the respondents were largely the findings females 54.4% (n=56) and males were 45.6% (n=47). Females 60.2% and male 39.8% findings were reported by Ayanniyi et al. (2016). Several personal characteristics are associated with work related musculoskeletal disorder, including weight and age for the female health care professionals. It was found that female health professionals have 1.9 times higher risk for rising musculoskeletal disorders than male health professionals (Yasobant & Rajkumar, 2014).

Most of the participants 68% (n=70) had the work experience less than 5 years and 32% (n=33) had the experience more than 5 years participants have more than 5 years of work experience. Previous studies show that 62% reported by Islam et al., 40.8% reported by Yasobant & Rajkumar, (2014), 41.4% reported by Ayanniyi et al. (2016) had the work experience less than 5 years and 62% by Islam et al, 59.2% by Yasobant & Rajkumar, (2014), 58.6% by Ayanniyi et al. (2016), 38% had the work experience more than 5 years which was reported by Islam et al. (2015). Among older workers 43% reported work-related pain or discomfort, quite similar to their younger colleagues 47% (King et al., 2009).

The result reveals that 11.1% (n=12) participants were Doctor, 33.3% (n=36) participants were Physiotherapist, 23.1% (n=25) participants were Occupational therapist, 11.1% (n=12) Participants were Speech and language therapist, 22.3% (n=23) participants were Nurse. From this study researcher found that 91.7% (n=11) doctors, 72% by Mbada et al. (2012). In the systemic review we found 94.4% (n=34) physiotherapists with work related musculoskeletal disorder. 68.4% by Mbada et al. (2012), 91.3% by Adegoke et al. (2008) and 47.6% of the participating physical therapists complained of work related musculoskeletal disorders and which were less than the prevalence reported in the United States (61%), Australia (91%), and Nigeria (91.3%) (Alrowayeh et al., 2010). 91.7% (n=11) speech language therapists and 96% (n=24) Occupational therapists were suffer from work related musculoskeletal pain and discomfort in different part of the body which were more than to other studies. 75.5% occupational therapist reported by Mbada et al. (2012). Outcome reveals that

100% (n=23) nurses were suffer from work related musculoskeletal pain and discomfort in different part of the body and 88.4% by Mbada et al. (2012) , 84.4% by Tinubu et al. (2010) which was less than this study.

The working posture of the respondents in this study ranged sitting posture 38.9%, forward bending posture 24.4%, standing posture 35.1% and other posture 1.5% are found in which they worked most of the time. Ayanniyi et al. (2016) reported that 38.9% work in sitting posture, 37.3% work in standing posture, 40.7% work in bending posture, 37.1% work in walking posture. Health care professionals are work mostly in standing posture, while 3-8 hours is spent in a work posture. Sitting was the most adopted posture at work which was similar to this study.

From this study we were found the most affect body part among all health care professional (n=108). There was 14.9% neck response. 28.5% reported by Yasobant & Rajkumar, (2014), 43.4% reported by Ayanniyi et al. (2016), 35.6% reported by Khan et al. (2015) which were more than this study. Analysis showed that shoulder 10.0% affected, 23.5% (Yasobant & Rajkumar, 2014), 23.3% (Khan et al., 2015), 32.1% (Ayanniyi et al, 2016). From this study we found arm 1.2%, elbow 2.1%, forearm 2.5%, wrist and hand 3.3%. Yasobant & Rajkumar, (2014) reported that elbow 5.0%, wrist 12.1%. Elbow (12.7%) was the less affect body site reported by Ayanniyi et al. (2016). 31.1% Hand, wrist and finger was reported by Khan et al. (2015). Upper back 13.3%, lower back 28.6%, hip 50%, thigh 4.1%, knee 5.8%, leg 3.7%, ankle and feet 5.4% were suffered from work related musculoskeletal disease. So the greater number of the participants is suffered in low back pain. This result is comparable to Yasobant & Rajkumar, (2014) showed upper back 15.0%, lower back 45.7%, hip and thigh 7.1%, knee 20%, ankle and foot 20.7 % among the health care professionals. The low back (61.1%) was the worst hit anatomical region, followed by and upper back (31.5%), was the affect body site reported by Ayanniyi et al. (2016). The most commonly reported musculoskeletal disorder was lower back pain among all groups of health care professionals. 51.1% in Lower back and 24.4% was reported by khan et al. (2015). Body segments involved in symptoms among health care professionals and it was observed that they reported higher proportion of symptoms in neck, upper and lower back.

Outcome reveals that most of the affected body part was lower back among the doctors (50%, n=10), physiotherapists (23.1%, n=24), Occupational therapist (31.1%, n=14), speech language therapists (40%, n=10) and nurses (23.4%, n=11) there were found difference of the least affected body part among the different health care professionals (n=11). The low back was the most common site of disorders (69.8%) while (the elbow joint (5.6%) was the least affected body part among the Nigerian physiotherapist (Adegoke et al., 2008). A high prevalence rate of work related musculoskeletal symptoms in surgeons, mainly in the neck (82.9%), low back (68.1%), shoulder (57.8%) (Szeto et al., 2009). The prevalences of pain in the low back, shoulder, neck, and arm in the previous month were 54.7%, 42.8%, 31.3%, and 18.6%, respectively among the nurses (Ando et al., 2000).

Apparent reason of symptom was sudden with 47.6% participants and 52.4% participant's apparent reason of symptom was gradual which was found from this study. The onset of work related musculoskeletal disorder was gradual in 65.9% of the respondents, sudden in 23.8% (Adegoke et al., 2008).

Majority of the health care professionals reported 70.2% suggested pain, followed by 8.9% with cramp, 5.6% with tingling, and 15.3% with spasm responses were found among the participants suffered from these type symptoms aching. King et al. (2009) 43% reported work-related pain or discomfort was, 47%. Most reported pain as the primary symptom (31%), followed by fatigue (11%), though many of them wrote in ache, tenderness, tightness, and stiffness as other symptoms.

Analysis reveals that more than half of the participants 75.7% were not taken sick leave and 23.3% participants were taken any sick leave due to musculoskeletal disorders was less common among the health workers in this study. Moreover, for the health care and social work professions, 50% of the absences due to sickness are caused at work or by work (Karen et al., 2011). Few studies have compared measures of physical tests/capacity between workers on sick leave and workers who continue working despite pain. Compared functional capacity between workers staying at work despite disorders, workers on sick leave due to musculoskeletal disorders and a group of healthy workers (Ask et al., 2015)

Most of the participants 91.30% thought that ergonomic improvements was needed and only 8.7% participants thought that ergonomic improvement was not needed Findings from this study reveals that more than half of the participants 53.7% who had reported ergonomically modification on workplace is needed. 25.0% participants reported that lumber roll is needed and the rest of 21.3% participants reported that adjustable bed is needed. Adegoke et al. (2008) claimed that the most commonly adopted coping strategies was modifying their position or the position of their patients and selecting techniques that will not aggravate or provoke their discomfort, and therapists adjusting bed or plinth height. This finding is similar to that which reported the four most important preventive strategies commonly adopted by physiotherapists in response to sustaining musculoskeletal disorder at work as therapists adjusting plinth or bed height, therapists modifying their position (Adegoke et al., 2008).

Limitation of the study

The research topic is quite new, so there was no information or literature about the work related musculoskeletal complains among the speech and language therapist.

The researcher was a 4th year B.Sc.(Hon's.) in physiotherapy student and this was the first research project. She had limited experience with techniques and strategies in terms of the practical aspects of research. As it was the first survey of the researcher so might be there were some mistakes in questionnaire, pain rating scale and lack of knowledge about this topic that were overlooked by the supervisor and the honorable teacher.

6.1 CONCLUSION

An overview of the incidence and the prevalence of musculoskeletal complaints among the health care professionals may lead to more adequate prevention of work-related diseases and consequently provide a safer and healthier environment for them. Work related musculoskeletal disorders have great impact causing severe long term pain, physical disability and give rise to huge costs for the society. In the work place, the health care professionals are vulnerable to sustaining musculoskeletal disorders during the course of their work routine. A high proportion of health care professionals reported work related musculoskeletal disorders at one or the other body region, low back being the most commonly affected area and then shoulder, upper back, and neck.

From this study researcher can identify the risk factors of the workplace and posture which are harmful for the health care professionals. In order to reduce spine problems, correct postural practices, relaxation interval sessions during work could be utilized. Health care professionals must focus on proper technique posture and adhere to a regimen of self-care to reduce the risk of pain. Most of the health care professionals think that they need a modified working environment according to their requirements. So avoiding this factor professional can give more concentration to their own self and also their patient which ultimately help to society and for a country.

6.2 Recommendation

The aim of the study was to find out the prevalence of health care professionals. Though the study had some limitations but investigator identified some further step that might be taken for the better accomplishment of further research. The main recommendations would be as follow:

Reminder course on back care ergonomics and patient transfer should be organized for professionals on regular basis. Hospitals should be well equipped with all necessary lifting equipment. All these might go a long way in reducing the high rate of musculoskeletal disease among the health care professionals. It is apparent from this study that health care professionals in Bangladesh demonstrate one of the highest incidences of back pain when compared with other studies. In this situation, initial health care education will never be sufficient and the most obvious course of action seems to be periodic and continuous in-service training. The costs of training are easily justifiable in terms of savings made by avoiding loss of nurses to the profession, absenteeism and potential danger to the patient.

The duration of the study was short, so in future wider time would be taken for conducting the study.

Investigator use only 108 participants as the sample of this study, in future the sample size would be more.

The ratio of the health care participants in different professions were not equal, in case of further the equality of the participant should be maintained for the accuracy of the result.

In this study, the investigator took the health care professionals only from the one selected rehabilitation center at Savar as a sample for the study. So for further study investigator strongly recommended to include the health care professionals from all over the Bangladesh to ensure the generalize ability of this study.

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Yasobant, S., and Rajkumar, P., (2015). Health of the healthcare professionals: A risk assessment study on work-related musculoskeletal disorders in a tertiary hospital, Chennai, India. *Age (years)*, 21(73), p.30. . Available at:

https://scholar.google.com/scholar?q=Yasobant%2C+S.+and+Rajkumar%2C+P.%2C+2015.+Health+of+the+healthcare+professionals%3A+A+risk+assessment+study+on+workrelated+musculoskeletal+disorders+in+a+tertiary+hospital%2C+Chennai%2C+India.+Age+%28years%29%2C+21%2873%29%2C+p.30.&btnG=&hl=en&as_sdt=0%2C5 (Accessed on 20 June 2016)

APPENDIX

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, "Work related musculoskeletal complains among the health care professionals working at CRP" under honorable supervisor, Muhammad Millat Hossain, Assistant Professor, Department of MSc in Rehabilitation Science, Bangladesh Health Profession Institute (BHPI), CRP, Savar, Dhaka. The purpose of the study is to find out Work related musculoskeletal complains among the health care professionals working at CRP. Questionnaire will be used that will take about 20 to 30 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,

Protiva Sarker

Protiva Sarker
Bachelor of Science in Physiotherapy (B.Sc PT)
Session: 2011-2012, DU Reg. No: 1704
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Recommendation from the thesis supervisor:

Muhammad Millat Hossain
Muhammad Millat Hossain
Assistant Professor
Department of MSc in Rehabilitation Science
BHPI, CRP

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/04/17/75

Date: 05/04/17

To
Protiva Sarker
Bachelor of Science in Physiotherapy (B.Sc PT)
Session: 2011-2012 DU Reg. No: 1704
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal – Work related musculoskeletal complains among the health care professionals working at CRP.

Dear Protiva Sarker,

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 20 to 30 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

22, August, 2016
Head of Programs.
Center for the Rehabilitation of the Paralysed (CRP)
Chapain, Savar, Dhaka-1343.

Through: Head, Department of the Physiotherapy, BHPI.

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

Dear sir,

With due respect I would like to draw your kind attention that I am a 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 **“Work related musculoskeletal complains among the health care professionals working at CRP”** under the supervision of Muhammad Millat Hossain, Senior lecturer, BHPI, CRP. So I need to take permission to collect data for my research project from clinical stuffs of CRP. I would like to assure that anything of my study will not be harmful for the participants.

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

Sincerely yours

Protiva Sarker

Protiva Sarker
4th Professional B.Sc. in Physiotherapy
Roll-02, session: 2011-2012
Bangladesh Health Professions Institute (BHPI)

Approved
[Signature]
Mohammad Anwar Hossain
Associate Professor &
Head of Physiotherapy Dept.
CRP, Chapain, Savar, Dhaka-1343

Recommended &
ForWARDED
Kullabossain
22/08/16

[Signature] 21/08/16
Md. Obaidul Haque
Associate Professor & Head of the Department
of Physiotherapy
Bangladesh Health Professions Institute (BHPI)
CRP, Chapain, Savar, Dhaka-1343

She will collect data
from paediatric unit
please help her.
Thanks
[Signature]
31-08-16
HOSNEARA PERVEEN
Incharge Paediatric Unit
CRP, Savar, Dhaka.

May be allowed,
[Signature]
Md. Schrab Hossain
Associate Professor Physiotherapy (CRP)
CRP, Savar, Dhaka

Permission given
[Signature] 21/08/16
SHARMIN HASNAT
Acting Head Of SLT
Dept of Speech & Language Therapy
CRP Savar, Dhaka.

Consent Form

Assalamualaikum\ Namashker,

I am **Protiva Sarker**, 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 “**Work related musculoskeletal complains among the health care professionals working at CRP**”. To fulfil my research project, I need to some information from you to collect data. So, you can be a respected participant of this research and the conversation time will be 20-30 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 of the experiment. 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 of **Muhammad Millat Hossain**, Senior Lecturer, BHPI, CPR, Savar, Dhaka-1343.

Do you have any questions before start this session?

So, I can proceed with the interview.

Yes No

Signature of the participant and Date.....

Address.....

Contact number.....

Researcher signature and Date.....

Witness signature and Date.....

অনুমতি পত্র

আসসালামুআলাইকুম/নমস্কার

আমি, প্রতিভা সরকার, ঢাকা বিশ্ববিদ্যালয়ের মেডিসিন অনুষদের অধীনে, বাংলাদেশ হেলথ প্রফেশনাল ইন্সটিটিউটের (বি এইচ পি আই) বি.এস.সি. ইন ফিজিওথেরাপির ৪র্থ বর্ষের ছাত্রী। ব্যাচেলর ডিগ্রী অর্জনের জন্য আমাকে একটি গবেষণা করতে হবে যা আমার শিক্ষারই একটি অংশ। আমার গবেষণার বিষয়বস্তু হল "সি আর পি তে কর্মরত স্বাস্থ্যসেবায় নিয়োজিত পেশাজীবীদের মধ্যে কাজের সাথে সম্পর্কিত মাংসপেশির অভিযোগের ব্যাপকতা নির্ণয়ের প্রস্তাবনী"। এই গবেষণা সম্পন্ন করার জন্য আমাকে আপনার কাছ থেকে কিছু তথ্য সংগ্রহ করতে হবে। আপনি এই গবেষণার একজন সম্মানিত অংশগ্রহণকারী যার আলাপচারিতার সময় হবে ২০-৩০ মিনিট। উল্লেখ্য, এটি সম্পূর্ণভাবে একটি শিক্ষামূলক গবেষণা এবং অন্য কোনো ক্ষেত্রে ব্যবহার করা হবে না। আমি এই মর্মে নিশ্চিত করছি যে, সকল তথ্য গোপন রাখা হবে। এখানে আপনার অংশগ্রহণ স্বেচ্ছামূলক। আপনি চাইলে যে কোনো সময় গবেষণা থেকে বিরত থাকতে পারেন। এমনকি আপনি যে কোনো নির্দিষ্ট প্রশ্নও এড়িয়ে যেতে পারেন। এই বিষয় সম্পর্কিত যেকোনো অনুসন্ধানের প্রয়োজন হলে, আমার সুপারভাইজার, জনাব, মোহাম্মদ মিল্লাত হোসেন, সিনিয়র লেকচারার, বি এইচ পি আই, সি আর পি, সাভার, ঢাকা এর সাথে যোগাযোগ করতে পারেন।

সাক্ষাতকার শুরু পূর্বে আপনার কোনো প্রশ্ন আছে কি ?

তাহলে, আমি সাক্ষাতকার শুরু করতে পারি।

হ্যাঁ না

অংশগ্রহণকারীর স্বাক্ষর ও তারিখ

ঠিকানা.....

যোগাযোগের নাম্বার.....

গবেষণাকারীর স্বাক্ষর ও তারিখ.....

স্বাক্ষীর স্বাক্ষর.....

Questionnaire to identify prevalence of work related musculoskeletal complains among the Health Care Professionals.

Personal Details:

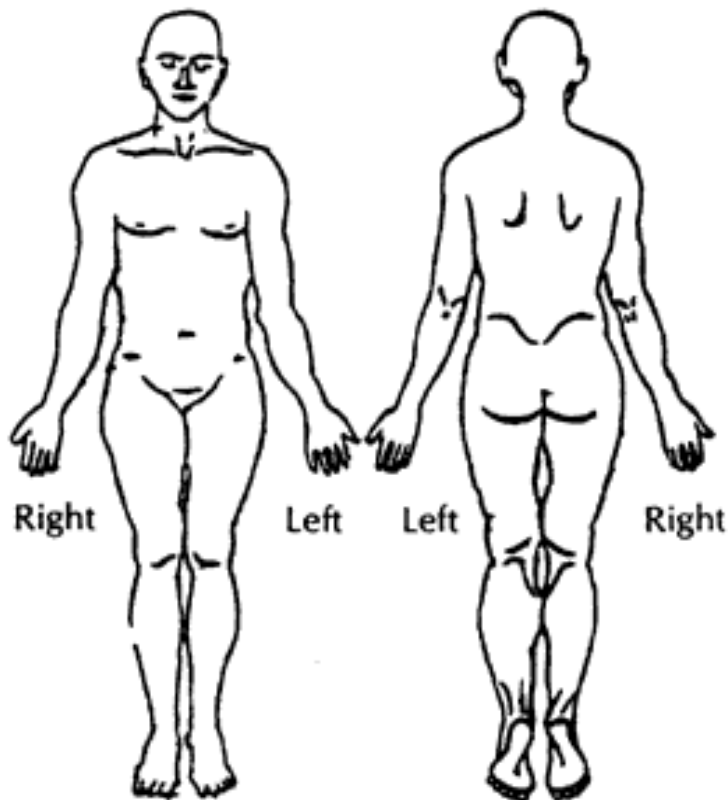
1. Id no:	
2. Name :	
3. Age (as at last birthday) :	
4. Gender:	<ul style="list-style-type: none"> a. Male b. Female
5. Job title:	<ul style="list-style-type: none"> a. Doctor b. Physiotherapy c. Occupational therapy d. Speech and language therapy e. Nursing
6. Job experience:	<ul style="list-style-type: none"> a. Less than 5 year b. More than 5 year
7. Marital status :	<ul style="list-style-type: none"> a. Married b. Unmarried
8. Date of interview:	

Part-B: Symptoms and risk identification:

9. Daily working hours.	<ul style="list-style-type: none"> a. 6 hour b. 7 hour c. 8 hour d. More than 8 hour
10. How many time you take rest Per hour?	<ul style="list-style-type: none"> a. 5 minute b. 10 minute c. >10 minute d. not at all
11. Which posture do you work most of the time	<ul style="list-style-type: none"> a. Sitting

in your work place?	<ul style="list-style-type: none"> b. Forward bending c. Standing d. Other
12. Have you ever experienced musculoskeletal discomfort in any part of your body due to work?	<ul style="list-style-type: none"> a. Yes b. no
13. How severe is your pain?	<ul style="list-style-type: none"> a. Mild b. Moderate c. Severe
<p>14. Numeric scale (severity of pain):</p> <div style="text-align: center;"> </div>	
15. When did you first experience this musculoskeletal discomfort or pain due to work?	<ul style="list-style-type: none"> a. 0-1 year b. 1-5 years c. 5-15 years d. >15 years e. Don't know
16. What words best describe your symptoms?	<ul style="list-style-type: none"> a. Cramp b. Pain c. Tingling d. Numbness e. Spasm

17. And please mark body areas where you have problems:



18. How does your pain come?	<ul style="list-style-type: none"> a. Sudden b. Gradual
19. Do you feel any difficulty during work?	<ul style="list-style-type: none"> a. Yes b. No
20. Off the following factors which makes your symptoms worse?	<ul style="list-style-type: none"> a. standing b. sitting c. lying d. bending e. Walking
21. Which posture relives your pain?	<ul style="list-style-type: none"> a. standing b. sitting c. lying d. bending e. Walking
22. Can you maintain the correct postures in your workplace / during your practice?	<ul style="list-style-type: none"> a. Yes b. No
23. Have you ever referred to the physician or other health professional due to pain? If no then skip next questions and go to the question no. 27.	<ul style="list-style-type: none"> a. Yes b. No

24. What kind of treatment did you receive?	<ul style="list-style-type: none"> a. Medication b. Physiotherapy c. Surgery d. Others
25. What was the result of the treatment?	<ul style="list-style-type: none"> a. Improvement b. Worsen c. Unchanged
26. How does your pain affect your ADL?	<ul style="list-style-type: none"> a. Not at all b. Mildly hamper c. Moderately Hamper d. Severely Hamper
27. Are you satisfied with the physical environment (structural facilities) of your work place?	<ul style="list-style-type: none"> a. Not at all b. Mildly satisfied c. Moderately Satisfied d. Satisfied
28. Have you ever taken sick leave due to pain or discomfort? If no then skip next questions and go to the question no. 30.	<ul style="list-style-type: none"> a. Yes b. No
29. If yes, how many days have you taken sick leave since last twelve months?	<ul style="list-style-type: none"> a. 1-3 days b. 4-6 days c. 6-9 days d. > 9 days
30. Do you think that it is necessary to improve the physical environment (structural facilities) of your work place?	<ul style="list-style-type: none"> a. Yes b. No
31. If yes, please mention what improvement is necessary?	<ul style="list-style-type: none"> a. Adjustable bed(for control the height of the bed) b. Lumber roll (for maintain correct posture) c. Ergonomically modified work station (for prevent musculoskeletal problems)

সি আর পি তে কর্মরত স্বাস্থ্যসেবায় নিয়োজিত পেশাজীবীদের মধ্যে কাজের সাথে সম্পর্কিত
মাংসপেশির অভিযোগের ব্যাপকতা নির্ণয়ের প্রশ্নাবলী

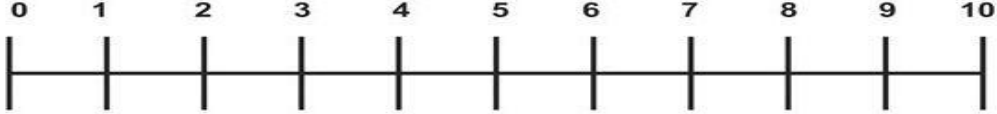
ব্যক্তিগত তথ্য :

কোড নং :

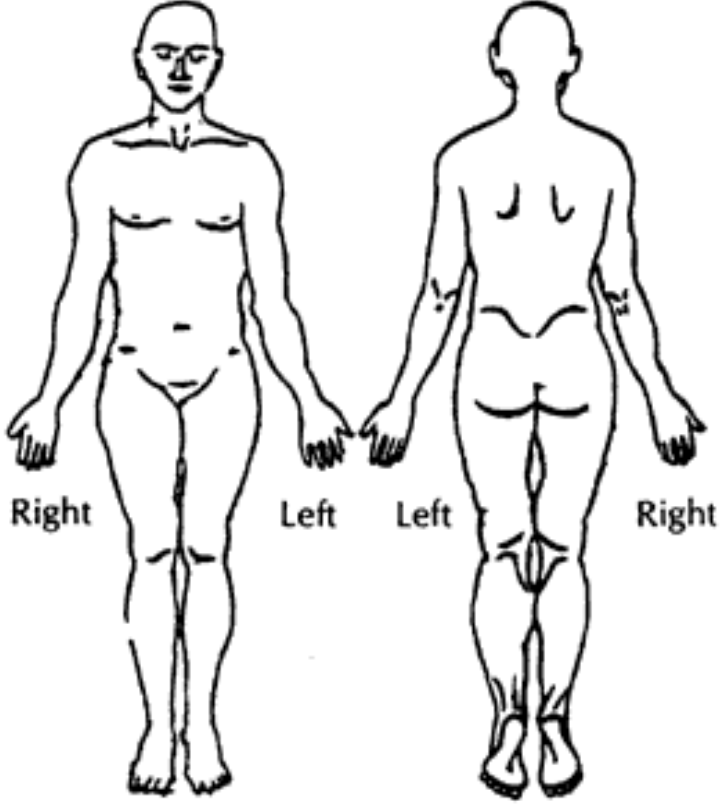
১. নাম :	
২. বয়স :	
৩. ওজন (কেজি) :	
৪. লিঙ্গ :	ক) পুরুষ খ) মহিলা
৫. চাকুরির ধরন :	ক) ডাক্তার খ) ফিজিওথেরাপি গ) অকুপেশনালথেরাপি ঘ) স্পীচ এন্ড ল্যান্ডুয়েজ থেরাপি ঙ) নার্সিং
৬. চাকুরির অভিজ্ঞতা :	ক) ৫ বছরের কম খ) ৫ বছরের বেশি
৭. বৈবাহিক অবস্থা :	ক) বিবাহিত খ) অবিবাহিত
৮. সাক্ষাতের তারিখ :	

লক্ষন ও ঝুঁকি নির্ধারণ :

৯. দৈনিক কর্ম ঘন্টা	ক) ৬ ঘন্টা খ) ৭ ঘন্টা গ) ৮ ঘন্টা ঘ) ৮ ঘন্টার বেশি
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১০. আপনি প্রতি ঘন্টায় কত সময় বিশ্রাম নিন ?	ক) ৫ মিনিট খ) ১০ মিনিট গ) > ১০ মিনিট ঘ) একেবারেই না
১১. কর্মস্থলের অধিকাংশ সময় আপনি কোন অবস্থানে কাজ করেন ?	ক) বসে খ) সামনের দিকে ঝুঁকে গ) দাঁড়িয়ে ঘ) অন্যান্য
১২. কাজ করার সময় শরীরের কোনো অংশে কখনও মাংসপেশী সম্বলিত অসুবিধা অনুভব করেছেন কিনা ?	ক) হ্যাঁ খ) না
১৩. আপনার ব্যাথার তীব্রতার ধরন কেমন ?	ক) হালকা খ) সহনীয়/মাঝারি গ) তীব্র
<p>১৪. Neumeric pain rating স্কেল (ব্যাথার তীব্রতা মাপকরণ)</p> <p>0 1 2 3 4 5 6 7 8 9 10</p>  <p>ব্যাথা নাই হালকা ব্যাথা সহনীয় ব্যাথা তীব্র ব্যাথা</p>	
১৫. কাজের ক্ষেত্রে প্রথম কবে মাংসপেশী সম্বলিত অসুবিধা অনুভব করেন ?	ক) ০-১ বছর খ) ১-৫ বছর গ) ৫-১৫ বছর ঘ) > ১৫ বছর ঙ) বুঝতে পারেননি
১৬. কোন শব্দটি আপনার লক্ষণকে বর্ণনা করে ?	ক) শক্ত হয়ে যায় / কামড় দিয়ে ধরে খ) ব্যাথা গ) বৈদ্যুতিক শকের মতো অনুভূতি ঘ) অনুভূতিহীন ঙ) জমে যওয়া

১৭. দয়া করে সমস্যার অঞ্চল গুলো চিহ্নিত করুন :



১৮. কেমন করে আপনার ব্যথা শুরু হয় ?	ক) হঠাৎ খ) ধীরে ধীরে/ ক্রমশ
১৯. কাজ করার সময় কি কোনও অসুবিধা অনুভব করেন ?	ক) হ্যাঁ খ) না
২০. কোন অবস্থানে আপনার লক্ষণ আরও খারাপ হয় ?	ক) দাড়ালে খ) বসে থাকলে গ) শুয়ে থাকলে ঘ) বুকুে থাকলে ঙ) হাটলে
২১. কোন অবস্থানে আপনার ব্যথা কম অনুভব হয় ?	ক) দাড়ালে খ) বসে থাকলে গ) শুয়ে থাকলে ঘ) বুকুে থাকলে ঙ) হাটলে
২২. কর্মস্থলে / ক্লিনিকাল প্র্যাকটিসের সময় আপনি কি সঠিক অবস্থান বজায় রাখেন ?	ক) হ্যাঁ খ) না গ) মাঝে মাঝে

২৩. ব্যথার কারণে কি কখনও ডাক্তার বা স্বাস্থ্য বিশেষজ্ঞের কাছে গিয়েছেন ? যদি না গিয়ে থাকেন তাহলে পরবর্তী প্রশ্নগুলো বাদ দিয়ে ২৭ নং প্রশ্নে চলে যান ।	ক) হ্যাঁ খ) না
২৪. আপনি কি ধরনের চিকিৎসা পেয়েছেন ?	ক) ঔষধ প্রয়োগ খ) ফিজিওথেরাপী গ) অপারেশন ঘ) অন্যান্য
২৫. চিকিৎসার ফলাফল কি ?	ক) উন্নতি হয়েছে খ) খারাপ হয়েছে গ) অপরিবর্তন
২৬. দৈনন্দিন কাজকর্মে এ ব্যাথা কেমন অনুভূত হয় ?	ক) একেবারেই না খ) আংশিক গ) পরিমিতরূপে ঘ) গুরুতরভাবে
২৭. আপনার কর্মস্থলের পরিবেশে কি আপনি সন্তুষ্ট ?	ক) একেবারেই না খ) আংশিক গ) পরিমিতরূপে ঘ) সন্তুষ্ট
২৮. আপনি কি ব্যথার কারণে কখনও অসুস্থতার ছুটি নিয়েছেন ? যদি না হয় তাহলে পরবর্তী প্রশ্নগুলো বাদ দিয়ে ৩০ নং প্রশ্নে চলে যান ।	ক) হ্যাঁ খ) না
২৯. যদি হ্যাঁ হয়, তবে গত ১২ মাসে তা কত দিন ?	ক) ১-৩ দিন খ) ৪-৬ দিন গ) ৭-৯ দিন ঘ) >৯ দিন
৩০. আপনি কি মনে করেন আপনার কর্মক্ষেত্রের গঠনগত উন্নয়ন করা প্রয়োজন ?	ক) হ্যাঁ খ) না
৩১. যদি হ্যাঁ হয় তাহলে উল্লেখ করুন কি উন্নতি প্রয়োজন ?	ক) নিয়ন্ত্রিত বিছানা (বিছানার উচ্চতা নিয়ন্ত্রণের জন্য) খ) লাম্বার রোল (সঠিক অবস্থান বজায় রাখার জন্য) গ) কাজের স্থানে কাঠামোগত পরিবর্তন (মাংসপেশীর সমস্যা প্রতিরোধের জন্য)