

PREVALENCE OF NECK PAIN AMONG THE BANK WORKERS

Md. Saiful Islam

Bachelor of Science in Physiotherapy (BSc.PT)

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Bangladesh Health Professions Institute (BHPI)

Department of Physiotherapy

CRP, Saver, Dhaka-1343

Bangladesh

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

PREVALENCE OF NECK PAIN AMONG THE BANK WORKERS

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

.....
Md. Obaidul Haque

B.Sc. PT (Hons.), Dip.ortho. Med., MPH
Assistant Professor and Course Coordinator
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka
Supervisor

.....
Mohammad Anwar Hossain

B.Sc. PT (Hons.), Dip. Ortho. Med, MPH
Assistant Professor of BHPI
Department of Physiotherapy
CRP, Savar, Dhaka

.....
Nasirul Islam

B.Sc.PT (Hons.), MPH
Assistant Professor
Department of physiotherapy
BHPI, CRP, Savar, Dhaka.

.....
Md. Shofiqul Islam

B.Sc. PT (Hons.), MPH
Lecturer
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

.....
Md. Obaidul Haque

B.Sc. PT (Hons.), Dip.ortho. Med., MPH
Assistant Professor and Course Coordinator
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka

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 decline that for any publication, presentation or dissemination of information of the study. I would be bound to take written consent of my supervisor.

Signature:

Date:

Md. Saiful Islam

Bachelor of Science in Physiotherapy Professional (BSc.PT)

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Contents

	Page No.
Acknowledgement	I
Abbreviations	II
Lists of Figures	III
Abstract	IV
CHAPTER-I: INTRODUCTION	
1.1 Introduction	1-3
1.2 Justification of the study	4
1.3 Research question	5
1.4 Study objectives	6
1.5 List of variables	7
1.6 Operational definition	8
CHAPTER-II: LITERATURE REVIEW	9-16
CHAPTER III: METHODOLOGY	
3.1 Study design	17
3.2 Study population and sample population	17
3.3.1 Study site	17
3.3.2 Study area	18
3.4 Sample size	18
3.5 Inclusion and exclusion Criteria	18-19
3.6 Sampling techniques	19
3.7 Material used for the research project	19
3.8 Data management and analysis	19
3.9 Informed consent	19-20
3.10 Ethical considerations	20
CHAPTER IV: RESULTS	21-32
CHAPTER V: DISCUSSION	33-35

	Page No.
CHAPTER IV: CONCLUSION AND RECOMMENDATION	36-37
References	38-42
Appendix	43-45

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Abbreviations

BHPI:	Bangladesh Health Professions Institute
CRP:	Center for the Rehabilitation of the Paralyzed
MSD:	Musculoskeletal Disorder
SPSS:	Statistical Package of Social Sciences
WRMD:	Work Related Musculoskeletal Disorder
WRNP:	Work-Related Neck Pain

Lists of Figures

	Page No
Figure-1: Prevalence of neck pain	23
Figure-2: Male and female ratio	24
Figure-3: Age of the participants who suffered neck pain.	25
Figure-4: Job experience and neck pain relationship	26
Figure-5: First experience of neck pain	27
Figure-6: Duration of working hour of the neck pain experienced participants	28
Figure-7: Stay away from form work due to pain	29
Figure-8: Working performance reduce due to pain	30
Figure-9: Ergonomic factor affect pain	31
Figure-10: Neck pain among computer user	32
Figure-11: Available treatment	33
Figure-12: Outcome after receiving treatment	34

Abstract

Purpose: To identify the prevalence of neck pain among the bank workers.

Objectives: To identify the percentage of neck pain among the Bank workers, to find out the male female ratio of neck pain , to find out the most affected age group of neck pain, to identify the risk factor of neck pain among the Bank workers. **Methodology:** The study design was cross sectional. Total 35 samples were selected by purposive sampling from different government and private Bank at Savar, Dhaka. Data was collected by mixed type questionnaire. Descriptive statistics were used for data analysis which focused pie chart and bar chart. **Result:** The Prevalence of neck pain was 45.7% among the Bank workers. And the prevalence of neck pain was higher among female bank workers at 66.6% than male bank workers. The highest prevalence was found among computer users (81.25%) and long duration workers (60%).The most vulnerable age of neck pain 25-35 years.56.25% neck pain experience participant said that their working performance reduced due to neck pain. **Conclusion:** The findings of this study suggest that neck pain is prevalent among bank workers at Savar in Dhaka, Bangladesh. And this may be associated with the type of job, work station design and job demand.

1.1 Introduction

Rapid technological developments, especially in the use of electronic data, have affected workers. Electronic data are mainly displayed on visual display screen. Improper body posture and long hours in front of these instruments can result in many health hazards such as neck pain (Jensen et al., 2002). It has been stated that neck pain is the common occupational health problem (New guidance on using computers and preventing, 2003). Statistics show that around 10–15% of the population has neck pain at any given time (National health and medical research council, 2000). Normal neck function underpins successful performance of activities of daily living. In the general population, neck pain and dysfunction are common, affecting up to 67% of the general population at some time during their life (Cote et al., 1998). The one year prevalence of neck pain has been reported normal neck function as 32% in a population of Hong Kong Chinese (Lau et al., 1996, 396-399). Neck pain may arise from any of the innervated structures in the neck, such as intervertebral discs, muscles, ligaments, zygapophyseal joints, dura or nerve roots (Bogduk, 1998). However in the majority of cases, the patho-physiological mechanisms underlying neck pain are unclear. Estimates indicate that the economic consequences of treating disabling chronic neck pain are significant. In the Netherlands annual costs associated with chronic non-specific neck pain has been reported at US\$868 million (Borghouts, 1999). Many studies have investigated the relationship between neck pain and working conditions. Office workers are a specific population at high risk of developing neck pain, with one year prevalence rates much higher than in the general population (Chiu et al., 2002; Kamwendo, 1991). One year prevalence of neck pain in office workers at a Hong Kong university was found to be 59% (Chiu et al., 2002) and 63% in a Swedish study of medical secretaries (Kamwendo, 1991). The epidemiology of neck pain is important for several reasons. More knowledge about the size and extent of this problem would facilitate accurate predictions of the need for medical services and direct resources. Moreover, the prevalence of neck pain in the general population is essential for determining the relation between trauma and occupation (Kamwendo, 1991; Korhonen, 2003; Wahlstrom, 2004).

Several possible pathophysiological mechanisms of neck pain disorders have been proposed in the literature. According to Visser and Van Dieën (Viikari-Juntura E, 2001), it is unlikely that a single comprehensive pathophysiological mechanism exists that is responsible for tissue damage. Selective and sustained activation of type I motor units can be seen as the most influential hypothesis for the development of muscle damage due to sustained low-intensity tasks (the Cinderella hypothesis). This may lead to calcium accumulation in the active motor units and other homeostatic disturbances due to limitations in local blood supply and metabolite removal in muscle compartment with larger numbers of active motor units. Additional mechanisms, such as nociceptor sensitization due to intra-muscular shear forces are also assumed to play a role (Viikari-Juntura E, 2001).

Work related neck disorders are common problems in office workers, especially among those who are intensive computer users (Brandt et al., 2004; Jensen C, 2003; Juul-Kristensen et al., Ortiz-Hernandez and Sillanpää et al., 2003; Szeto et al., 2005). The worldwide trend is for people to use computers for longer periods daily, due to increased (et al., 2006) computer-based tasks at work as well as during leisure activities. Introduction of the computer into the workplace has changed in work organization, and a different use of worker physical and mental potential. It is generally agreed that the etiology of work related neck disorders is multidimensional which is associated with, and influenced by, a complex array of individual, physical and psychosocial factors. Among these various risk factors, work-related psychosocial factors appear to play a major role. According to Ariëns et al., work-related psychosocial variables may include aspects of the work content, organization, and interpersonal relationships at work, finances and economics. Individual factors are considered as confounding factors that influence the relation between psychosocial demands and the occurrence of neck pain. Furthermore, psychosocial demands may be highly correlated with physical demands, which also indicate a confounding effect of physical factors on the relation between work-related psychosocial variables and the occurrence of neck pain (Korhonen, 2003; Wahlström, 2004).

Work-Related Musculoskeletal Disorders (WRMSD) are injuries or disorders of musculoskeletal tissues associated with workplace risk factors and are known by a

variety of terms, including cumulative trauma disorders, repetitive strain injuries, and overuse injuries .For people who spend a great deal of time using computers, WRMSDs of the neck are a common problem. The term Work-Related Neck Pain (WRNP) is employed in this article; “computer” refers to desktop and laptop or notebook personal computers, video display units, and video display screens, to include the use of keyboards and pointing devices (Bernaards et al., 2006).

Neck pain is defined in this paper as pain experienced from the base of the skull (occiput) to the upper part of the back and extending laterally to the outer and superior bounds of the shoulder blade. Epidemiological evidence appropriate to WRNP associated with computer used; individual, social, behavioral, and psychological issues relevant to WRNP are presented; and preventive and health policy strategies that may be considered to assist in controlling the problem of WRNP are suggested (Cagnie et al., 2007).

1.2 Justification of the study

Although some studies have dealt with neck pain among office workers in other countries, the exact nature and prevalence of this important health problem has not been studied before in Bangladesh. This study was formulated to fill the gap of knowledge in this area. The aims of the study were to assess the pattern of neck among bank workers and to identify the impact of demographic, occupational, psychological and social factors on them (Jesan et al., 2003). Beside this it will help to established ergonomic guidelines for space, equipment, furniture and environmental conditions which are mandatory in the design of working place of the Bankers. This study will also help to discover the lacking area of a Bankers, especially about their posture before doing any activities. Beside this it will help to professional development which is mandatory for current situation. The identification of risk factor of neck pain can help act as preventive method of neck pain and give proper education about their bad posture. And 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 neck pain among the bank workers?

1.4 Study Objectives

General objectives

- To find out the Prevalence of neck pain among the bank workers.

Specific objectives

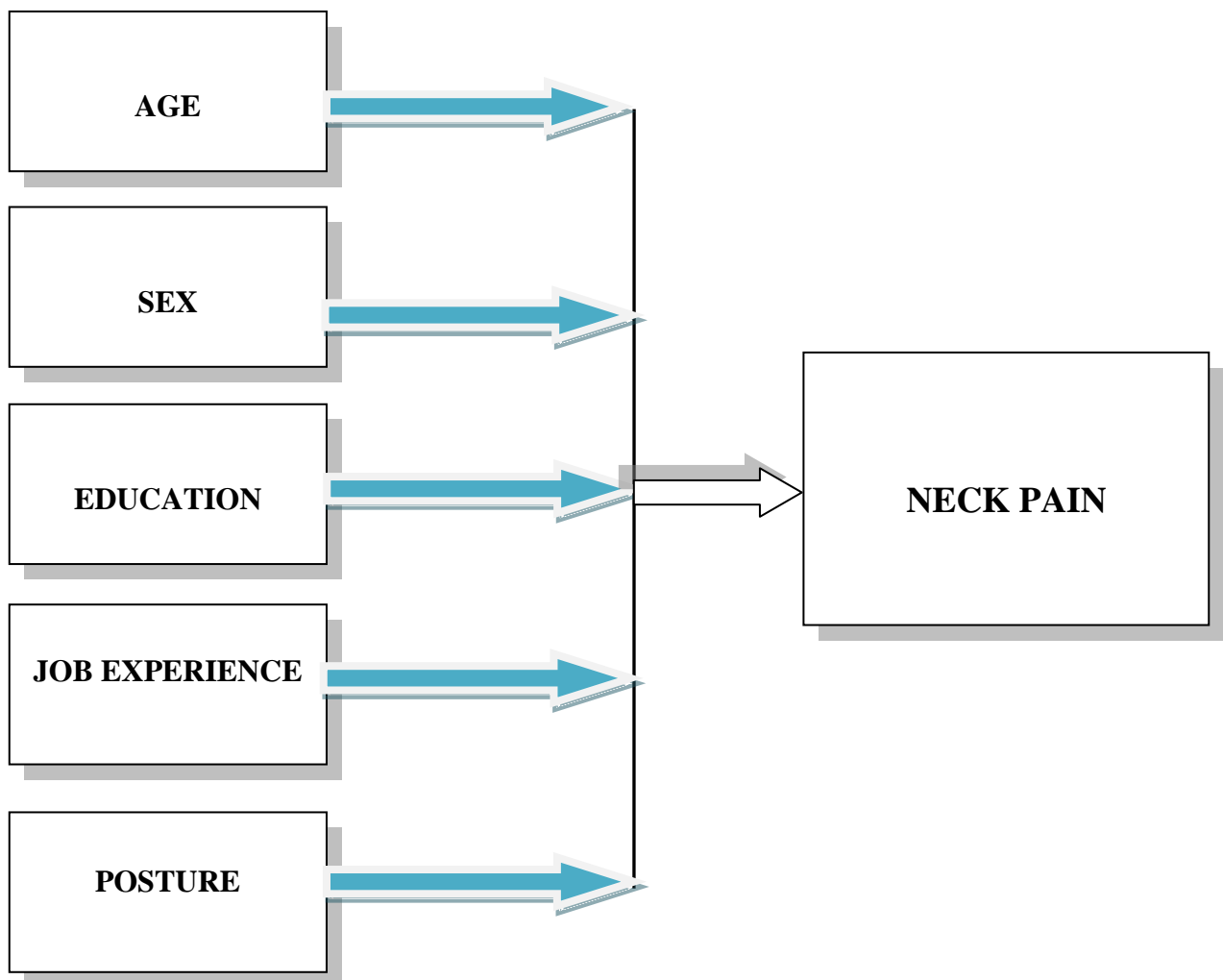
- To identify the percentage of neck pain among the Bank workers.
- To clarify the male female ratio of neck pain among the Bank workers.
- To find out the most affected age group of neck pain among the Bank workers.
- To determine the risk factor of neck pain among the Bank workers.

1.5 List of Variables

Conceptual Framework

Independent variable

Dependent variable



3.6 Operational definition

Neck pain: Neck pain is the sensation of discomfort in the neck area. Neck pain can result from disorders of any of the structures in the neck, including the cervical vertebrae and intervertebral discs, nerves, muscles, blood vessels, esophagus, larynx, trachea, lymphatic organs, thyroid gland, or parathyroid glands. Neck pain arises from numerous different conditions and is sometimes referred to as cervical pain.

Neck pain

There is general agreement that the frequency of neck pain in various populations is quite high and this symptom greatly affects the person's quality of life and need for health care (Brattberg et al., 1989; Côté et al., 1998). Neck problems also account for a large proportion of occupational illness and disability and place a heavy load on the compensation insurance systems (Statistics Sweden, 1992). The prospective studies on prevalence of neck pain are not entirely comparable because of differences in their designs (Brattberg et al. 1989, Andersson et al. 1993, Hasvold and Johnsen 1993). The epidemiology of neck pain is important for several reasons. More knowledge about the size and extent of this problem would facilitate accurate predictions of the need for physiotherapy direct resources. Moreover, the prevalence of neck pain in the bank workers is essential for determining the relation between age and occupation (Statistics Sweden, 1992). Neck pain is common among adults in developed countries and contributes importantly to the demand for medical services and the economic burden of absence from work due to sickness. Population based studies suggest a lifetime prevalence of over 70% and a point prevalence of between 12% and 34% (Croft et al., 2001; Borghouts et al., 1998).

Neck pain, although felt in the neck, can be caused by numerous other spinal problems. Neck pain may arise due to muscular tightness in both the neck and upper back and pinching of the nerves emanating from the cervical vertebrae. Joint disruption in the neck creates pain, as a joint disruption in the upper back (Wikipedia). Neck pain causes considerable personal discomfort due to pain, disability, and impaired quality of life, and may affect work. The economic consequences of treating disabling neck pain are significant (Statistics Sweden, 1992).

For people who spend a great deal of time using computers, neck pain is a common problem. There has been a great technological advance in computers along with an industrial shift to a more service oriented economy (Cote et al., 2007). This has led to more sedentary jobs as the downsizing of the number of employees is used to minimize losses in corporate profits and resulting increased demands in productivity

for those who remain with a company and an increase in sick leave resulting from neck pain. This means more people use computers for work and recreation and we must find better ways of coping with neck pain associated with extended use of computers (Brattberg et al., 1989; Côté et al., 1998).

The computer helps a company minimize inefficiencies in the workplace by eliminating wasteful tasks as office workers no longer need to leave the desk to retrieve mail, copy or file documents. This streamlining and increase in productivity through elimination of inefficiencies related to specific tasks has some unfortunate consequences for the worker; there is a reduction in the number of breaks available from repetitive or static job tasks which help to restore health (Brattberg et al., 2007).

Type of neck pain

Neck pain includes general pain and stiffness in the neck region, which can include the neck, shoulders, arms, hands, or head. The muscles can be sore and tense. Patients often report of mild to severe headaches. Most pain is due to the aging of the spine. As the spine ages, the discs can degenerate and herniated. The joints may become arthritic, stenosis can occur (narrowing of the spinal canal), and instability may develop (Lacerda, 2010).

There are three types or classifications of neck pain:

Axial neck pain: Axial pain is Musculoskeletal, and is pure neck or soft tissue pain. Whiplash or muscle strain is an example.

Radiculopathy: Cervical radiculopathy refers to neck and arm pain due to nerve root compression. Symptoms include arm pain, numbness or weakness.

Myelopathy: Myelopathy refers to pressure on the spinal cord, also referred to spinal cord compression. Symptoms include: neck pain with arm and/or leg weakness, numbness, or walking problems (Brattberg et al., 1989, Andersson et al., 1993, Hasvold and Johnsen, 1993).

The types of neck pain can be Acute or Chronic. Acute pain occurs suddenly from an injury or stress. Most of the time neck pain will resolve itself within 7-10 days with rest, ice, and over the counter pain relievers. For symptoms that persist longer than a few weeks, a thorough evaluation by a primary care physician is recommended. The physician will generally obtain x-rays and MRIs, and prescribe conservative therapy (Cote et al., 2007).

Chronic pain is defined as neck pain lasting longer than three months. People who have not found relief through conservative treatments, and suffer from chronic pain may benefit from pain management or surgical intervention (Neck pain explained.com, 2007).

Causes of neck pain

Neck pain can result from a variety of causes, ranging from overuse injuries and whiplash to diseases such as rheumatoid arthritis and meningitis. Muscles strains- Overuse, such as too many hours hunched over a steering wheel, often triggers muscle strains. Neck muscles, particularly those in the back of your neck, become fatigued and eventually strained. When you overuse your neck muscles repeatedly, chronic pain can develop. Even such minor things as reading in bed or gritting your teeth can strain neck muscles. Worn joints-Just like all the other joints in your body, your neck joints tend to experience wear and tear with age, which can cause osteoarthritis in your neck. Nerve compression-A variety of problems in your neck's vertebrae can reduce the amount of space available for nerves to branch out from the spinal cord. Examples include: Stiffened disks- As you age; the cushioning disks between your vertebrae become dry and stiff, narrowing the spaces in your spinal column where the nerves exit. Herniated disks-This occurs when the inner gel-like material of a disk protrudes through the disk's tougher outer covering. The protrusion can press on nerves exiting the spinal column, causing arm pain or weakness, or on the spinal cord itself. Bone spurs. Arthritic joints in your neck can develop bony growths that may press on nerves. Injuries-Rear-end collisions often result in whiplash injuries, which occur when the head is jerked forward and then backward, stretching the soft tissues of the neck beyond their limits (Neck pain explained.com, 2007).

Risk factor of Neck pain

We can see some trends for those of us who are at risk and take some measures to help prevent neck pain or use as a guide for intervention. A total of 45.5% of the population studied reported neck pain in the past 12 months, of which 18.1% complaint of continuous neck pain. A total of 64.3% of the patients reported that there was a relation between their current job and the neck complaints. A total of 56.2% even mentioned that their complaints started during the current job. A total of 10.2% reported sick leave due to neck complaints. The work place and equipment were adapted in 24% of the patients due to neck pain. Work time was changed due to the same reason (Bernaards et al., 2006).

Work related physical factors for neck pain

Analyses of the association between neck pain and work related physical factors, revealed that neck pain was significantly associated with often holding the neck in a forward bent posture for a prolonged time, various short periods of movements with the neck, often working in the same position for a prolonged time, often making the same movements per minute, often sitting for a prolonged time, dry air and temperature fluctuation, and computer working time. Often holding the neck in a forward posture for a prolonged time, and working in the same position for a prolonged time were significantly associated with neck pain. There is a positive relation between forward bending of the neck (neck flexion) and neck pain, suggesting an increased risk of neck pain for those who spent a high percentage of the working time with the neck at a minimum of 20° of flexion(Cote et al., 2007).

Often making the same movements per minute was significantly associated with neck pain. When performing work with the hands and fingers, the muscles in the neck and shoulder region must usually act as stabilizers. Static contraction of the trapezius and other shoulder muscles is needed to keep the arms at right angles, a necessary posture when using the keyboard (Brattberg et al., 1989; Andersson et al., 1993; Hasvold and Johnsen, 1993).

This contraction is accentuated when there is also rotation or bending of the neck when the computer screen is placed to the side of the worker, not in front which is the

recommended position. Pain may also be attributed to changing muscle patterns reflecting more the personal habitual movements and postures rather than the influence of their workstations alone (Hoving et al., 2002).

A significant positive relation was found between sitting posture and neck pain. Previous studies found that workers who sat for more than 95% of the working time the risk of neck pain was twice as high as for worker who hardly ever worked in a sitting position. The risk for neck pain increases with the time spent working in a sitting position, suggesting a clear relation between sitting posture and neck pain. A study reported a relation between sitting for more than 5 hours a day and self reported neck pain. Remaining seated for long periods, usually accompanied by curvature of the spine, increases pressure on vertebral discs, ligaments, and muscles (Gross et al., 2010).

Some climatological conditions (dry air and temperature fluctuation) seem to be a significant predictor for neck pain. Studies found a positive association between the different aspects of physical work environment and neck pain. It has been demonstrated that inadequate thermal comfort was associated with neck symptoms. There is a possibility that subjects with neck pain may have a different perception of their work environment (Hoving et al., 2002). Analyses of the association between neck pain and work related physical factors, revealed that neck pain was associated with computer working time (Cote et al., 2007).

Work related psychosocial factors for neck pain

The following work related psychosocial factors showed a positive association with neck pain: mental tiredness at the end of the workday, shortage of personnel, not being rested after break; no variation at work, doing the same work all day, getting annoyed about others. Women have an almost two-fold risk compared with men. Persons older than 30 years have more than two and one half times more chance of having neck pain than younger individuals. Being physically active decreases the likelihood of having neck pain. Often holding the neck in a forward bent posture for a prolonged time, often sitting for a prolonged time and often making the same movements per minute are risk factors for neck pain. The risk of neck pain is about

two-fold for those experiencing mental tiredness at the end of the workday in comparison to those who do not experience tiredness. Shortage of personnel increases the risk of neck pain (Bernaards et al., 2006).

Different work related psychosocial factors showed a positive association with neck pain, but only mental tiredness at the end of the day and shortage of personnel were independently related. Reporting shortage of personnel may be an indirect reflection of work (over) load. There is consistent evidence that stress is associated with neck pain. The protective effect of rest breaks was also reported in other studies. Breaks allow a reduction in computer exposure, but more especially permit muscle relaxation (Bernaards et al., 2006).

The study results suggest that effective intervention strategies aiming at reducing the occurrence of neck pain most likely have to take into account both ergonomic improvements and cognitive behavioral aspects. Based on the results of this study, intervention should be applied to reduce computer exposure and also toward improving ergonomic conditions. Dynamic sitting chairs will lead to more variation in posture and comfort. The use of document holders and correct placement of the screen will reduce the neck load. Compulsory rest breaks could be introduced to reduce computer use. See more on neck pain and headache relief and computers (Alan, 2008).

Individual factors for neck pain

The prevalence of neck pain is higher among women than men. This gender pattern is seen in most types of body pain and several sociological, cultural and physical differences have been proposed as explanations, but these hypotheses have not been shown to be satisfactory. Smaller stature and lower strength of the shoulder muscles have been suggested to partly explain the sex difference. Concerning computer work in particular, gender differences have been found, for example, in the use of a computer mouse (Garra et al., 2010).

An association was found between age and the prevalence of neck pain. The risk of neck pain increased until the age of 50 and decreased slightly thereafter. The increase with age can be understood by increasing degenerative disc disease of the neck with

age. The decrease of neck pain in the oldest age group is more difficult to explain; it may be that chronic diseases and other ailments may gain the upper hand or the degenerative process tends to stabilize with fusion of cervical spine structures. Being physically active decreases the likelihood of having neck pain. Employees who exercised less frequently demonstrated a higher risk of neck pain. This may have some clinical implications: stimulation of leisure time physical activity may constitute one of the means of reducing musculoskeletal morbidity in the working population, in particular in sedentary workers (Tone et al., 2010).

Epidemiology and Economics

Neck pain affects 30–50% of the general population annually.

15% of the general population will experience chronic neck pain (>3 months) at some point in their lives.

11–14% of the working population will annually experience activity limitations due to neck pain.

Prevalence peaks at middle age, and women are more often affected than men.

Risk factors include repetitive work, prolonged periods of the cervical spine in flexion, high psychological job strain, smoking, and previous neck/shoulder injury (Falla, 2008).

Treatment

Treatment of neck pain depends on the cause. For the vast majority of people, neck pain can be treated conservatively. Recommendations which may help alleviate symptoms include applying heat or cold (Garra et al., 2010).

Conservative treatment

Exercise plus joint mobilization and/or joint manipulation (spinal adjustment) has been found to be beneficial in both acute and chronic mechanical neck disorders. Neither mobilization nor manipulation without exercise however has been found to be helpful (Hoving et al., 2002). Mobilization is equivalent to manipulation (Gross et al., 2010).

Medication

Analgesics such as acetaminophen or NSAIDs are recommended for pain. Muscle relaxants such as cyclobenzaprine have not been found to be useful and are therefore not recommended. Over the counter topical creams and patches containing counterirritants have little evidence to support efficacy (Hoving et al., 2002).

Role of physiotherapy in neck pain condition

Physical Therapist assess an individual's physical ability to do a specific job or activity and aids in developing a safe return to work program (Occupational health solution). All exercises should be performed slowly and comfortably to avoid injury. When performing strengthening and flexibility exercises, remember to breathe naturally and do not hold breath; exhale during exertion and inhale during relaxation. A program of strengthening, stretching, and aerobic exercises will improve overall fitness level. Research has shown that people who are physically fit are more resistant to back injuries and pain and recover quicker when they do have injuries than those who are less physically fit (Joel & Press, 2008).

Strengthening exercises- help increase muscle tone and improve the quality of muscles. Muscle strength and endurance provide energy and a feeling of wellness to help you perform daily, routine activities (Joel & Press, 2008).

Practice good posture – ensuring the correct alignment of the spine is essential to avoiding neck pain. This includes sitting, standing and sleeping (Tone et al., 2007).

Use Comfortable Equipment - Use equipment that isn't too heavy, that can be used without awkward upper body posture and that feels comfortable to use. Ergonomically designed equipment helps to minimize stresses on the upper extremities and the back (Lacerda, 2010).

Manage Time - Avoid long appointments where possible, or intersperse these with frequent short rest breaks in which you change posture and relax the upper extremities (Alan, 2008)

3.1 Study design

The purpose of the study was to find out the prevalence of neck pain among the Bank workers. The cross sectional study was conducted to find out the objectives. This design involves identifying group of people and then collecting the information that requires when they use the particular service. This type of data can be used to assess the prevalence of acute or chronic conditions in a population. Survey research is one of the most common forms of research that involves the asking a large group of people questions about a particular topic or issue and these are related to the interest of the participant. Survey is a method of collecting data which involves the measuring relevant sample variables (often using s questionnaire) without any form of manipulation or systemic intervention .The idea with the survey usually approaches a sample of target group of interest, interviews them or ask them questionnaire.

3.2 Study population and sample population

A population is the total group or set of events or totality of the observation on which a research is carried out. In this study, sample populations were selected from the participant of bank worker at Savar, Dhaka. The sample population or sample is a relatively small subset of population that is selected to represent or stand in for the population (Heiman, 1995). 35 Bank workers were selected for this study as sample.

3.3.1 Study site

The site of my study were selected some Bank at Savar area

- Dhaka Bank Ltd. Savar branch, Dhaka, Bangladesh.
- United Commercial Bank Ltd. Savar branch, Dhaka, Bangladesh.
- National Bank Ltd. Savar branch, Dhaka, Bangladesh.
- Bangladesh Krishi Bank , Savar branch, Dhaka, Bangladesh.
- Basic Bank Ltd. Savar branch, Dhaka, Bangladesh.
- Islami Bank Bangladesh Ltd. Savar branch, Dhaka, Bangladesh.
- Dutch Bangla Bank Ltd. Savar branch, Dhaka, Bangladesh.
- Janata Bank Ltd. Savar branch, Dhaka, Bangladesh.

3.3.2 Study area

Musculoskeletal conditions of the bank workers.

3.4 Sample Size

Sampling procedure for cross sectional study done by following equation-

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

Here,

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

$$P = 0.78$$

$$q = 1 - p$$

$$d = 0.05$$

So the researcher aimed to focus his study by 263 samples following the calculation above initially. But as the study was done as a part of fourth professional academic research project and there were some limitations, so the researcher had to limit with 35 Bankers as sample.

3.5 Inclusion and Exclusion criteria

3.5.1 Inclusion criteria

- Both male and female selected who are involved in desk job.
- Subject was selected from private and Government Bank at Savar in Dhaka.
- All age group was selected.
- Subject who were willing to participate in the study.

3.5.2 Exclusion Criteria

- Subjects who had thyroid problem- thyroid problem causes muscle weakness (safe menopause solutions.com, 1997). These symptoms are same as symptoms of neck pain.

- Subjects who had cancer problem- this problem causes a general sense of discomfort, Pain with neck Muscle twitches and cramps (Myo clinic.Com, 2008). These sign symptoms are similar as neck pain symptoms.
- Subjects who had major accident or major surgery in any part of the body- it any major surgery or accident may cause pain or any discomfort in any part of the body which may be not neck pain. This can mislead the result of the study.

3.6 Sampling technique

Samples were selected conveniently from all private and Government bank at Savar, Dhaka. There are a lot of Bank worker in Bangladesh, from this population it was selected 35 samples, according to the inclusion and exclusion criteria. Because it was not possible to study the total population within the time of this study.

3.7 Materials used for the research project

Questionnaire, consent forms, pen, papers, pen drive, SPSS (Statistical Package for the Social Sciences) software to analyze data, Harvard Referencing 2012 and computer.

3.8 Data management and data analysis

The collected data is descriptive data. Those were used the graph technique for analyzing data, calculated as percentages, and presented this using bar and pie charts by SPSS (Statistical Package of Social Science) software version 16.0.

SPSS is a comprehensive and flexible statistical analysis and data management solution. SPSS can take data from almost any type of file and use them to generate tabulated reports, charts, and plots of distributions and trends, descriptive statistics, and conduct complex statistical analyses.

3.9 Informed consent

Before conducting research with the respondents, it is necessary to gain consent from the subjects. For this study interested subjects were given consent forms and the purpose of the research and consent forms were explained to the subject verbally. They were told that participation is fully voluntary and they have the right to withdraw at any time. They were also told that confidentiality will be maintained. Information might be published in any presentations or writing but they will not be

identified. The study results might not have any direct effects on them but the members of Physiotherapy population may be benefited from the study in future. They would not be embarrassed by the study. At any time the researcher will be available to answer any additional questions in regard to the study.

3.10 Ethical consideration

- Followed the guideline given by local ethical review committee.
- Permission was taken from the manager of Bank for data collection.
- The participants were explained the purpose and goals of the study.
- Followed the WHO & BMRC guidelines.
- Strictly maintained the confidentiality.
- Informed consent would be taken.

4.1 Prevalence of neck pain

After analysis study found that 16 (45.7%) participants out of 35 participants have suffered from neck pain (Figure-1).

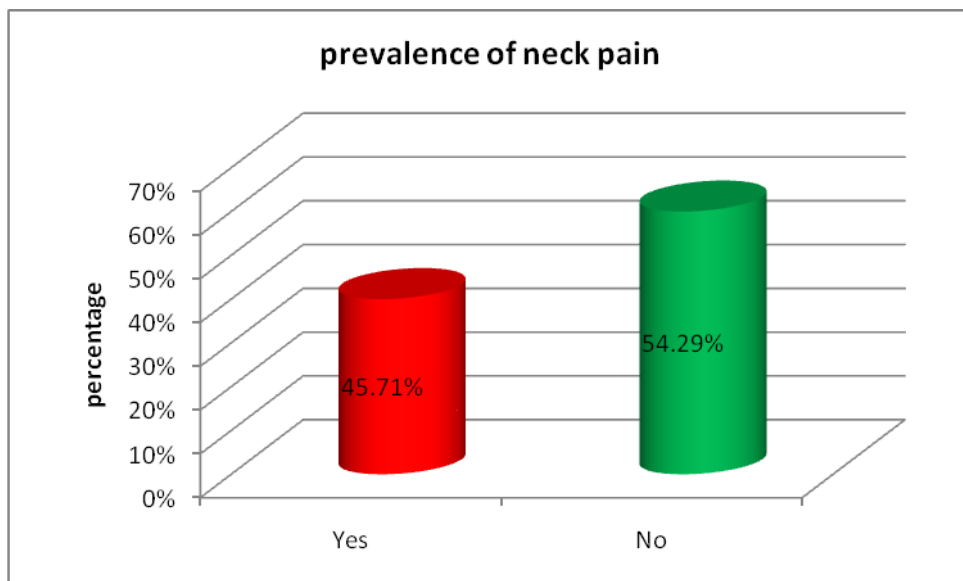


Figure-1: Prevalence of neck pain

4.2 Male and female ratio

Analysis showed that among the 35 participants 32 were male and 3 were female. And among the 16 participants who were suffered from Neck pain 14(43.75%) were male and 2(66.66%) were female (Figure-2).

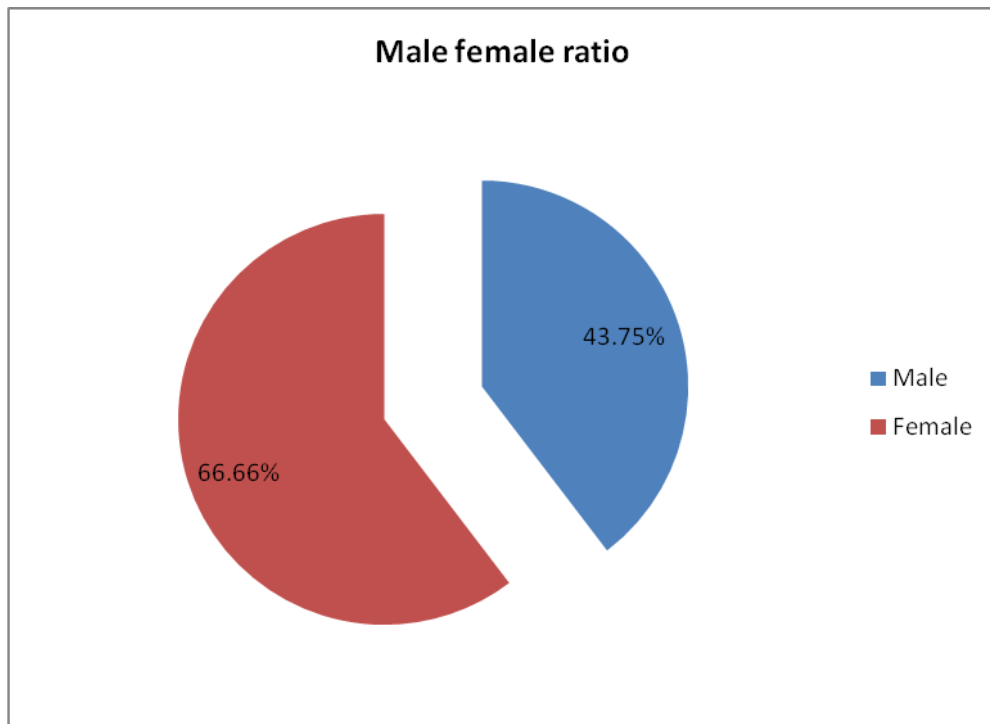


Figure-2: Male and female ratio

4.3 Age of the participants who had experienced of neck pain

Analysis showed that among the 32 participant, 16 participants had suffered from Neck pain which lowest age were 25 and highest age was 55 years. Their mean age was 33.62 years. And there were 3 (18.75%) participants in between 25-26 years, 3 (18.75%) participants in between 27-30 years, 5 (31.25%) participants in between 46-55 years and 5 (31.25%) participants in more than 39 years (Figure-3).

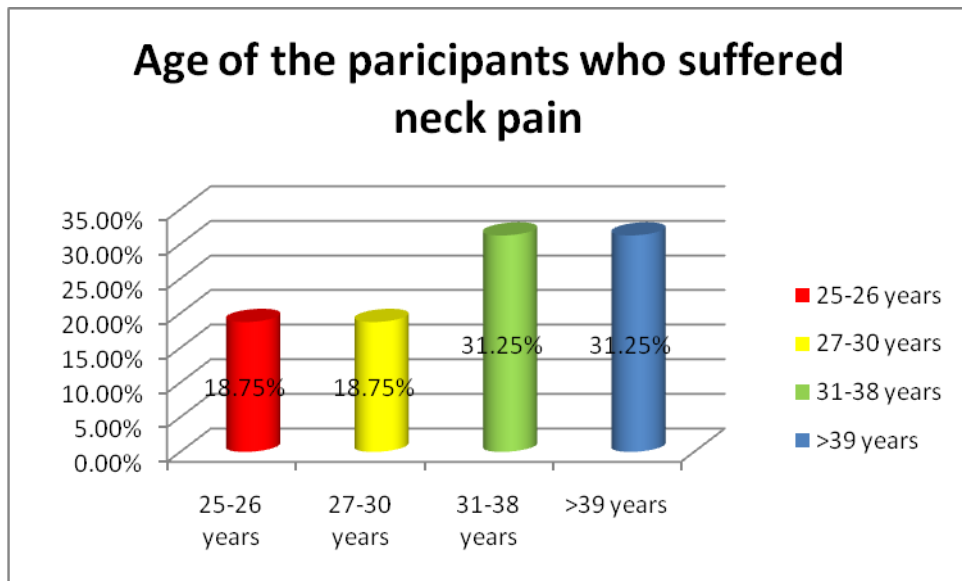


Figure-3: Age of the participants who suffered neck pain.

4.4 Job length of the participants who had suffered neck pain

Among 35 participants, 16 participants suffered neck pain which 9(56.25%) participants job experience were 1-10 years, 1(6.25%) participant were 11-20 years, 6(37.5%) participants were 21-30 years. So the participants whose job experience was in between 1-20 years were more experienced neck pain and the lowest percentage were the participant whose job experience is in 11-20 years (Figure-4).

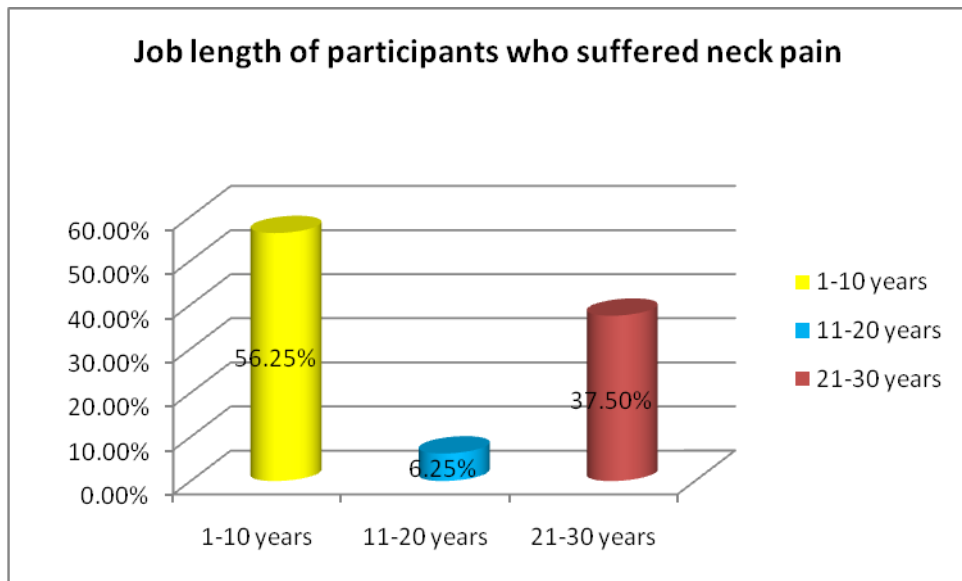


Figure-4: Job experience and neck pain relationship

4.5 First experience of neck pain

Analysis showed that among the 16 participants out of 35 participants who suffered from Neck pain 1 (6.25%) participants felt their Neck pain in the first year of work, 7 (43.75%) participants in the first 5 years of work, 3 (18.75%) participants in the 5-15 years of work and 1 (6.25%) participant in more than 15 years of work and 4 (25%) participants don't know (Figure-5).

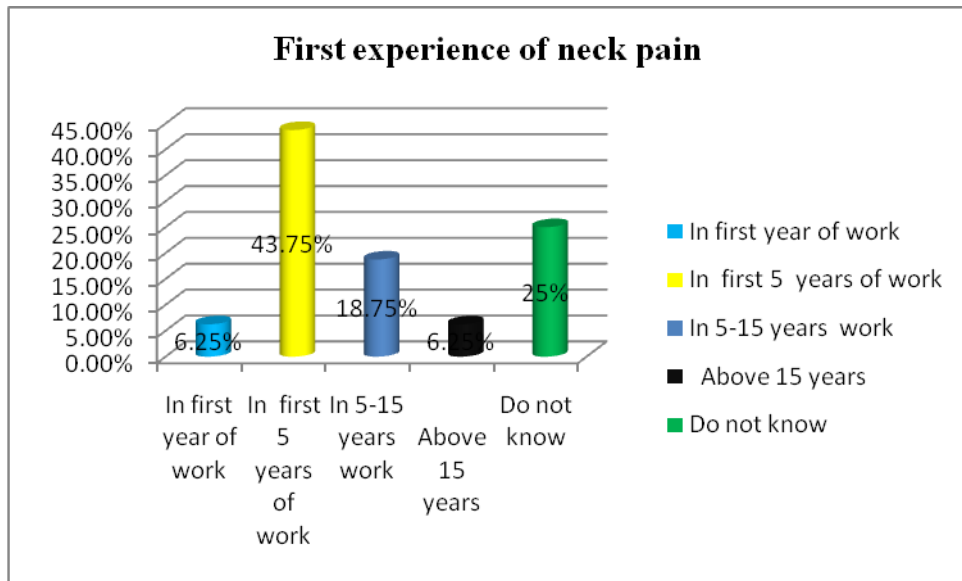


Figure-5: First experience of neck pain

4.6 Duration of working hour of the participants who suffered neck pain

Analysis showed that among the 35 participants 30 participants had done 8-10hours work per day and 5 participants had done 11-13 hours work per day. And among the 16 participants who were suffered from Neck pain 13(43.33%) participants had done 8-10 hours work and 3 (60.00%) participants had done 11-13 hours work per day (Figure-6).

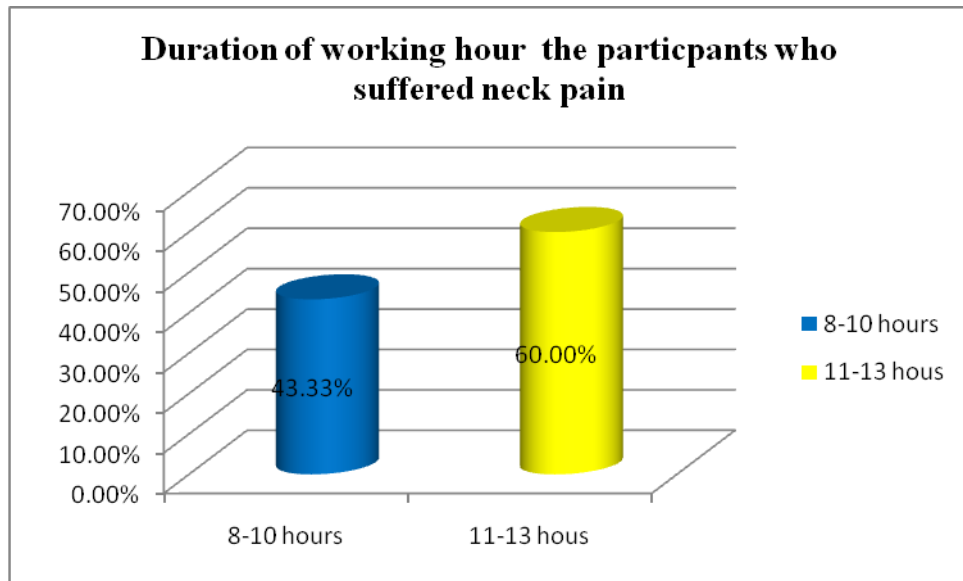


Figure-6: Duration of working hour of the neck pain experienced participants

4.7 Stay away from work due to pain

Analysis showed that among the 35 participants, 16 participants had suffered neck pain which 5(31.25%) participants stay away from work due to neck pain (Figure-7).

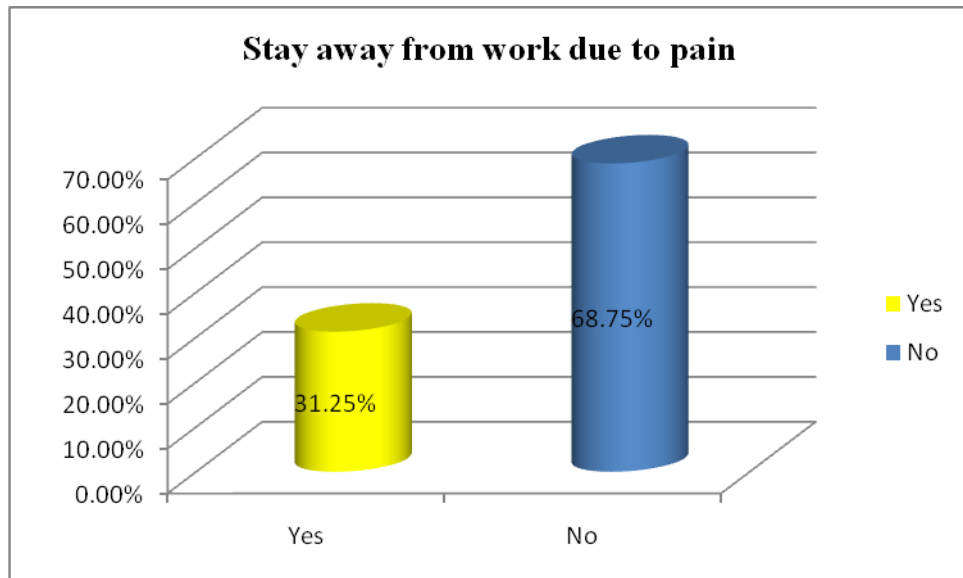


Figure-7: Stay away from form work due to pain

4.8 Working performance reduce form due to pain

Analysis showed that among the 35 participants, 16 participant had been suffered neck pain which 56.25% (N= 9) participants had been lost their appropriate working performance due to neck pain (Figure-8).

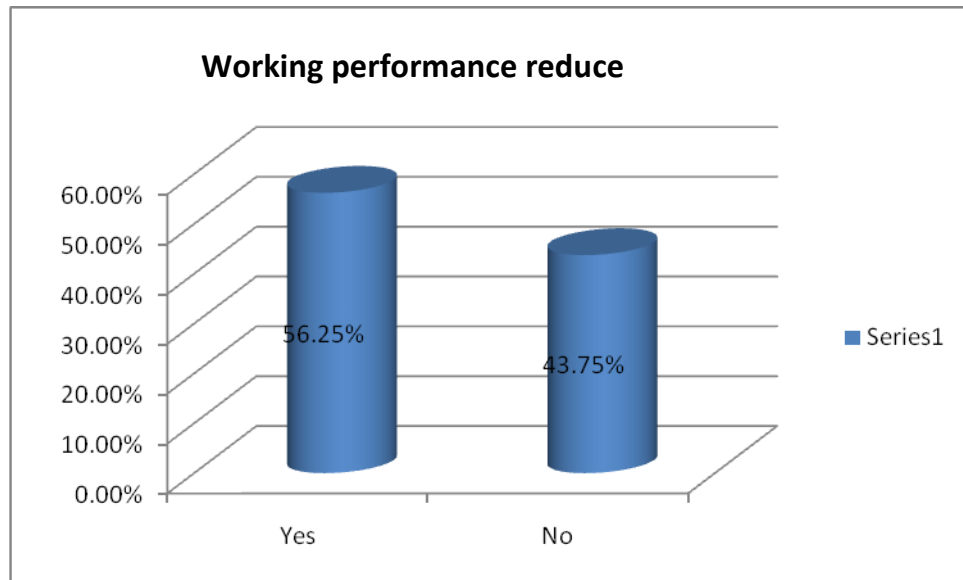


Figure-8: Working performance reduce due to neck pain

4.9 Poor ergonomic factor which aggravate the neck pain

Among 35 participants 16 participants had suffered neck pain which 13(81.25%) participants said that Ergonomic factors are responsible for their neck pain (Figure-9).

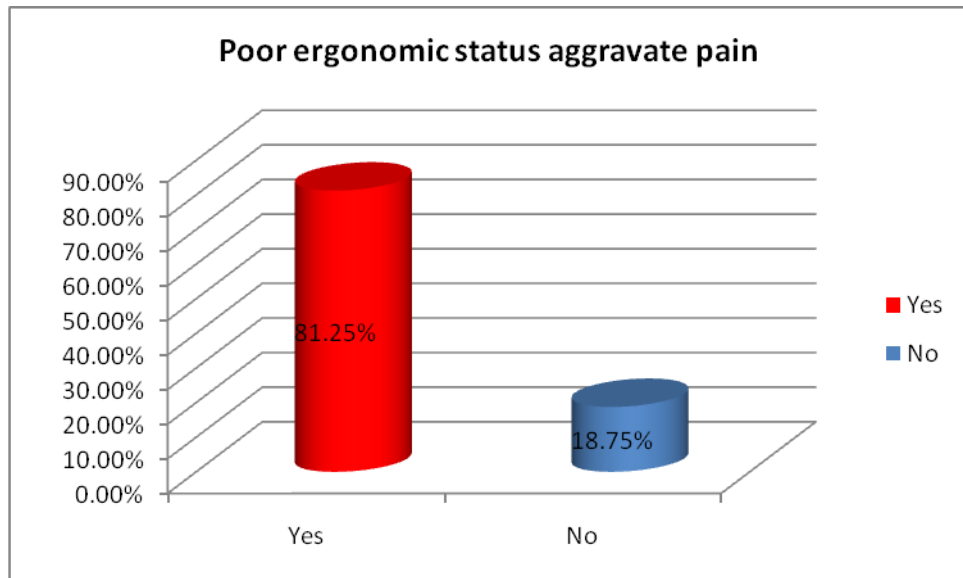


Figure-9: Ergonomic factor affect pain

4.10. Neck pain among computer user

Analysis showed that among the 35 participants 16 participants who had suffered neck pain which 81.25% (N=13) participant are computer user (Figure-10).

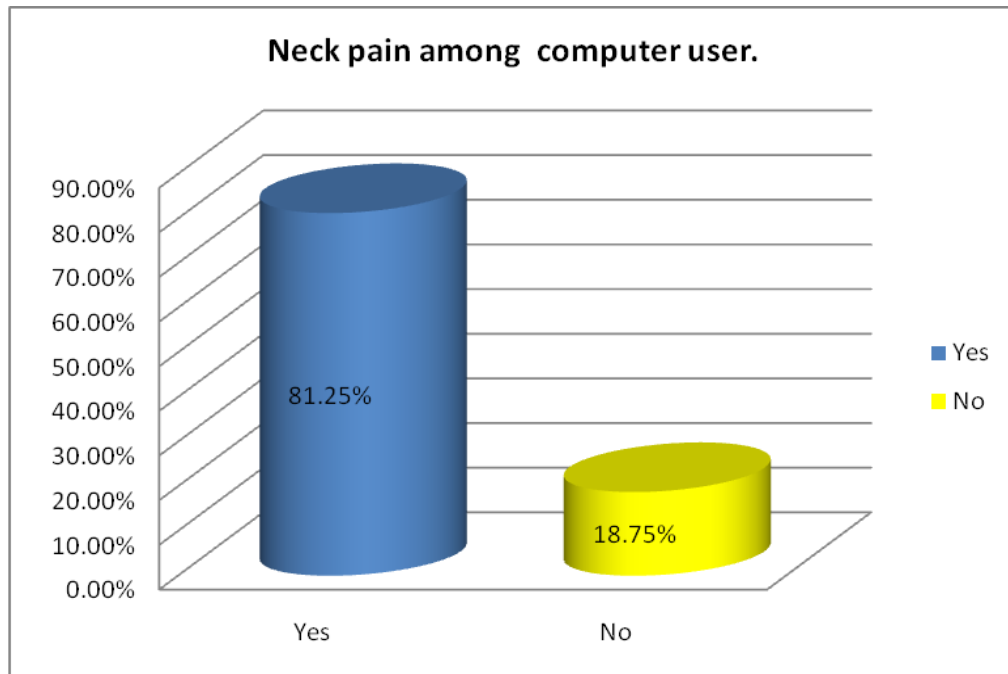


Figure-10: Neck pain among computer user.

4.11 Available Treatment

Analysis showed that among the 16 participants who had suffered neck pain , 25%(N=4) participant have taken medication, 12.50%(N=2) participants have taken physiotherapy , 18.75%(N=3) participants have taken both medication and physiotherapy , 43.75%(N=7) participants had not taken any treatment for their condition (Figure-11).

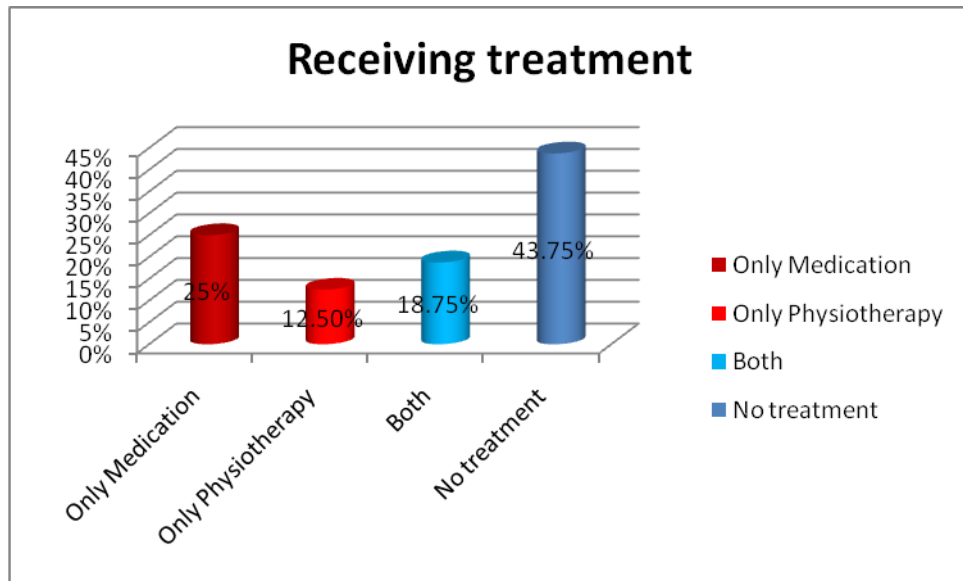


Figure-11: Available treatment

4.12 Outcome after receiving treatment

Analysis showed that among the 16 participant out of 35 who had suffered neck pain , 56.25%(N=9) participants received treatment among them, improve 44.45% and unchanged 55.55% (Figure-12).

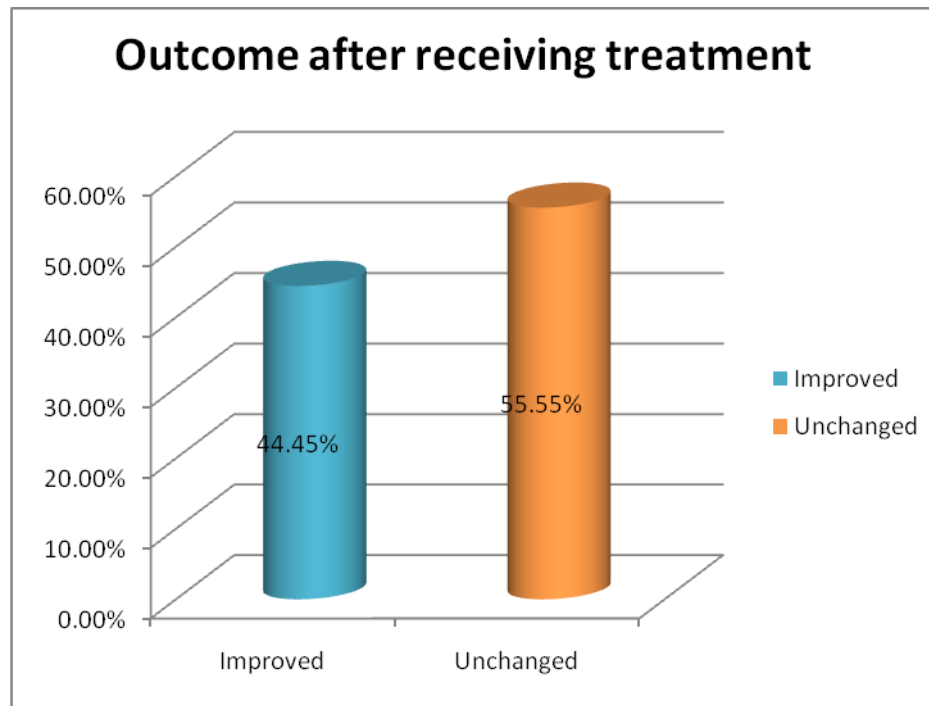


Figure-12: Outcome after receiving treatment

The study result shows that neck pain is prevalent among the Bank workers. This is in concordance with a research by Lacerda et al., (2005) who reported the prevalence neck pain among the Bank workers in Northeast Brazil. In this study the prevalence was 45.71%. One year prevalence of neck pain in office workers at a Hong Kong university was found to be 59% (Chiu et al., 2002) and 63% in a Swedish study of medical secretaries (Kamwendo, 1991). It was observed from this study that the prevalence of neck pain was higher among the female (66.66%) than the male (43.7%). Literature says those women are more vulnerable to neck pain than male. In a research project that was published at 2006 by Cagnie et al. showed that the prevalence of neck pain was substantially higher among women (18%) than among men (11%). The findings from this study showed that 81.25% of the respondents use computers for their works. Analysis however, shows that there was an increasing prevalence among these individuals, with the highest prevalence among those that worked for longer hours between 11 – 13 hours daily. Ergonomic factor affect 81.25% participant who have experienced of neck pain. And working performance reduces of 56.25% participants among the neck pain experienced participants. 31.25% participants are stay away from work due to neck pain.

Most frequent age range of participants (50%) had suffered from neck pain in between 25-35 years followed by (37.50%) participants more than 45 years. (Lotters et al. 2003) showed that 22% people in < 35 years old were affected by neck pain, in between 35-45 years 30% people were suffered from neck pain and in > 45 years old 48% people were suffered from neck pain. A statistics by (Health and safety executive, 2008) showed that the people in between 55-64 years are more suffered by neck pain.

Neck pain has been found to be a major health problem for Bank workers. Several studies have reported about prevalence of neck pain among the Bank workers. A survey of Banker in Israel, similarly reported that 55% neck pain among them. A study from New South Wales (NSW), Australia, found an even higher prevalence of

neck pain among Banker. In this study risk factor found on participants that 18.25% working on bending neck, 12.50% repetitive movement of neck, 18.25% using computer and 25% participants said that Performing same task, overtime work, bending neck, repetitive movement of neck, computer typing all are responsible for their neck pain. 18.75% participants said that three factor (bending neck, overtime, using computer) are responsible for their neck pain. And 6.25% participants said that work on bending neck, using computer are responsible factor for their neck pain. (Babatunde, 2008) showed in his research that among the all risk factor performing excessive work in one day (83.5%), working in same position for long period (71.3%), performing manual techniques (67.8%), working in awkward (64.6%), bending or twisting back in awkward way (62.6%), not having enough rest break during the day (61.7%), continuing to work when injured (52.2%), performing same task over (52.2%) and inadequate training in injury prevention (29.6%). (Palmer, 2007) claimed that repetitive work, static loading are responsible for most of the neck pain. Warren (2005) found in his research the common risk factors were performing the same tasks over and over, working in the same position for long periods' and performing excessive work of patients in 1 day. A positive relationship between fixed postures and musculoskeletal disorders (including pain, weakness, and paresthesia) has been documented for a number of occupations (Akesson et al., 2000).

Near about one third (31.25%) of the participants stayed away from work due to neck pain. Al wazzan et al. found in his research at Riyadh in 2001 that only 21.62% missed work due to neck pain. Just only 12.50% participants who suffered from neck pain had taken physiotherapy treatment for their condition. According to (LEGGAT PA et al., 2007) said that 28% Bank workers seeking medical attention for Neck pain in the Queensland, which were very similar (37%) bank worker in Saudi Arabia.

This study revealed that job distribution in the Bank has a relationship with neck and their (Bankers) posture. This is probably because different banking unit have different and unequal workload and deman. This is in agreement with the study carried out by Lacerda et al., (2005) who reported that the highest occupational risk factor was for cashiers.

Recent literature has identified work place ergonomics as a determinant for musculoskeletal injury; Ergonomics is the science of designing the job, equipment, and workplace to fit the worker. Proper ergonomic design is necessary to prevent repetitive strain injuries, which can develop over time and can lead to long-term disability (Berkeley, 2008). This study shows that there is a high prevalence of neck pain among the bank workers with a poor work station and ergonomics such as inappropriate location of the screen, keyboard and mouse, than those with a good work station. This is in accordance with study by Cheung et al., (2008) who stated that known risk factors neck pain included personal attributes, working posture, repetitive movements, using computer, typing and workstation design.

CHAPTER VI: CONCLUSION AND RECOMMENDATION

6.1 Conclusion

It is important to develop research based evidence of physiotherapy practice in this area. Physiotherapist's practice which is evidence based in all aspect of health care. There are few studies on Bank workers. These cannot cover all aspect of the vast area. So the next generation of physiotherapy members should continue study regarding this area, this may involve-use of large sample size and participants form different Bank of Bangladesh. Conduct research on other musculoskeletal problems among the Bank workers where physiotherapist can work. So it is very important to conduct such type research in this area.

6.2 Recommendation

The result of this study showed that the prevalence of neck is 45.71% among bank workers at Savar in Dhaka, Bangladesh. And this may be associated with the type of job, work station design and job demand. The author recommend that work demand should be reduced especially for the computer using bankers, since they are at higher risk of neck pain and construction of work station should be such that positioning the monitor forms an angle of between 15 to 45 degrees inferior to an imaginary horizontal line extended from the eye, whilst monitor should be 5 to 20 cm above the work table, generally the keyboard and mouse are supposed to be at around elbow height so that the forearm could be at 90 degrees with the wrist straight. Bankers should be educated on ergonomics, posture, taking breaks in between work and relaxation as this will ultimately improve job satisfaction and performance. The uses of software that will monitor time spent while working on computer and prompt the user to take a break when working for too long can also be employed. Work place modifications such as rotation policy among workers, alternating job works, flexible working hours should be employed.

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APPENDIX

Consent Form

Research Title: “Prevalence of neck pain among the bank workers”.

Dear Sir,

I am student of 4th professional, Bachelor of Science in physiotherapy at Bangladesh Health Professions Institute (BHPI) under Dhaka University, doing a research which is part of course curriculum. The aim of this study is to find out the prevalence of neck pain among the neck pain. The objectives of this study is to establish the prevalence of neck pain, the exposure group in relation to age, sex, and job experience, the working area which causes more work related neck pain, first experience of pain, the most affected age, risk factors that are considered as a problem and identify the necessity of physiotherapy treatment among the bank workers. The participation must be voluntary. You have the right to withdraw consent and discontinue participation at any time. You might be benefited or not, but in future may benefit and would not harmful. I am assuring you to give accurate information ensure confidentiality and will not personally identify this research. This project is only for the development of the profession.

You (participant) have read and understand the contents of the form. You agree to participant in the research without any force.

Name of the participant

signed:

Date

Name of the investigator:

signed:

Date

QUESTIONNAIRE

1. Gender:
 - Male
 - Female
2. Age : ----years
3. Job experience.....
4. What is your educational qualification?
 - Honors
 - Master
5. How long time do you work?
-----hours.
6. Have you experienced work related pain or discomfort in your neck?
 - Yes
 - No
7. When did you first experience neck pain?
 - In first year of work?
 - In first 5 years of year?
 - 5-15 years of work?
 - Don't know?
8. Did you stay away from work because of pain or work?
 - Yes
 - No
9. Had your working performance reduced due to pain?
 - Yes
 - No
10. Had you referred to the physician or other health professional due to pain?
 - Yes
 - No

11. What kind of treatment did you receive?
- Medication
 - physiotherapy
 - Others
12. If yes, then what was the result?
- Improve
 - Worse
 - Unchanged
13. Does ergonomic factor affect pain?
- Yes
 - No
14. Do you work in front of Computer?
- Yes
 - No
15. This list describe factor that could contribute to work related neck pain. In your opinion how have the following factors contributed to your neck pain?
- Performing the same task over and over.
 - Performing overtime work.
 - Working in awkward same position.
 - Repetitive movement of neck.
 - Bending on your neck in an awkward.