Prevalence of neck pain among the Physiotherapy students of Bangladesh Health Professions Institute (BHPI)

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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 Physiotherapy students of Bangladesh Health Professions Institute (BHPI)

Submitted by **Fatema Tuj Johora,** for the 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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Abbreviations

BHPI : Bangladesh Health Professions Institute

BMRC : Bangladesh Medical Research Council

CRP : Center for the Rehabilitation of the Paralysed

WHO : World Health Organization

RSI : Repetitive Strain Injury

MSD : Musculo-Skeletal Disorder

SPSS : Statistical Package for the Social Sciences

WRMD : Work Related Musculoskeletal Disorder

IRB : Institutional Review Board

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Abstract

Purpose: To find out the prevalence of neck pain among physiotherapy students. *Objectives:* To identify the socio-demography (age, sex,year) of the affected group, to identify the percentage of neck pain among the students, to find out the male female ratio of neck pain, to find out the most affected age group of neck pain, to identify the probable causes of neck pain, to find out preferablestudy posture, study duration, treatment options. *Methodology:* The study design was cross sectional. Total 112 samples were selected by convenience sampling from 3rd year and 4th year B.Sc in physiotherapy student of Bangladesh Health Professions Institute (BHPI), CRP, Savar, Dhaka. Data was collected by mixed type questionnaire. Descriptive statistics were used for data analysis which focused on pie chart and bar chart. *Results:* In this study total 112 students were participated. The Prevalence of neck pain was 86(76.8%) among the students. The prevalence of neck pain was higher among female students at 51(59.8%) than male 35(40.2%) students. The highest prevalence was found among computer or other electronic device users (63.4%) and long duration of studying hours (58.9%). 45.5% participants said that their neck pain due to long duration of attending class and 67.9% participants said poor ergonomic factor was responsible for neck pain. *Conclusion:* The findings of this study suggest that neck pain is prevalent among the students of Bangladesh Health Professions Institute (BHPI), CRP, Savar, Dhaka, Bangladesh and this may be associated with gender, long duration of studying time and computer or other electronic device use.

CHAPTER-I INTRODUCTION

1.1 Background

Neck pain is very common all over the world so neck and shoulder disorders are considered as a health problem in the working population and the prevalence rates is near about 30%, in this two areas of the body parts pain is common also among young adults in their study life where work-related neck and shoulder pain represents suffering for the individual and is a considered as economic challenge for the society (Hanvold et al., 2013). According to Lorusso et al. (2010) stated that there was a high prevalence of musculoskeletal disorders among health care professional students and the most frequent musculoskeletal problems were on neck shoulder, hand and back region of the body. Alshagga et al. (2013) reported that prevalence of musculoskeletal pain (MSP) rates were vary from country to country where Korean nurse students showed 73.3%, Japanese nurse students showed 36.9%, Chinese medical students showed 67.6% musculoskeletal pain prevalence rates.

Neck pain is the pain which may be experienced anywhere from the base of the skull at ear level to the upper part of the back or shoulder and sometimes it radiate up to the finger when there is nerve root involvement in both hand or single one (Sabeen et al., 2013). A study showed that neck pain is common among adults, affecting 14-71% of adults at some point in their lives among them 19-37% proportion of neck pain patients will develop chronic neck pain and the study also revealed that neck pain causes considerable personal discomfort due to pain, disability, and impaired quality of life, and may affect work (Kanchanomai et al., 2011).

Koh et al. (2012) found that 44.3% of the high school students had recurrent neck shoulder pain (NSP) and the overall prevalence of neck shoulder pain (NSP) was 79.1%. It is estimated that in every year 30-50% of adults experience a significant form of neck pain (Mantyselka et al., 2010). Another study revealed that neck pain had the highest prevalence rate, with 64.3% of respondents reporting trouble in neck region during the past year and those who had experienced neck pain, almost two-thirds (65.4%) reported that their pain lasted more than 2 days, over 50% (53.1%) experienced neck pain that affected their daily life (Hayes et al., 2009).

Neck and upper limb symptoms are frequently reported in western countries in present time and a survey conducted in 15 European countries showed a prevalence of

25% for work-related neck pain including general Dutch working population 28% of them suffered from pain or stiffness in the neck where reducing neck and upper limb symptoms is a major task for occupational health care (Bernaards et al., 2007). Musculoskeletal complaints have been reported to account for 90% of the painful disorders in the population and the neck-shoulder area was the commonest site of pain (Guez et al., 2006).

In Canada, significantly raising the prevalence of neck pain with age & females are more likely to suffer pain than male at every age older than 18 years, on these the prevalence of chronic pain is about 15.1%, the intensity of mild pain is about 28.9% where moderate intensity is 54.4% & severe intensity is about 16.7% and neck pain in Canadian people is about 9.3% (Schopflocher et al., 2011). In this present study, the results were similar to that recurrent neck shoulder pain (NSP) is common and its prevalence is higher among high school students in Korea than in Europe (Koh et al., 2012).

Silva et al. (2016) showed that neck pain between the age of the students from 22 to 28 years (mean age 23 years). In Japan, the prevalence of chronic musculoskeletal pain was significantly higher among women and that is almost 16.8%, pain occurred most frequently in the lower back and immediate after neck pain is most common for this time where neck was also highly ranked among sites of pain persisting for the longest periods and it is found that significantly higher prevalence (17–19%) in those in their 30s to 50s of age (Nakamura et al., 2011).

Many studies have investigated the relationship between neck pains and working conditions and students are highly affected group of neck pain from past decades (Diepenmaat et al., 2006).

Khan (2013) mentioned that the effect of working characteristics and taught ergonomics on the prevalence of musculoskeletal disorders amongst dental students and the study identifies three body regions with the highest prevalence of work related musculoskeletal disorder amongst students in clinical and non-clinical years, neck, upper back and lower back regions showed the highest prevalence of discomfort in comparison to other body regions.

Madaan and chaudhari, (2012) stated that during the course of the study found out that 80% of students reported muscular pain due to clinical practice and the most common sites of muscular pain were neck,shoulder,hand,back .

A survey in Finland showed that Neck shoulder pain (NSP) occurred at least once a week in approximately 26% of 14- to 18-year-olds (Shan et al., 2013). Prevalence of recurrent Neck shoulder pain (NSP) in Ko- rean high school students was higher than 30%, and the overall prevalence of Neck shoulder pain (NSP) was almost 80% (Koh et al., 2014). Korean adolescents spend a significant amount of time sitting, and considerable number of students sits in inappropriate posture, presumably remaining in an unsuitable static position for a prolonged period of time results in minor injuries to muscles and ligaments that possibly cause the high prevalence of neck shoulder pain (NSP) in Korean adolescent(Koh et al., 2014).

Bruls et al. (2013) informed that in current era of information technology, computers are widely used by university students and sometimes they reported more hours of work per day on computers,complaints of arm, neck or shoulder pain may have significant effects on students' professional career plan .

Computer use is very common among undergraduate students (Kanchanomai et al., 2011). One study showed that at present the personal computer has become a critical component of the educational system in the modern world where some colleges and universities consider computer usage is much important for requiring student computer ownership include ensuring access for all students, usefulness as a learning tool, and imparting skills for future careers and there is a concern, though, that college students who own a computer, particularly a mobile PC, may, consequently, use a computer more hours in a day or week, thereby increasing their exposure to risk factors for computer-use-related musculoskeletal disorders and pain (Cooper et al., 2008). Work related musculoskeletal disorder (WRMSDs) affects tendons,tendon sheaths, muscle, nerve, bursae, and the upper extrimity work related musculoskeletal disorders (WRMSDs) such as hand, wrist, shoulder, neck had become more prevalent due to increase in the widespread use of the computer based technology according to Eatough et al. (2012).

The worldwide trend is for people to use computers for longer periods daily, Computer-based tasks at work as well as during leisure activities and introduction of the computer into the workplace has changed in work organization, and a different use of worker physical and mental potential, in general it is agreed that the etiology of work related neck disorders is multidimensional which is associated with or influenced by, a complex array of individual, physical and psychosocial factors or one of this single factors (Diepenmaat et al., 2006). Another literature revealed that

highest prevalence of musculoskeletal pain among physical therapy student, were in the following anatomical areas such as lower back 22(37.29%), neck 15(25.42%) and upper back 11(18.64%) (Bharadva et al., 2014).

Some of the perceived causes of neck pain among students are seats without back supports in lectures, long hours of reading, computer use, history of neck pain, posture assumed during lectures, long sitting hours, prolonged standing, type of pillow used when sleeping, prolonged writing, excessive physical activity, stress, prolonged driving and menstruation (Ayanniyi, Mbada & Iroko, 2010).

Physiotherapy has a wide ranging role at all stages of neck pain to help the patient return early to normal activities (Moffett & Mclean, 2006).

There is lack of data about neck pain in physiotherapy students of Bangladesh. There is no such evidence that neck pain can affects on their educational performance of the students in Bangladesh. For this reason researcher felt interest about this issue. It is also necessary for physiotherapy students because physiotherapist play a vital role for managing or treating this condition and to increase the study about this issue for using the data in future study in Bangladesh.

1.2 Rationale

Neck pain is one of the most common health problems for the health professional's students. It is important to identify the neck pain prevalence and probable causes of neck pain among the health professional's students. In modern science the rate of neck pain is gradually increasing day by day. Higher degree of neck pain among students may have a negative effect on proficiency of academic performance. Neck pain is quite common among students (Kanchanomai et al., 2011).

The findings of prevalence of neck pain among students may give an idea about who are suffer from neck pain. Students do not show their best academic performance with their neck pain but it is necessary for a student. It is possible when neck pain is reducing or minimize. Students are need opportunities to achieve their academic demands with a healthy way of life that will help them appropriately to reduce their neck pain. It is necessary to reduce the neck pain among students may help to increase their proficiency of academic performance at Bangladesh Health Professions Institute (BHPI). This proficiency help them to skillful their future professional performance. More knowledge about the size and extent of the neck pain would facilitate accurate predictions of the need for medical services and direct resources.

The neck pain are caused due to long period of time in their class room, library, also used laptop, computer or other electrical devices, practical class, clinical placement. This might be lead to development of different kinds of musculoskeletal pain including neck pain among them. Many literatures showed that health professionals' students have high prevalence on neck pain. In Bangladesh there are many health professional students and there is no published study about the prevalence of neck pain among health professional student.

From this study, the investigator was able to find out the prevalence and probable causes of neck pain among students. This study also helps to discover the lacking area of a student especially about their posture before doing any activities in their class hours. Beside this it was helpful to professional development which essential for physiotherapist in current situation and this study was benefited for those students who already affected by neck pain and different type of disorder and chance to develop musculoskeletal symptoms including neck pain in future. Because when they

know about postural risk level then they try to maintain this and also try to prevent this.

Many literatures showed that health professional students are suffering from neck pain due to their work responsibilities. According to Lorusso et al. (2010) stated that there was a high prevalence of musculoskeletal disorders among health care professional students and the most frequent musculoskeletal problems were on neck shoulder, hand and back region of the body. Another literature revealed that highest prevalence of musculoskeletal pain among physical therapy student, were in the following anatomical areas: lower back 22(37.29%), neck 15(25.42%) and upper back 11(18.64%) (Bharadva et al., 2014).

From various articles and study exposed that inappropriate posture and movement lead to neck pain. It is important to identify which probable causes had impact on physiotherapy students in Bangladesh Health Professions Institute (BHPI). When we know about the which probable causes developed neck pain then try to prevent the causes. It is very important to know the ergonomic factors of student. This study was help to develop new literature on the ergonomic sector and reduce the literature gap. physiotherapist plays an important role in neck pain management intervention because physiotherapist has a significant role in musculoskeletal intervention (Moffett & Mclean, 2006). Only medication or conservative treatment is not enough for managing neck pain. There will also require therapeutic measure.

This study also help the researcher to gain knowledge for further research and work with these students who are suffer from neck pain in future

1.3 Research question

What is the prevalence of neck pain among the physiotherapy students of Bangladesh Health Professions Institute (BHPI)?

1.4 Objectives

1.4.1General objective

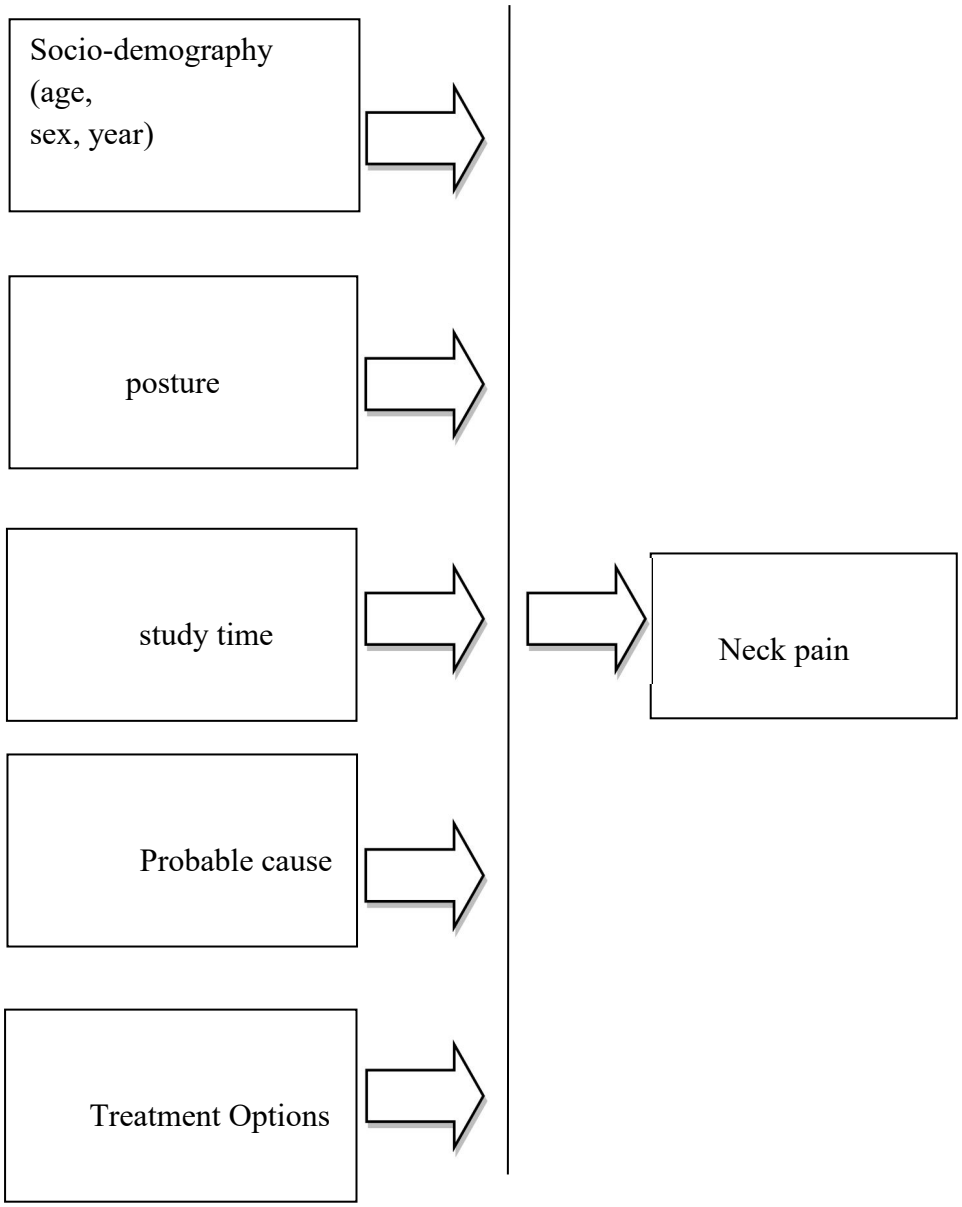
To find out the prevalence of neck pain among the physiotherapy students of Bangladesh Health Professions Institute (BHPI).

1.4.2 Specific objectives

I. To identify the number of participants experience neck pain.
II. To find out the male female ratio among the students.
III. To find out the probable causes of neck pain.
IV. To find out study duration of the participants.
V. To find out preferable study posture.
VI. To find out how many participants received treatment options.

1.5 Conceptual framework

Independent variables **Dependent variable**



1.6 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.

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 inter-vertebral 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.

CHAPTER-II: LITERATURE REVIEW

Pain is a complex unpleasant phenomenon composed of sensory experiences and it has been described as the perception of noxious stimuli or the distressing sensations that result from tissue damage according to International Association of the Study of Pain (IASP) defines pain as: “It is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in term of such damage (Guez et al., 2006). The pain pathway begins with the nerve ending and the nerve ending is the termination of a nerve, at the distal end of an axon which sends messages to the brain to feel sensations such as heat, cold, and pain (English Dictionary, 2016).

By any measure, pain is significantly a global health problem so globally it has been reported that 1 in 5 adults suffer from pain and pain can experience acute, chronic, or intermittent, or a combination of the three symptoms, moreover pain is a multivalent, dynamic,and ambiguous phenomenon which is notoriously difficult to quantify (Goldberg & Mcgee, 2011).

Pain may be classified on the basis of duration and nature in which according to duration pain may be classified as acute and chronic pain, and according to nature it can be classified as nociceptive and non-nociceptive pain where acute pain is a protective mechanism that alerts the individual to a condition or experience that is immediately harmful to the body and which usually persists less than 6 months (WebMD, 2016). Chronic pain is defined as persistent or intermittent pain usually lasting at least 6 months and is associated with a long-term illness, and may be the result of damaged tissue, but very often is attributable to nerve damage (WebMD, 2016). Chronic neck pain is a frequent source of disability, and has a considerable influence on the quality of life and demands on healthcare and social security systems, quite apart from the pain and suffering experience,it is also common in all age groups, especially in women (Guez et al., 2006).

Neck pain has a collection of symptoms and complains & sometimes causes disability, but it is not a specific disease, neck pain arises from numerous different conditions and is sometimes referred to as a cervical condition where it is a common personal and social difficulty and is a major cause of work disability (Moffett & Mclean, 2006).

It is a sensation or discomfort in the neck area and 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 (Barbuto et al., 2008). The neck contains the top end of the spinal column or spine, which supports the head & also protects spinal cord, seven bones in the neck are known as cervical vertebrae, these seven vertebrae are the bony building blocks of the spinal cord and the spinal nerve passes through between those vertebrae & many ligaments and muscles are attached to the spine, shoulder blade & neck to make it more stable within the neck structures include the neck muscles, arteries, veins, lymph gland, thyroid & parathyroid gland, esophagus, larynx and trachea (Barbuto et al., 2008).

According to WHO (2013) the global burden of disease in chronic and mild neck pain those with constant neck pain, those who have difficulty tuning the head, holding the arms up and lifting things and every year lives lost due to disability of neck pain are 33.64 million, and the prevalence of neck pain is 4.8%.

Neck pain is quite common among undergraduate students moreover this pain is assumed of multi-factorial origin, indicating that individual, physical, and psycho social factors and ordinary arm and hand movement such as bending, straightening, gripping, holding, twisting, reaching can contribute to its onset and persistence according to Kanchanomai et al., (2011). Subaxial posterior neck pain is supposed to be the result of muscular or ligamentous factors related to posture, poor ergonomics, stress and chronic muscle fatigue (Guez et al., 2006).

Minor injuries or sprain to muscles and ligaments in the neck are known as mechanical neck pain which also include poor posture where the main feature of mechanical neck pain is pain in the cervical region, which is often accompanied by restriction of the range of motion and associated with functional limitations, pain is experienced when free nerve endings are irritated by mechanically deformed innervated structures in addition, long term lower intensity stresses and improper posture are believed to be the most common causal factor for neck pain (Sabeen et al., 2013). Falling asleep in an awkward position and prolong use of a computer keyboard also causes of neck pain (Barbuto et al., 2008).

Neck pain, although felt in the neck, can be caused by numerous other spinal problems and most of the time it arises due to muscular tightness in both the neck and upper back and pinching of the nerves emanating from the cervical vertebrae and joint

disruption in the neck also creates pain, as a joint disruption in the upper back or cervical region of the spine (Hanvold et al., 2013). Muscle pain in the neck and shoulder girdle is a common complain, in occupational medicine umbrella terms, such as repetitive strain injury (RSI), cumulative trauma disorder (CTD), occupational cervical-brachial disorder (OCD), or work-related musculoskeletal disorder (WMSD), is used and neck & shoulder pain was strongly associated with reduced health related quality of life (Sabeen et al., 2013).

Neck shoulder pain (NSP) with pressure tenderness was independently related to work related physical and psychosocial factors, earlier experience of neck shoulder injury, female gender, low pain pressure threshold, and high intrinsic effort with increasing self reports of pain and pressure tenderness in the muscles were related to decreased health-related quality of life (Cunha et al., 2008). Neck pain has different forms, 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 where patients often report of mild to severe headaches and most pain is due to the aging of the spine as the spine ages, the discs can degenerate and herniated and the joints may become arthritic, stenos is can occur (narrowing of the spinal canal), and instability may develop with pain (Lacerda et al., 2005).

There are three types or classifications of neck pain, they are firstly, Axial neck pain: Axial pain is musculoskeletal, and is pure neck or soft tissue pain and whiplash or muscle strain is an example. Secondly, Radiculopathy: Cervical radiculopathy refers to neck and arm pain due to nerve root compression where symptoms include arm pain, numbness or weakness. Thirdly, Myelopathy: Myelopathy refers to pressure on the spinal cord, also referred to spinal cord compression and symptoms includes : neck pain with arm and/or leg weakness, numbness, or walking problems (Morken et al., 2007).

The types of neck pain can be acute or chronic and acute pain occurs suddenly from an injury or stress where most of the time neck pain will resolve itself within 7-10 days with rest, ice, and over the counter pain relievers as well in case of chronic pain, symptoms persist more than two weeks, symptoms that persist longer than a few weeks, a thorough evaluation by a primary care physician is recommended and the physician will generally obtain x-rays and MRIs, and prescribe conservative therapy (Cote et al., 2008). There was a high prevalence of musculoskeletal disorders among health care professional students and the most frequent musculoskeletal problems

were on neck shoulder, hand and back region of the body, in addition chronic musculoskeletal pain is reported by 1 in every 4 people in developed and underdeveloped countries according to Lorusso et al. (2010). Factors that are physical workload such as repetitive motion, static posture, awkward posture and neck flexion or rotation have significant association with neck pain additionally, it is also associated with poor posture, neck strain, occupational injuries, or sporting injuries, four to five hours of daily computer use is considered as a risk factor for neck pain in adolescents (Sabeen et al., 2013).

Neck pain can result from a variety of causes, ranging from overuse injuries and whiplash to diseases such as rheumatoid arthritis and meningitis where muscles strains or overuse, such as too many hours hunched over a steering wheel, often triggers muscle strains and 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 can strain neck muscles (Garra et al., 2010). Cervical strains and sprains are the most common causes of neck shoulder pain (NSP), which can result from poor posture, sleeping habits, chronic muscle fatigue, trauma, where students spend a lot of time sitting in this survey, the average sitting time was 10 hours per day, many students also reported that they maintained poor sitting positions during their lessons, in addition, only some of the students used an assisting device while reading or stretched regularly, moreover most of the students had their own cell phones, they used them continuously for up to 40 min, mostly in poor ergonomic positions, so repetitive and prolonged static postures have been found to initiate or exacerbate the neck shoulder pain (NSP) according to Koh et al. (2012).

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 and 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 (Gross et al., 2010).

Prevalence of recurrent neck shoulder pain (NSP) in Ko- rean high school students was higher than 30%, and the overall prevalence of neck shoulder pain (NSP) was almost 80% , it was more common than in Europe and Korean adolescents spend a significant amount of time sitting, and considerable number of students sits in

inappropriate posture, presumably remaining in an unsuitable static position for a prolonged period of time results in minor injuries to muscles and ligaments that possibly cause the high prevalence of neck shoulder pain (NSP) in Korean adolescent according to Koh et al. (2014). A study reported a relation between sitting for more than 5 hours a day and self reported neck pain and remaining seated for long periods, usually accompanied by curvature of the spine, increases pressure on vertebral discs, ligaments, and muscles (Gross et al., 2010).

Another study revealed that neck pain had the highest prevalence rate, with 64.3% of respondents reporting trouble in neck region during the past year and those who had experienced neck pain, students are suffering from neck pain due to their awkward posture,they pass long period of time in their class room, library, practical room in this time they does note maintain their proper posture and movement, almost two-thirds (65.4%) reported that their pain lasted more than 2 days, over 50% (53.1%) experienced neck pain that affected their daily life, while 30.9% indicated that they required medical treatment (Hayes et al., 2009).

Some of the perceived causes of neck pain among students are seats without back supports in lectures, long hours of reading, computer use, history of neck pain, posture assumed during lectures, long sitting hours, prolonged standing, type of pillow used when sleeping, prolonged writing, excessive physical activity, stress, prolonged driving and menstruation (Ayanniyi, Mbada & Iroko, 2010). Alshagga et al, (2013) performed a study on Prevalence and factors associated with neck, shoulder and low back pains among medical students in a Malaysian Medical College,in this study showed that students in clinical years were twice as likely to have musculoskeletal pain during the past week. Another study showed that neck shoulder pain (NSP) in adolescents may result from the injury of muscles and ligaments found in the cervical portion, these injuries can result from factors related to posture, poor ergonomics, stress, injury, and chronic muscle fatigue (Koh et al., 2012). Work related musculoskeletal disorder (WRMSDs) affects tendons,tendon sheaths, muscle, nerve, bursae, and the upper extrimity work related musculoskeletal disorders (WRMSDs) such as hand, wrist, shoulder, neck had become more prevalent due to increase in the widespread use of the computer based technology according to Eatough et al. (2012).

Hakala et al., (2006) mentioned that 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 where women have an almost two-fold risk compared with men furthermore 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.

According to Khan (2013) performed a study identified that three body regions with the highest prevalence of work related musculoskeletal disorder amongst students in clinical and non-clinical years where neck, upper back and lower back regions showed the highest prevalence of discomfort in comparison to other body regions, this study also revealed that female dental students showed a higher prevalence of work-related musculoskeletal disorder symptoms than males.

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 (Hakala et al., 2006).

Skillgate et al. (2013) showed that bothersome neck pain is common among men and women as well as in middle aged individuals where women are more likely to develop it than men and are less likely to recover from such pain so younger men and women have a higher incidence but often recover from the neck pain than older individuals.

Andersen et al. (2011) conducted a research on Prevalence and anatomical location of muscle tenderness in adults with nonspecific neck/shoulder pain and purpose of study was to evaluate the prevalence and anatomical location of muscle tenderness in adults with nonspecific neck/shoulder pain, comparison between gender and eight anatomical neck/shoulder locations was done where for women, the levator scapulae,neck extensors and infraspinatus showed the highest prevalence of severe tenderness, for men, levator scapulae were the highest prevalence of severe tenderness.

According to Lorusso et al. (2010) also concluded a significant association between poor physical activity and the presence of musculoskeletal disorders in young university students. Madaan and Chaudhari (2012) stated that final year students had experienced maximum pain than 3rd year students.

A study revealed that perceived stress, high work/ study demands and computer use pattern were short term as well as long term risk factors for musculoskeletal neck pain (Ekman et al., 2009). Woo et al. (2016) mentioned that there is a high prevalence of

musculoskeletal disorders among the university students who used computer or other electronic devices which includes laptop,tablet,mobile etc daily over a long periods of time.

According to Morse et al. (2007) performed a study on Musculoskeletal disorders of the neck and shoulder in dental hygienists and dental hygiene students and result shown that risk factors and both self-reported and physician-diagnosed neck and shoulder symptoms increase in frequency from students to experienced hygienists, and students have higher prevalence if they are also dental assistants.

The overall prevalence of neck pain shows that musculoskeletal pain is common among adolescents and is associated with depression and stress but not with computer use and physical activity (Diepenmaat et al., 2006). A study showed that 54% of the undergraduate university students reported experiencing neck pain during the previous one year that persists more than 24 hours (Gharib & Hamid , 2013).

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 (Moffett & Mclean, 2006). Another study showed that the majority of students confirmed to frequently work in a sitting position whereas only 2 students confirmed to work with some frequency in a standing position. 61.7% of the students work exclusively in a sitting position and 38.3% alter between sitting and standing position (silva et al., 2016).

One study revealed that the average daily computer usage for the first, second and third observational periods during the semester were 2.2 (SD 1.8) hour, 3.1 (SD 2.8) hour, and 1.8 (SD 1.5) hour, respectively and during the entire study period, 96% of the participants reported musculoskeletal symptoms of any severity at least once; 81% of the participants reported moderate or greater symptoms at least once. The most prevalent symptomatic body parts were neck (48% of the participants reported moderate or higher neck symptoms (Chang et al., 2007).

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).

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). Different pharmacological approaches are existing for the treatment for neck pain such as the use of paracetamol (Acetaminophen), NSAIDs, opioids, antidepressant or muscle relaxant, local anesthetics, Canabinoids and others (Guidon et al., 2007). According to Dajpratham et al. (2010) revealed that the impacts of musculoskeletal pain among the dental personnel included usage of pain relieving medication (34.8%), seeking medical evaluation (32.3%), reduction in working hours (27.2%), difficulty sleeping (22.8%), and work absence (10.8%), respectively and the treatments of musculoskeletal pain utilized to alleviate those impacts were Thai traditional massage (51.9%), medication (28.5%), physical therapy (15.8%), acupuncture (7.6%), and alternative medicine (4.4%), respectively.

Munaga et al. (2013) also found that that ergonomics prevents musculoskeletal disorders, prevents occupational diseases, reduce cognitive and physical stress, provides comfortable working opportunities, and thereby improving productivity and quality of work, greater comfort for both the professional and patient.

According to Moffett & Mclean (2006) on the basis of evidence-based guidelines and systematic review physiotherapy management for neck pain includes specific exercise programs (e.g. Mckenzie approach) and general exercise programs (e.g. mobilization and manipulation, Stretching, Massage, Physical modalities modalities).Massage is the second most commonly used CAM (complementary and alternative medicine) therapy for neck pain (Goode et al., 2010). Mobilization is equivalent to manipulation (Gross et al., 2010). Kumar et al. (2012) mentioned that massage (51.9%), medication (28.5%), physical therapy (15.8%), acupuncture (7.6%) and alternative medicine (4.4%) was taken for pain relief .

Recently, “Ergonomics” has become a popular term, in Greek “Ergo,” means work and “Nomos,” means natural laws or systems so ergonomics therefore is an applied science concerned with designing products and procedures for maximum efficiency

and safety and it is also a study of the relationship among the personnel, equipment and environment in the work area (Sarkar & Shigli, 2012). By using comfortable equipment means use equipment that isn't too heavy, that can be used without awkward upper body posture and that feels comfortable to use and ergonomically designed equipment helps to minimize stresses on the upper extremities and the back (Lacerda et al., 2005). Proper ergonomic design is necessary to prevent repetitive strain injuries, which can develop over time and can lead to long-term disability therefore ergonomics is concerned with the efficiency of persons in their working enviroment (Sarkar & Shigli, 2012).

Caballero et al. (2010) stated that there is a positive relationship between rigid postures and muscular skeletal disorders in different professions which could include pain, weakness, and paresthesia, this is widely documented and studied for a large number of professions. Munaga et al. (2013) reported that more than 70% of dental students reported neck, shoulder, and lower back pain by their third year of dental school due to the inadequacies in their knowledge of ergonomic posture during clinical practice.

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

CHAPTER-III: METHODOLOGY

3.1 Study design

The purpose of the study was to find out the prevalence of neck pain among the students. Cross sectional study design was selected for this study . This design involves identifying group of people and then collecting the information that researcher requires when they will be use the particular service. Cross-sectional studies can be thought of as providing a "snapshot" of the frequency and characteristics of a disease in a population at a particular point in time. 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 researchers asking a large group of people questions about a particular topic or issue and these are related to the interest of the participant.

The idea with the survey the researcher usually approaches a sample of target group of interest, interviews them or ask them questionnaire (Bowling, 2014). While this approach allows the researcher to select participants according to the clearly define criteria. The cross sectional study design is usually cheaper and quicker and confounding variables can be controlled for during data analysis. A quantitative method is an appropriate method to know the subject well-known, comparatively simple and clear (Bowling, 2014). The researcher had chosen the cross sectional descriptive survey under the quantitative study design.

A cross-sectional quantitative research study design was conducted because in this way it is possible to identifying a defined population of particular point of time and it can be helpful to estimate the prevalence of the outcome of interest for a given population and collect data on individual characteristics, including exposure to risk factors, alongside information about the outcome (Levin, 2006). Researcher used this method to fulfill the aim and objectives of the study. This types study usually conducts to find out the prevalence of a case from sample. It is an easy way to collect information among the large number of population in a short time. For this reason, researcher used this method for this study.

3.2 Study site and study area:

Researcher was conducted this study at Bangladesh Health Professions Institute (BHPI), the academic institute of “Centre for the Rehabilitation of Paralysed (CRP)” in Bangladesh. It is situated in Saver, which 20 km away from Dhaka. The founder of

CRP is a British physiotherapist Valerie Taylor. It was founded in 1979 by of a small group of Bangladeshis. Bangladesh Health Professions Institute (BHPI) was established in 1992 with the goal of producing highly skilled staff to work in health care provision and rehabilitation countrywide.

3.3 Study population and sampling:

Sampling refers to the process of selection the subjects or individual. A population refers to the entire group of people or items that meet the criteria set by the researcher. In this study, sample populations were selected from the students of Bangladesh Health Professions Institute (BHPI) at CRP, Savar, Dhaka and sample was taken by using convenience sampling technique.

3.4 Sample size

The equation of sample size calculation are given below-

$$n = \{\frac{z\,(1 - \frac{a}{2})}{d}\}^2 \times pq$$

Here,

$z(1-\frac{a}{2})$ = 1.96 (confidence interval), P = Prevalence, d = Sampling error

P= 0.791 (Koh et al., 2012)

q= 1-p

=1-0.791

=0.209

d=0.05

So the researcher aim was to focus the study by 254 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 112 students as sample.

3.5 Sample selection Criteria

3.5.1 Inclusion criteria:

I. Age level 20-25years.

II. Both male and female students are included to explore the prevalence of neck pain.

3.5.2 Exclusion criteria:

- Those who have any pathological condition.
- Age level below 20 years and after 25 years.
- Those who have any traumatic case. Because subjects who had recent major accident or surgery in cervical area of the body which can produce pain as acute inflammatory reaction.

3.6 Method of data collection

In this study data was collected by questionnaire form set on a paper. Following that before the data collection informed consent was taken from the participant. Firstly, identity of author and the research project as well its purpose were delivered verbally among them. Then individual subject was selected to find out if they were interested in participating.

3.7 Questionnaire

Data was collected by using a questionnaire on paper. There were questions relating to neck pain among the students. A piloting study was conducted to minimize the errors of the questionnaire which includes students study hours were in various time length as for example they study 2-3 hours,or 3-4 hours, or more than 4 hours. The classes hours of the participants also various time length as for example they attend classes 2-4 hours, 4-6 hours, or more than 6 hours and computer or other electronic devices usage hours also various time length as for example they use computer or other device 2-3 hours or more than 3 hours. Both male and female were included. The study postures varies from one to another.

3.8 Materials and tools

The materials and tools for this study were consent form, questionnaire, pencil, pen, pages, computer and SPSS (Statistical Package for the Social Sciences) software-20 version to analyze data.

3.9 Analysis

After ending of data collection the data was entered into the SPSS (Statistical Package for the Social Sciences) software. Microsoft Office Excel 2007 was used to decorate the bar graph and pie charts. Than data was analyses by descriptive statistics and the results were shows by pie and bar charts.

3.10 Ethical consideration

The proposal was submitted to the Institutional Review Board (IRB) of Bangladesh Health Profession Institute (BHPI) and after defense the research proposal approval was taken from the IRB.

A written/verbal consent was taken from participate before collecting of data. The World Health Organization (WHO) guideline was always followed to conduct the study.

3.11 Informed consent

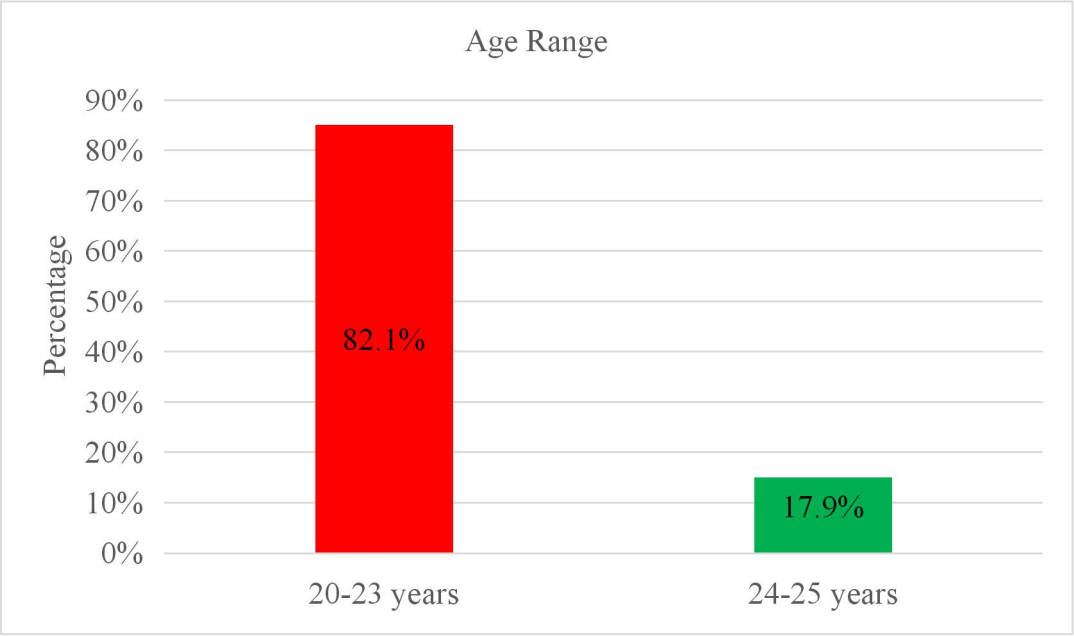
Before conducting research with the respondents, it was necessary to gain consent from the subjects. For this study interested subjects were given consent forms and the purpose of the research and consent forms were explained to the subject verbally. They were told that participation is fully voluntary 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.

CHAPTER-IV RESULTS

4.1 Age range

Analysis showed that among the 112 participants, 86 participants had suffered from neck pain which lowest age were 21 and highest age was 25 years. Their mean age was 22.86 years. And there were 92 (82.1%) participants in between 20-23 years, and 20 (17.9%) participants in between 24-25 years (Figure-1).

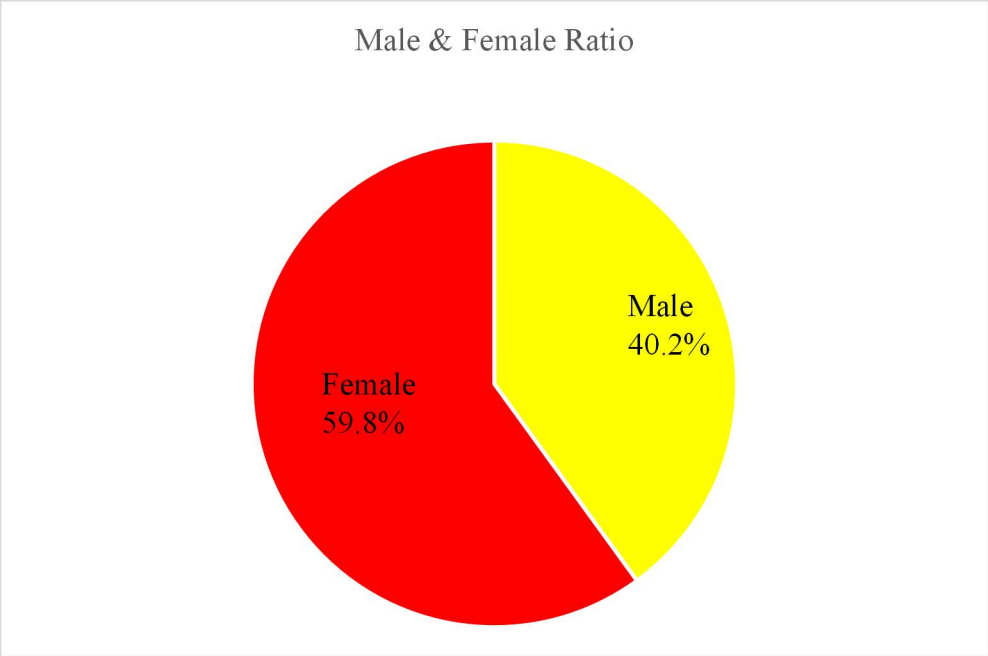
Figure -1: Age range of the participants.



4.2 Male and female ratio

Analysis showed that among the 112 participants 45 were male and 67 were female. And among the 86 participants who were suffered from Neck pain 35(40.2%) were male and 51(59.8%) were female (Figure-2).

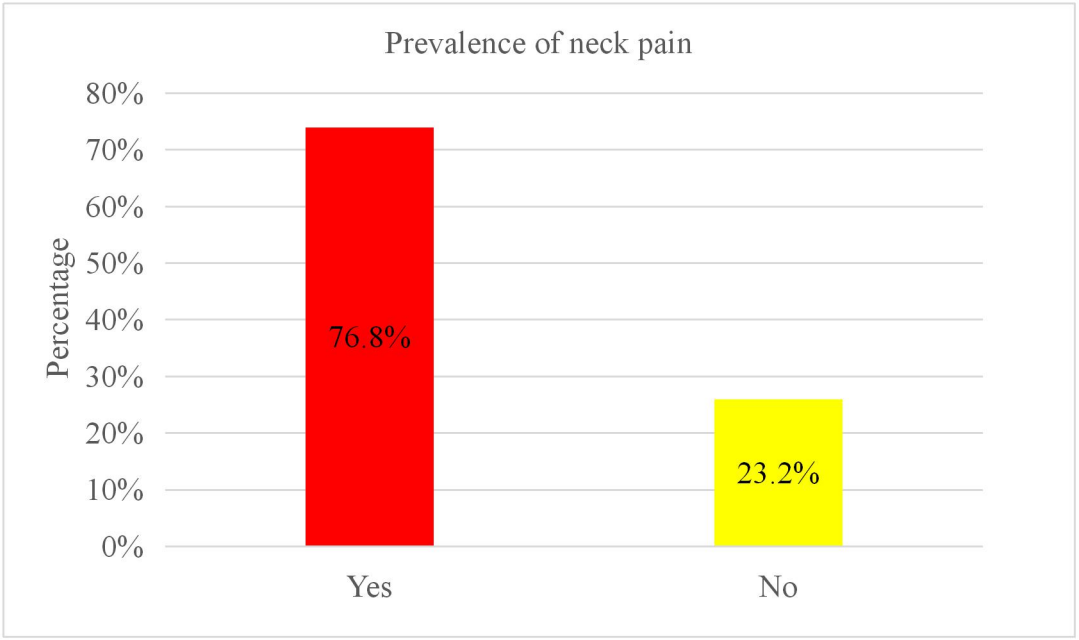
Figure-2: Male and female ratio



4.3. Prevalence of neck pain

After analysis from this study it was found that 86 (76.8%) participants out of 112 participants suffered from neck pain and 26 (23.2%) did not suffer from neck pain (Figure-3).

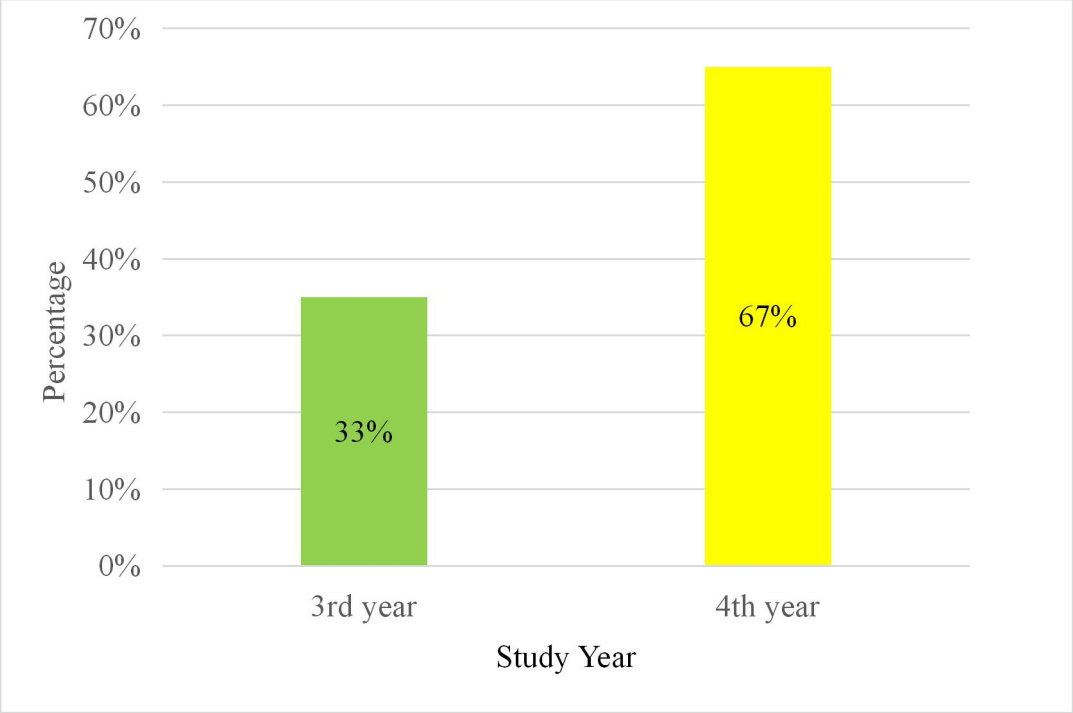
Figure-3: Prevalence of neck pain



4.4. Study Year

The result revealed that among the 112 participants 37(33%) were 3rd year students and 75(67%) were 4th year students (Figure -4).

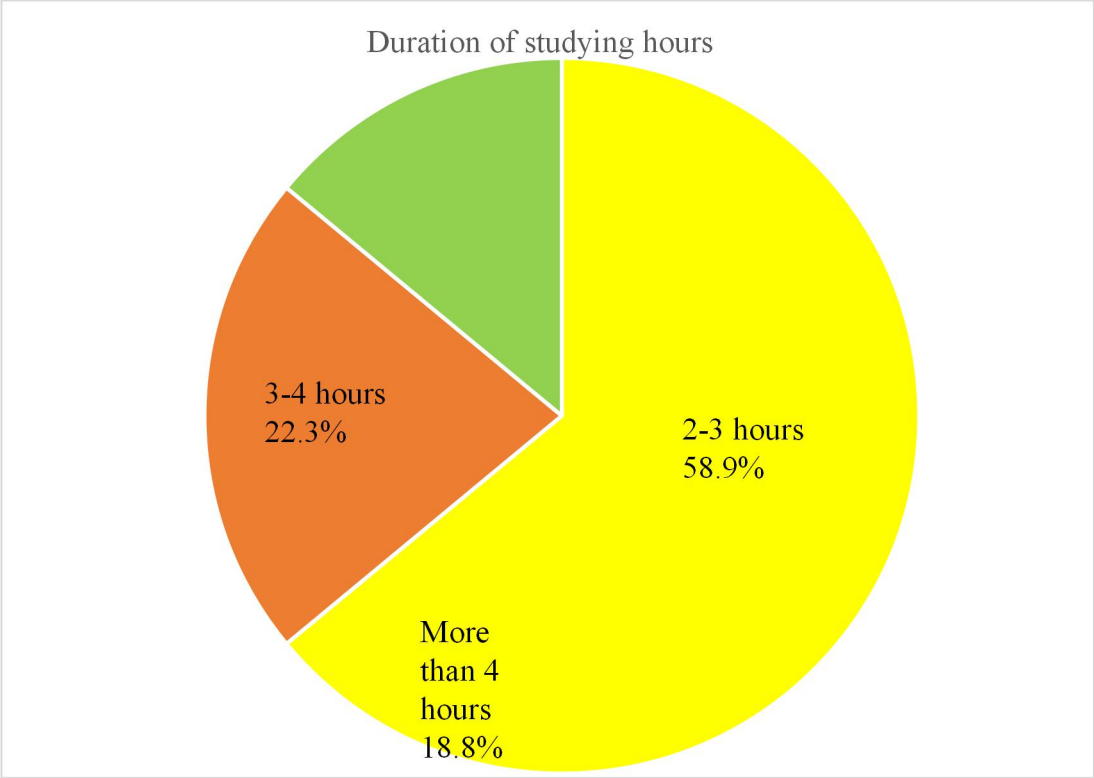
Figure -4: Study year of the participants.



4.5. Duration of studying hours of the participants

Analysis showed that among the 112 participants 66 participants had studied 2-3 hours per day, 25 participants had studied 3-4 hours and 21 participants had studied more than 4 hours per day. And among the 112 participants 86 participants who were suffered from neck pain 51 (58.9%) participants had studied 2-3 hours, 19 (22.3%) participants had studied 3-4 hours and 16 (18.8%) participants had studied more than 4 hours per day (Figure-5).

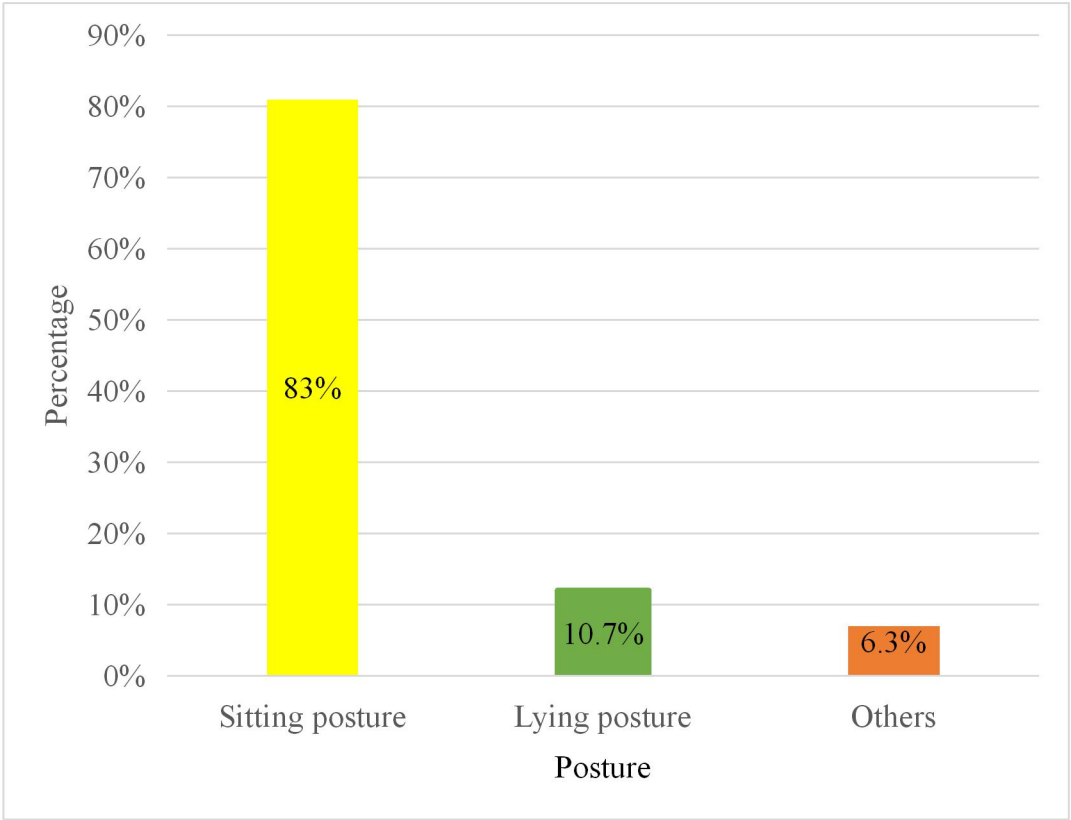
Figure -5: Duration of Studying hours of the participants.



4.6. Preferable study posture

The study finds that among the 112 participants 93(83%) were preferred sitting posture, 12(10.7%) were preferred lying posture, 7(6.3%) were preferred other posture during study (Figure-6).

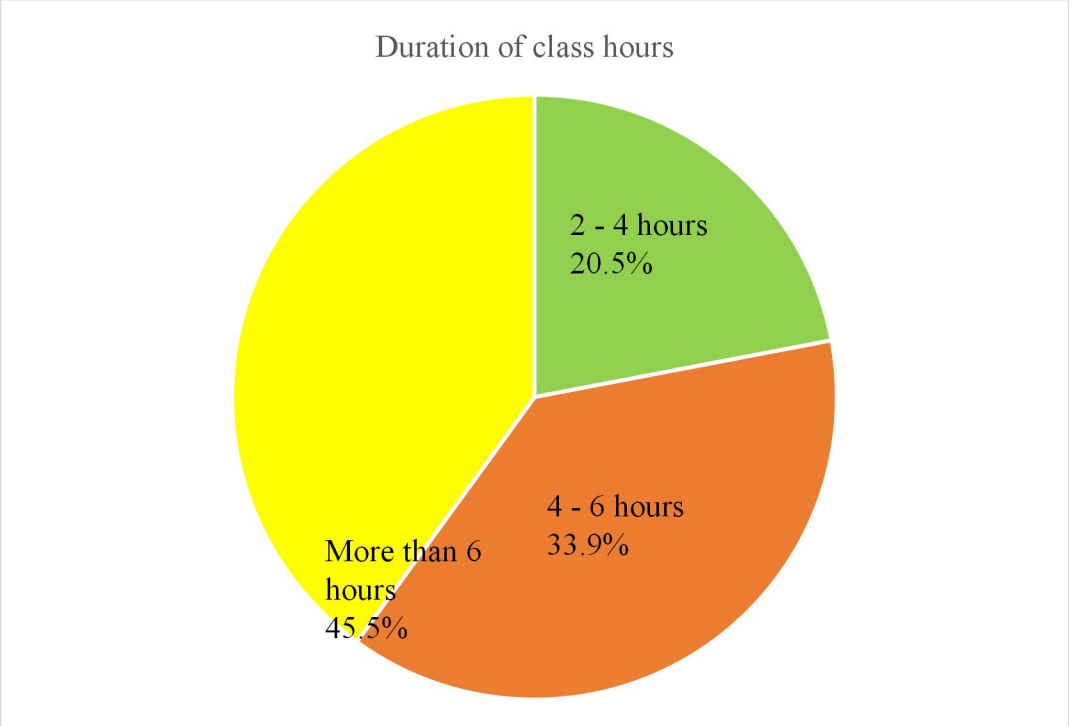
Figure -6: Preferable Study posture of the participants.



4.7. Duration of class hours of the participants

Analysis showed that among the 112 participants 23 participants had attended classes 2-4 hours per day, 38 participants had attended classes 4-6 hours and 51 participants had attended classes more than 6 hours per day. And among the 112 participants 86 participants who were suffered from Neck pain 18(20.5%) participants had attended classes 2-4 hours, 29(33.9%) participants had attended classes 4-6 hours and 39(45.5%) participants had attended classes more than 6 hours per day (Figure-7).

Figure -7: Duration of class hours of the participants.

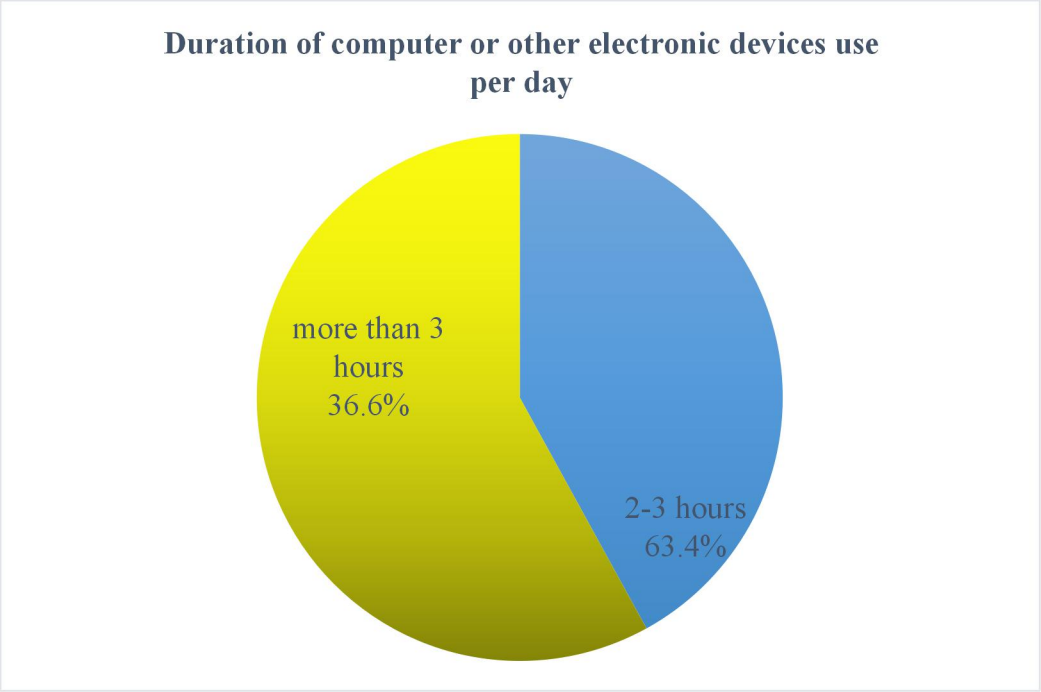


4.8. Hours of computer or other electronic devices use per day

Analysis demonstrated that among the 112 participants 71 participants used computer or other electronic devices 2-3 hours per day and 41 participants used computer or other electronic devices more than 3 hours per day.

And among the 112 participants 86 participants who were suffered from Neck pain 55(63.4%) participants used computer or other electronic devices 2-3 hours and 31(36.6%) participants used computer or other electronic devices more than 3 hours per day(Figure-8).

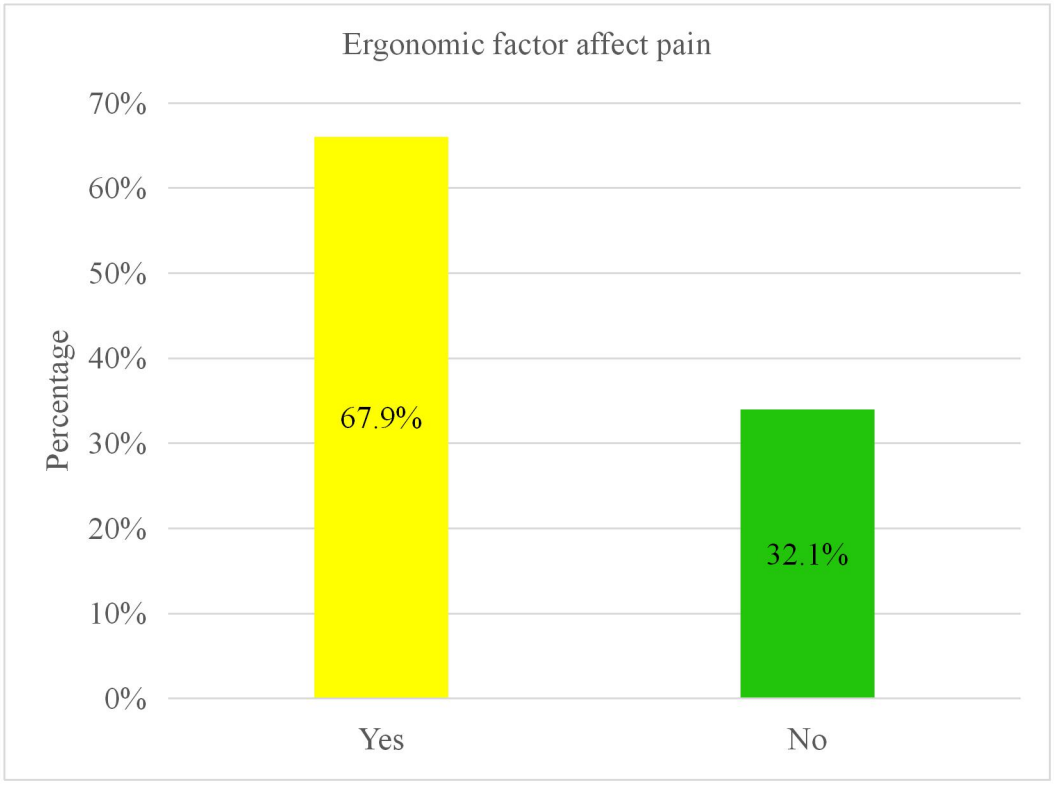
Figure -8: Hours of computer or other electronic devices use per day



4.9. Poor ergonomic factor which aggravate the neck pain

Among 112 participants 86 participants had suffered neck pain which 58(67.9%) participants said that Ergonomic factors are responsible for their neck pain (Figure-9).

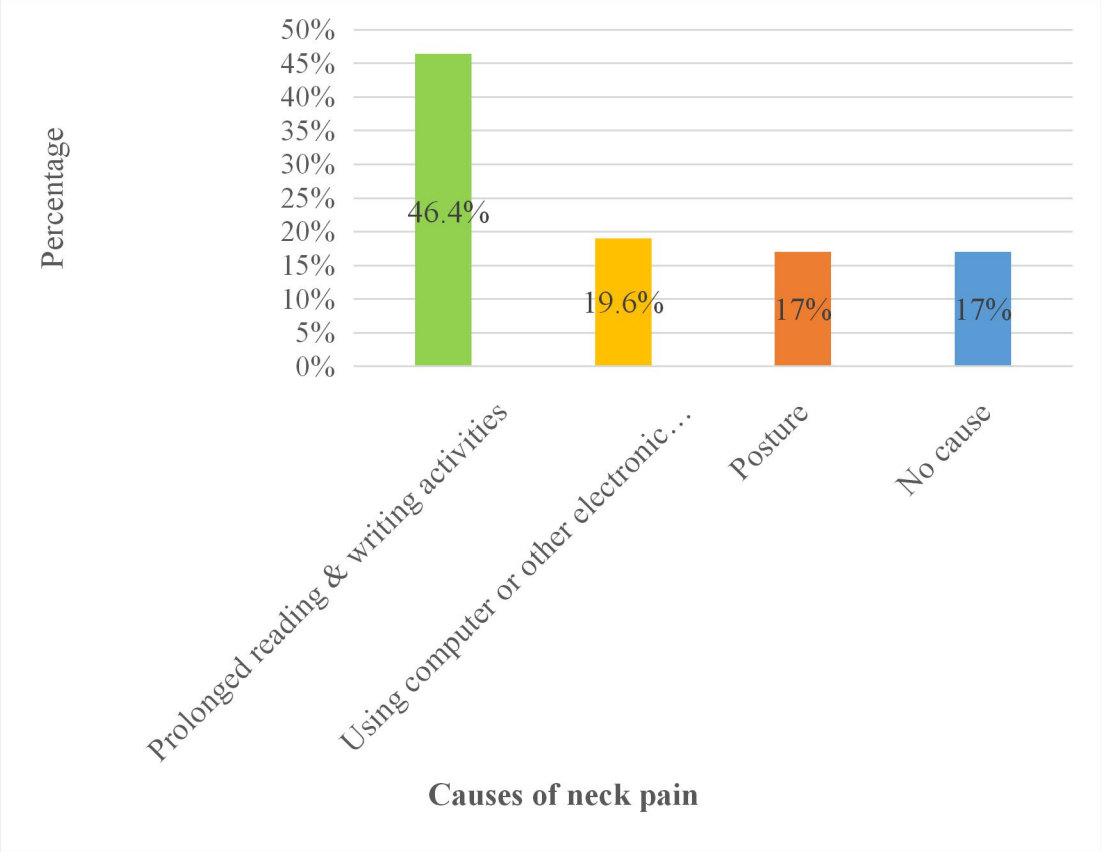
Figure-9: Ergonomic factor affect pain



4.10 Probable cause of the neck pain

Among 112 participants 86 participants had suffered neck pain from which 52(46.4%) participants said that prolonged reading & writing activities during classes, study and examination time are responsible for their neck pain, 22(19.6%) participants had suffered neck pain due to use computer or other electronic devices, 19(17%) participants had suffered neck pain due to posture assumed during lecture and 19(17%) participants had no cause of pain (Figure-10).

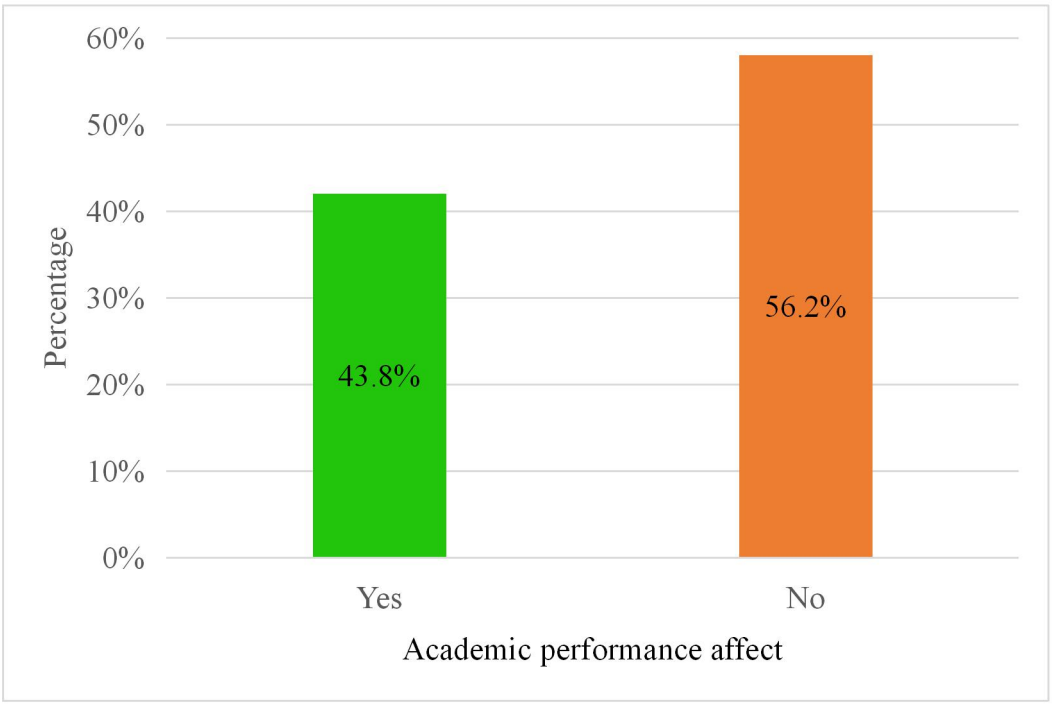
Figure-10: Probable cause of the neck pain



4.11. Academic performance affect due to pain

Analysis showed that among the 112 participants, 49(43.8%) participants said that their academic performance reduced due to neck pain (Figure-11).

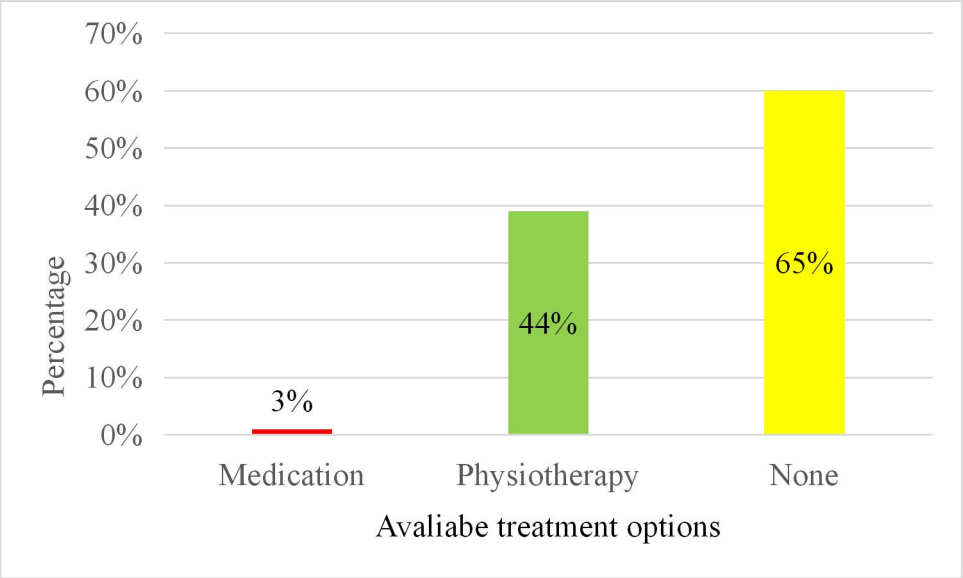
Figure-11: Academic performance affect due to pain



4.12. Available Treatment options

Analysis showed that among the 112 participants, 3 participants had taken medication, 44 participants had taken physiotherapy, 65 participants had not taken any treatment for their condition (Figure-11).

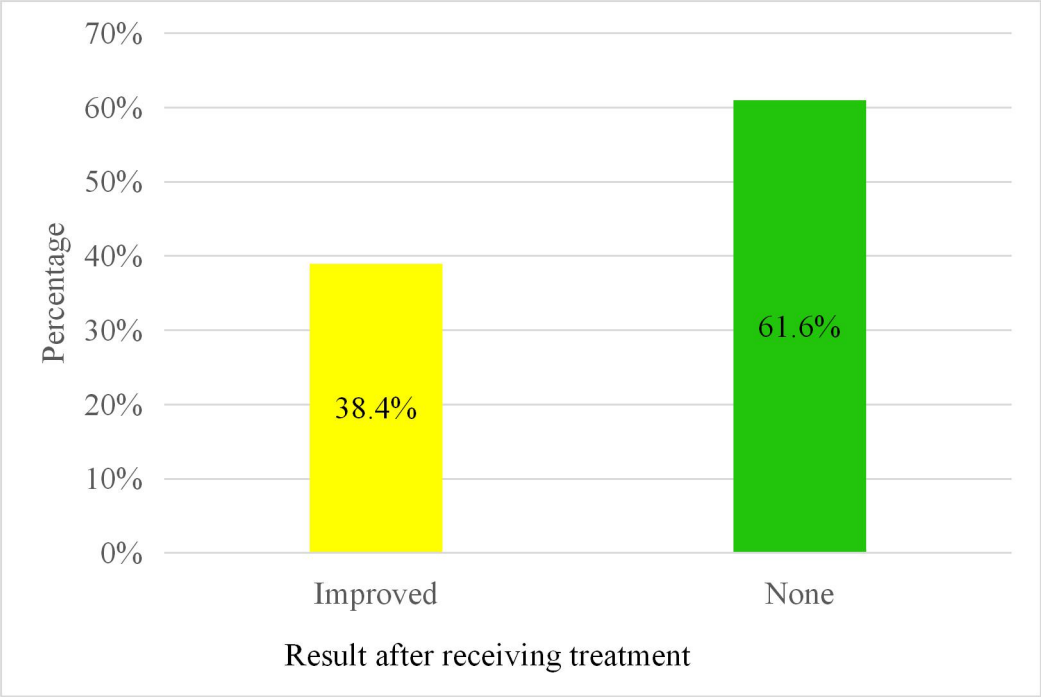
Figure-12: Available Treatment options



4.13. Result after receiving treatment

Analysis showed that among the 86 participants who had suffered neck pain, 33 (38.4%) participants had improved after receiving treatment, 53 (61.6%) participants had no any outcome for their condition(Figure-12).

Figure-13: Result after receiving treatment



CHAPTER-V: DISCUSSION

The study result shows that neck pain is prevalent among the students and it is 76.8%. One study found that the overall prevalence of neck shoulder pain (NSP) among the students was 79.1% (Koh et al., 2012). One year prevalence of neck pain among Dutch adolescents was found to be 11.5% (Diepenmaat et al., 2006). Another literature revealed that highest prevalence of musculoskeletal pain among physical therapy student, were in the following anatomical areas: lower back 22(37.29%), neck 15(25.42%) and upper back 11(18.64%) (Bharadva et al., 2014). There was a high prevalence of musculoskeletal disorders among health care professional students and the most frequent musculoskeletal problems were on neck shoulder, hand and back region of the body, in addition chronic musculoskeletal pain is reported by 1 in every 4 people in developed and underdeveloped countries according to Lorusso et al. (2010). After reviewing this study we seen that health professions students are higher risk of neck pain in Bangladesh like other country.

Age is the important factor, the mean age of this study is 22.86. Silva et al., (2016) showed that neck pain between the age of the students from 22 to 28 years (mean age 23 years). According to Alshagga et al. (2013) mentioned that the prevalence of neck pain among the students was 41.8% where the participants mean age was 20.7 years. In this study among the 112 participants, 86 participants had suffered from Neck pain which lowest age were 21 and highest age was 25 years. Their mean age was 22.86 years, and there were 92 (82.1%) participants in between 20-23 years, and 20 (17.9%) participants were in between 24-25 years.

Sex is also a main factor of this study. Demographic data of students, showed that among all of participants, most of the participants were (59.8%) female rather than male (40.2%). Female exposure suffers a lot than male due to their physical structure and cultural aspect. It is a common symptom among the young aged population and it has been showed that 24% of males and 37% of female suffers from neck pain (Mantyselka et al., 2010). One study revealed that statistically significant differences in musculoskeletal pain prevalent rate between males and females students where the females students having the highest prevalent rate (Alshagga et al., 2013).

This gender pattern is seen in most types of body pain and several sociological, cultural and physical differences have been proposed as explanations, 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).

Ekman, (2009) found out that there were high demands in either work or study, as well as stress perceived in female are more than male which reason out why most of the study are having a higher prevalence in female than male.

In case of their year of experience, about 37 (33%) were 3rd year and 75 (67%) were 4th year students. In health sectors health professionals are working in same posture for long period of time. Due to working in same posture musculoskeletal symptoms (MSS) developed in their body part. According to Pinho et al. (2013) also demonstrated that 4th year student are most affected rather than other year due to their year of experience. This study showed that 4th year students were more suffered from neck pain rather than 3rd year students because of their year of experience. Madaan and Chaudhari (2012) stated that final year students had experienced maximum pain than 3rd year students.

Study posture also a vital factor for neck pain, among 112 students, 83% participants were preferred sitting posture rather than other posture. A study revealed that Korean adolescents spend a significant amount of time sitting, and considerable number of students sits in inappropriate posture, presumably remaining in an unsuitable static position for a prolonged period of time results in minor injuries to muscles and ligaments that possibly cause the high prevalence of neck shoulder pain (NSP) in Korean adolescent according to Koh et al.,(2014). Another study showed that the majority of students confirmed to frequently work in a sitting position whereas only 2 students confirmed to work with some frequency in a standing position. 61.7% of the students work exclusively in a sitting position and 38.3% alter between sitting and standing position (silva et al., 2016).

Studying hour is one of the most important factor which cause musculoskeletal symptoms. The findings from this study showed that among the 112 participants, 86 participants were suffering from neck pain & among them 51 (58.9%) participants had studied 2-3 hours, 19 (22.3%) had studied 3-4 hours & 16 (18.8%) had studied more than 4 hours per day, so finally it was estimated that highest prevalence among those who had studied for 2-3 hours per day.

The finding from this study showed that among the 112 participants, 86 participants who were suffered from neck pain 18(20.5%) participants had attended classes 2-4 hours, 29(33.9%) participants had attended classes 4-6 hours and 39(45.5%) participants had attended classes more than 6 hours per day. So finally it was estimated that highest prevalence among those who had attended classes for more than 6 hours per day. Cervical strains and sprains are the most common causes of neck shoulder pain (NSP), which can result from poor posture, sleeping habits, chronic muscle fatigue, trauma, where students spend a lot of time sitting in this survey, the average sitting time was 10 hours per day, many students also reported that they maintained poor sitting positions during their lessons, so repetitive and prolonged static postures have been found to initiate or exacerbate the neck shoulder pain (NSP) according to Koh et al. (2012).

Working posture, place and time is too much important factor for neck pain. The risk factors of neck pain is included personal attributes, working posture, repetitive movements, using computer, typing and workstation design (Andersen et al., 2002). In this study, analysis find that among the 112 participants 86 participants who were suffered from neck pain, 55(63.4%) participants used computer or other electronic devices 2-3 hours and 31(36.6%) participants used computer or other electronic devices more than 3 hours per day. A study showed that neck pain is also associated with poor posture, neck strain, occupational injuries, or sporting injuries. Four to five hours of daily computer use is considered as a risk factor for neck pain in adolescents (Sabeen et al., 2013). Strains and sprains on the cervical region are the most common causes of neck shoulder pain (NSP), which can result from poor posture, sleeping habits, chronic muscle fatigue, trauma, where students spend a lot of time sitting , many students also reported that they maintained poor sitting positions during their lessons, in addition, only some of the students used an assisting device while reading or stretched regularly, moreover most of the students had their own cell phones, they used them continuously for up to 40 min, mostly in poor ergonomic positions, so repetitive and prolonged static postures have been found to initiate or exacerbate the neck shoulder pain (NSP) according to Koh et al. (2012).

Another study revealed that the average daily computer usage for the first, second and third observational periods during the semester were 2.2 (SD 1.8) hour, 3.1 (SD 2.8) hour, and 1.8 (SD 1.5) hour, respectively and during the entire study period, 96% of the participants reported musculoskeletal symptoms of any severity at least once; 81%

of the participants reported moderate or greater symptoms at least once. The most prevalent symptomatic body parts were neck (48% of the participants reported moderate or higher neck symptoms (Chang et al., 2007). Woo et al. (2016) mentioned that there is a high prevalence of musculoskeletal disorders among the university students who used computer or other electronic devices which includes laptop, tablet, mobile etc. daily over a long periods of time.

The finding from this study showed that among the 112 participants, 86 participants had been suffered neck pain which 49(43.8%) participants said that their academic performance affected due to neck pain. One study revealed that neck pain had the highest prevalence rate, with 64.3% of respondents reporting trouble in neck region during the past year and those who had experienced neck pain, almost two-thirds (65.4%) reported that their pain lasted more than 2 days, over 50% (53.1%) experienced neck pain that affected their daily life (Hayes et al., 2009).

Ergonomic factor is one of the important factor which cause neck pain. Recently, “Ergonomics” has become a popular term, in Greek “Ergo,” means work and “Nomos,” means natural laws or systems so ergonomics therefore is an applied science concerned with designing products and procedures for maximum efficiency and safety and it is also a study of the relationship among the personnel, equipment and environment in the work area (Sarkar & Shigli, 2012). The findings from this study showed that among 112 participants 86 participants had suffered neck pain, where 58(67.9%) participants said that ergonomic factors are responsible for their neck pain. Ono study revealed that ergonomically designed equipment helps to minimize stresses on the upper extremities and the back (Lacerda et al., 2005). Another study showed that neck shoulder pain (NSP) in adolescents may result from the injury of muscles and ligaments found in the cervical portion, these injuries can result from factors related to posture, poor ergonomics, stress, injury, and chronic muscle fatigue (Koh et al., 2012). Proper ergonomic design is necessary to prevent repetitive strain injuries, which can develop over time and can lead to long-term disability therefore ergonomics is concerned with the efficiency of persons in their working enviroment (Sarkar & Shigli, 2012).

In this study showed that among the 112 participants, 3 participants had taken medication, 44 participants had taken physiotherapy, 65% participants had not taken any treatment for their condition. One study revealed that neck pain had the highest prevalence rate, with 64.3% of respondents reporting trouble in neck region during the

past year and those who had experienced neck pain, almost two-thirds (65.4%) reported that their pain lasted more than 2 days, over 50% (53.1%) experienced neck pain that affected their daily life, while 30.9% indicated that they required medical treatment (Hayes et al., 2009).

Probable cause of neck pain among 112 students, 52(46.4%) participants said that prolonged reading & writing activities during classes, study and examination time are responsible for their neck pain, 22(19.6%) participants had suffered neck pain due to use computer or other electronic devices, 19(17%) participants had suffered neck pain due to posture assumed during lecture and 19(17%) participants had no cause of pain. Study showed that some of the perceived causes of neck pain among students are seats without back supports in lectures, long hours of reading, computer use, history of neck pain, posture assumed during lectures, long sitting hours, prolonged standing, type of pillow used when sleeping, prolonged writing, excessive physical activity, stress, prolonged driving and menstruation (Ayanniyi, Mbada & Iroko, 2010). Another study revealed that daily computer usage longer than 3 hour was significantly associated with musculoskeletal symptoms (Chang et al., 2007). Caballero et al. (2010) stated that there is a positive relationship between rigid postures and muscular skeletal disorders in different professions which could include pain, weakness, and paresthesia, this is widely documented and studied for a large number of professions.

In this study most of the sample were female and so that neck pain was more prevalent in female than male. If here most of the participant were male then result may be different from present. Practice good posture ensuring the correct alignment of the spine is essential to avoiding neck pain. This includes sitting, standing and sleeping (Morken et al., 2007). Most of the student was use computer and they did not maintain good posture. The prevalence of neck pain was high among health professions students and higher among the final year students and not only resulted in discomfort but also had an impact on the students' general physical activities. Correct poor posture, need to take rest if feel pain or discomfort and modify the work station will bring to healthy life and will improve performance level of the students in their study life.

There were a number of limitations and barriers in this research project which had affected the accuracy of the study. First of all, time of the study was very short which had a great deal of impact on the study. If enough time was available knowledge on the thesis could be extended. The samples were collected only from Bangladesh Health Professions Institute (BHPI), CRP, Savar and the sample size was too small, so the result of the study could not be generalized to the whole population in Bangladesh. Total number of sample was too small, according to sample size calculation actual sample is 254, but researcher collected 112 samples. This may affect the study. The research project was done by an undergraduate student and it was first research project for her. Therefore, the researcher 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.

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 students. 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 area of Bangladesh. Conduct research on other musculoskeletal problems among the students/young adult, where physiotherapist can work. So it is very important to conduct such type research in this area.

Neck pain is a musculoskeletal disorder and according to modern science the rate of neck pain is gradually increasing day by day in Bangladesh as in the whole world and physiotherapy plays a vital role in the management of neck pain and neck related disability.

The result of this study showed that the prevalence of neck is 76.8% among the student of Bangladesh Health Professions Institute (BHPI), CRP, Savar. Further studies of longitudinal nature using large diverse sample of students are warranted to further elucidate this association. In this study the duration of the study was too short, so in future wider time would be taken for conducting the study. Here, investigator use only 112 participants as the sample of this study, in future the sample size would be more. In this study, the investigator took the sample from Bangladesh Health Professions Institute (BHPI), CRP, it was small area to take available sample. So for further study investigator strongly recommended to include the student from the community or all over the Bangladesh or any other college or university to ensure the generalize of this study.

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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, "Prevalence of neck pain among the Physiotherapy students of Bangladesh Health Professions Institute (BHPI)" under honorable supervisor, Md. Obaidul Haque, Associate Professor & Head of the Physiotherapy Department, Bangladesh Health Professions Institute (BHPI), CRP, Savar. The purpose of the study is to find out the prevalence of neck pain among the Physiotherapy students of Bangladesh Health Professions Institute (BHPI).
Questionnaire will be used that will take about 15 to 20 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,
Fatema Tuj Johora
Fatema Tuj Johora
Bachelor of Science in Physiotherapy (B.Sc PT)
Session: 2011-2012, DU Reg. No: 1705
BHPI, CRP, Savar, Dhaka-1343, Bangladesh.

Recommendation from the thesis supervisor:

.....
Md. Obaidul Haque

Associate Professor & Head

Department of Physiotherapy

BHPI, CRP, Savar, Dhaka

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

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref. CRP-BHPI/IRB/04/17/62

Date: 5/04/2017

To
Fatema Tuj Johora
Bachelor of Science in Physiotherapy (B.Sc PT)
Session: 2011-2012, DU Reg. No.: 1705
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal – Prevalence of neck pain among the Physiotherapy students of Bangladesh Health Professions Institute (BHPI)

Dear Fatema Tuj Johora,
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 version)
3	Information sheet & consent form.

Since the study involves answering a questionnaire that takes 15 to 20 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
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Permission Letter

8th August, 2016

To

The Head of the physiotherapy department,

Bangladesh Health Professions Institute (BHPI)

CRP-Chapain, Savar, Dhaka-1343.

Subject- Seeking permission for data collection to conduct research project.

Sir,

With due respect and humble submission to state that I am Fatema Tuj Johora, student of 4th year B.Sc. in Physiotherapy at Bangladesh Health Professions Institute (BHPI). As a part of my academic curriculum I have to do a research project. The Ethical Committee "Institutional Review Board (IRB)" has approved my research title on "Prevalence of neck pain among the Physiotherapy students of Bangladesh Health Professions Institute (BHPI)" under the supervision of Md. Obaidul Haque associate professor of Bangladesh Health Professions Institute (BHPI). I have to collect data from students of Bangladesh Health Professions Institute (BHPI) which is the academic institute of CRP. I would like to assure that 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 the permission and oblige thereby.

Yours obediently,

Fatema Tuj Johora Fatema Tuj Johora 08.08.16

4th year, Session: 2011-2012

Physiotherapy Department, BHPI, CRP-Chapain

Savar, Dhaka- 1343.

Allowed

08.08.16

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

Consent Form

Assalamualaikum,

I am Fatema Tuj Johora,final Year of B.Sc. in Physiotherapy student of Bangladesh Health Professions Institute (BHPI) affiliated to 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 **" Prevalence of neck pain among the Physiotherapy students of Bangladesh Health Professions Institute (BHPI)."** The aim of this study is to find out the prevalence of neck pain among the students of Bangladesh Health Professions Institute (BHPI).The objectives of this study is to establish the prevalence of neck pain.You are requested to participate in this study .The participation would be voluntary. You have the right to withdraw your consent and discontinue participation at any time. You might be benefited or not, but in future you may be benefited and would not be harmful. I am requesting you to give accurate information and assuring you to maintain the confidentiality. This study is academic purpose,which may help to develop the profession. If you have any query about the study as a participant, you may contact with me or my supervisor Md. Obaidul Haque, Associate professor & Head of the Physiotherapy Department of BHPI, CPR, Savar, Dhaka-1343.

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

Signature of the participant: Date:

Signature of the witness: Date:

Signature of the investigator: Date:

Questionnaire (English)

This questionnaire is developed to measure the **neck pain among the students of Bangladesh Health Professions Institute (BHPI).**

Name: Session:

Department: Date:

Age:

QN	Questions	Response
1.	Age	☐ 20-23 years ☐ 24-25 years
2.	Sex	☐ Male ☐ Female
3.	Study Year	☐ 3rd year ☐ 4th year
4.	How long time do you study in a day?	☐ 2-3 hours ☐ 3-4 hours ☐ More than 4 hours
5.	Which posture do you prefer during study?	☐ Sitting ☐ Lying ☐ Others

6.	How many hours do you attend the class in a day ?	☐ 2-4 hours ☐ 4-6 hours ☐ More than 6 hours
7.	Have you experienced pain your neck due to study?	☐ Yes ☐ No
8.	Does the neck pain hamper your study?	☐ Yes ☐ No
9.	When did the symptoms occurs?	☐ During class & study time ☐ After class & study time ☐ Not occur
10.	Do you work in front of Computer or other electronic devices?	☐ Yes ☐ No
11.	How many hours do you spend in front of computer or other electronic devices?	☐ 2-3 hours ☐ More than 3 hours
12.	Does ergonomic factor affect pain?	☐ Yes ☐ No

13.	What do you think the main cause of your neck pain?	☐ Prolonged reading & writing activities during classes, study & examination time ☐ Using the Computer or other electronic devices ☐ Posture assumed during lecture ☐ No cause
14.	Had your academic performance reduced due to pain?	☐ Yes ☐ No
15.	What kind of treatment did you receive due to neck pain?	☐ Medication ☐ Physiotherapy ☐ None
16.	What was the result?	☐ Improve ☐ Worse ☐ None
17.	In your view, does pain is associated with your study?	☐ Yes ☐ No