The Islamic University – Gaza

Deanery of Higher Studies

Faculty Of Education

Neck pain and work-related factors among administrative and academic staff of the Islamic University of Gaza

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I

Dedication

To my Husband Nabeel

To my Children Sondos, Ghassan, Sarri, Sajid and Seraj

To the Memory of My Father, Allah Bless His Soul

To Jerusalem, the Capital of Palestine

Acknowledgments

I would like to take this opportunity to extend my highest gratitude to Islamic University in Gaza and Elwafa Rehabilitation and Specialized Surgical Hospital for offering me this opportunity to pursue this post-graduated program through which I have widened my knowledge in the field of rehabilitation.

Special gratitude to the quality unite in Islamic University which has sponsored this program.

My sincere tribute and gratitude to my husband Nabeel and my children for their great support. Particular gratitude goes to my mother, sister and brothers.

I would like to convey my warm thanks to my supervisors Dr Suzanne Shashaa and Dr Khamis Elessi who guided my research with patience and useful advice

My gratitude goes to the college of education and its staff in particular Dr Atef Alagha for the high quality of knowledge and facilities provided.

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I should not forget to extend my highest gratitude to my dear colleagues and friends for all the joyful and rich moments that we had together throughout this master program in particular Ms Amany Mizher and Ms Rasha Alagha

Finally, I am immensely grateful for the co-operation of all the employees of Islamic University in particular the medical department Dr Ali El Zenaty and Mr Adnan Jaber.

Declaration

I declare that this research is my own work and that no part of it has been copied from any other previous works on the subject, except in such instances where acknowledgment has been duly made.

Signature:

Alia

Abstract

Work related neck pain is a common problem among office workers, especially those who are intensive computer users.

Objective: the aim of this study was to investigate neck pain and its work-related factors among administrative and academic staff in Islamic University of Gaza.

Methods: a descriptive analytical cross sectional study was carried out in Islamic University of Gaza on a convenient sample of 102 academic and administrative employees who suffer from neck pain. Data was collected using face to face structured questionnaire in the period from 15/10/2007 to 15/11/2007. Collected data was entered and analyzed using Statistical Package for the Social Sciences (SPSS).

Results: the results revealed that 44.1% of the respondents are more than 40 years old also there was no relation between age and neck pain but there was a relationship between neck pain and gender, males constituted about 70% of the participants most of them are from Gaza. The majority of those who suffer from neck pain do administrative job. Muscle spasm was the most dominant type of pain located around neck and both shoulders. There was a relation between stress and neck pain. Also 94% of all participants use computer during their work. The results indicated that the Islamic University employees seem to have insufficient knowledge about the correct sitting position on their desks. Most of the employees agree that furniture in their offices is suitable and they had good desks and computers.

Conclusion: the study concluded that the risk of neck pain may be reduced by encouraging specific seated postures for the employees of Islamic University.

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CHAPTER (6)
DISCUSSION, RECOMMENDATION & CONCLUSION

List of tables

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List of abbreviations

- **CVI: Content Validity Index**

- **Df: Degree of Freedom**

- **EU: European Union**

- **GS: Gaza Strip**

- **IUG: Islamic University of Gaza**

- **MOH: Ministry Of Health**

- **MSDs: Musculo-Skeletal Disorders**

- **No.: Number**

- **OSHA: Occupational Safety & Health Administration**

- **PASSIA: Palestinian Academic Society for the Study of International Affairs**

- **PhD: Doctor of Philosophy**

- **PLO: Palestine Liberation Organization**

- **RR: Relative Risk**

- **SPSS: Statistical Package for Social Sciences**

- **UK: United Kingdom**

- **VDT: Visual Display Terminal**

- **VDUs: Video Display Units**

- **WHP: Workplace Health Promotion**

- **WRULDs: Work-Related Upper Limb Disorders**

Chapter One

Introduction

Chapter one

Introduction

Musculoskeletal disorders in general have become increasingly common worldwide during the past decades. It is a common cause of work-related disability among workers with substantial financial consequences due to workers' compensation and medical expenses (Andersson, 1999).

Neck pain in particular is considered to be a major health problem in modern societies. Neck Pain is a very common problem with two-thirds of population having neck pain at some point in their lives. It is also increasing in intensity, frequency and severity of episodes. As people are increasingly sedentary in nature, live fast-paced and hectic lives, they place more stress and strain on the upper back and neck regions of their spines (Binder, 2007).

Ariens in 1999 studied the prevalence of neck pain in a general population in Crombie UK, she reported that the one year prevalence of neck pain is as high as 40% and the prevalence for women being slightly higher, also she stated that one year prevalence's in various occupational settings showed values varying between 6% and 76%, also with higher values for female workers.

Neck pain is assumed to be multifactorial in origin, implying that several risk factors can contribute to its development. Most studies which are reported in the literature focus on only one or a few risk factors.

Several literature reviews have specifically considered the work related physical risk factors in the development of neck pain (Kuorinka et al., 1995 and Ariens et al., 2000).

However, due to differences in the study design of these reviews, their conclusions are not fully consistent, although there seems to be consensus that the main physical risk factors for the development of neck pain are static postures at work and repetitive movements of the neck (neck flexion), and repetitive or forceful movements of the arm, and prolonged sitting at work.

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In chronic pain clinics, cervical (neck) pain is second in frequency to low back pain (Delisa et al., 1988). Overall, 45% of working men had at least one attack of stiff neck, 23% at least one attack of brachial neuralgia, and 51% had both of these symptoms. The frequency of cervical symptoms almost doubles from age 25 to 45 (Delisa et al., 1988).

Although not yet recognized as an official disorder, computer headache occurs in people who spend long time at the computer especially if they wear bifocal glasses. The dorsal kyphotic posture with head forward and up increases the cervical lordosis. Also emotional tension causes neck and head pain (Bryan et al., 2001).

1.1   Research problem:

The purpose of this study is to know work-related factors which lead to development of neck pain among administrative and academic staff of Islamic University of Gaza in order to enhance their work environment.

1.2   Objectives:

General objective:

To investigate neck pain and its work-related factors among administrative and academic staff in Islamic University of Gaza.

Specific objectives:

1 - To identify the work-related factors which lead to neck pain among administrative and academic staff of Islamic University of Gaza who reported pain.

2 - To describe nature of neck pain among administrative and academic staff of Islamic University of Gaza who reported pain.

3 - To find out the interrelation between individual characteristics, neck pain and associated work-related factors among administrative and academic staff of Islamic University of Gaza.

4 - To assess worker's knowledge, attitude, practice and complaints about their work environment.

1.3   Research questions:

1- What are the work-related factors which lead to neck pain among administrative and academic staff of Islamic University of Gaza who reported pain?

2- What is the nature of neck pain among administrative and academic staff of Islamic University of Gaza who reported pain?

3- What is the interrelation between individual characteristics, neck pain and associated work-related factors among administrative and academic staff of the Islamic University of Gaza?

4- What are the staff's knowledge, attitude, practice and complaints about their work environment?

1.4   Significance of the study:

In general population neck pain is a major health problem in modern society; neck pain and dysfunction are common, affecting up to 67% of the general population at some time during their life (Cote et al., 1998).

To the researcher knowledge, this is the first study in Palestine that focuses in studying neck pain and its related risk factors. In professional level as the researcher had worked for 10 years in physiotherapy clinics, it has been observed that a new class of young, sedentary neck pain sufferers is emerging who are becoming more frequent visitors of orthopedic clinics. They usually work in profession where prolonged sitting on chairs is essential like computer and prolonged desk tasks.

The result of this study would highlight the nature of neck pain among administrative and academic staff of Islamic University of Gaza and its work related factors which may play an important role in creating more optimal environment that they work in.

1.5   Country Profile:

1.5.1   History and political context of Palestine:

After the 1st world war 1917 most of the Arab regions have fallen under occupation of both England and France. Palestine in particular stayed under Great Britain's mandate till the year of war and migration in 1948. After the resolution of the United Nation Security Council in 1949, the Palestinian land has been divided into two

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nations; Palestinian and Israeli. But Israeli army occupied most of the historical Palestinian land until the year 1967 where the war resulted in occupying the whole Palestine and some other Arab lands.

In 1987 the first Intifada was breakout which was followed by Oslo agreement. In 1993 the Palestinian Authority took over the responsibility of Gaza Strip and West Bank as a result of Oslo agreement between Palestine Liberation Organization (PLO) and Israel, as a base of establishing the future Palestinian state.

In 2000 Al-Aqsa Intifada spread on all the occupied territories; Israeli government has practiced all types and shapes of torture and violence against Palestinians who defend their occupied lands for freedom and self-determination (PASSIA, 2007).

1.5.2   Geography of Palestine

Palestine has an important geographic and strategic location; it is located at the southwestern part of Asia at the eastern coast of the Mediterranean Sea in the Middle East, Syria and Jordan from the East, Lebanon from the North, Gulf of El Aqaba from the south and, Egypt and Mediterranean Sea on the West, border historical area of Palestine (Annex no.1).

The total area is 27000 square kilometer, while Palestinian territories occupy only 6257 square kilometer, of them 5879 square kilometer in the west of Jordan River, and 378 square kilometer, in Gaza Strip (GS) with 50 Km long and 5-12 Kilometers wide.

Gaza Strip is a narrow zoon located in the south of Palestine, it is 362 square kilometer. The Gaza Strip is divided into five governorates: North, Gaza, Midzone, Khan Younis and Rafah. There are four villages and eight refugee camps (PASSIA, 2007)

1.5.3   Demography of Palestine:

The total population living in Palestine territories was estimated at 3.6 million at the end of year 2004. About 2.3 million live in the West Bank (63.2%) and 1.3 million in Gaza Strip (38.8%). More than 70% of the Palestinian population lives in rural areas (Barghouti, 2001). 42.6% of the population in Palestinian territories are refugees.

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The majority of Gaza Strip population are refugees (75%) and 40% of them live in camps. In Gaza Strip the population density in the refugee camps is one of the highest in the world (UNRWA, 2006).

In the population pyramid the age group 15-60 years (the working age) represents about 49.6%, the annual growth rate of Gaza Strip was 2.8%, and life expectancy at birth was 70.7 years for males and 73.8 years for females (MOH,2004).

Dependency ratio is calculated as the number of persons below fifteen years of age and above sixty-five per 100 persons. In 2004 the dependency ratio in Gaza Strip was 107.8% and in the West Bank 91.3%. The dependency ratio in Palestine is the highest among the neighboring countries but this was not reflecting the actual economic dependency in Palestine because not every body enrolled in the work force age is actually earning, as in the case of students, housewife and the unemployed (PCBs, 2004-b).

1.5.4   Socioeconomic status:

The Palestinian economy refers to the economy of Palestinian territory; including Gaza Strip, West Bank and East Jerusalem. Current political events have severely damaged the Palestinian economy due to halting the international aid.

MOH, 2004 reported that Gaza Strip is considered one of the lowest incomes in the Middle East area. The majority of the income comes from salary of the employees and security persons, while the agriculture products share by reasonable portion in the economy. The economy nowadays mainly depends on international donors that are suspended. International aids were funding some projects and paid the salaries. The economic situation is usually especially after Al-Aqsa Intifada because of frequent closure and restriction of trade. The deteriorating economic situation, limited income and lack of work opportunities lead to low standard of living and inadequate health facilities.

Despite poverty the Palestinians are eager to learn, literacy ratio (2004) among those aged 15 years and more is 92.3% (male: 96.5%, female: 88%) which is considered among the highest percentage of literacy rates of Arab countries (PASSIA, 2007).

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1.5.5 Education in Palestine:

The Ministry of Education and Higher Education is given responsibility for education at all levels. It is responsible for Pre School and school education (grades 1-12) and higher education (universities and collages) and other research institutions. There are three types of schools: governmental, private and UNRWA.

There are 12 universities in Palestine 7 of them in the West Bank and 5 in Gaza; Islamic University of Gaza is one of them (MOEHE, 2002).

Higher education plays vital role in developing the social, political and economical situation of the Palestinian people, it is considered as the main wealth of the Palestinian people in the absence of the other natural resources.

Islamic University is one of the biggest universities in Palestine and the number of the academic and administrative employees exceeded seven hundred persons.

The Islamic University of Gaza (IUG) is an independent Palestinian institution located in Gaza city. It is the first higher education institution to be established in Gaza. In 1978 IUG began with three faculties and currently has ten faculties.

IUG is a member of many associations including: International Association of universities, Community of Mediterranean universities since 1996, Association of Arab Universities and association of Islamic Universities since 1983.

IUG have developed several academic links and signed several agreements of academic cooperation with international universities. It also has conducted several projects in collaboration with local and international organizations and institutions.

IUG is contributing to developing the community through building institutional capacity, especially in the field of IT and improving graduates performance by upgrading their skills (IUG Procure, 2007).

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Limitation of the study:

1. There was no previous information about prevalence of neck pain in Gaza Strip or even in the Islamic University so the population of the study was not determined.

2. The researcher was obliged to take a convenient sample because of the previous point which forced her to increase the sample size so she took all the population.

3. No national or regional previous studies in the field of neck pain and work related factors.

4. Closure of Gaza Strip, electricity breakdown, and great increase of the paper cost.

Chapter Two

Conceptual Framework

Chapter 2

Conceptual Framework

The conceptual frame work is the concept map that guides the design and the implementation of the study and its effect mechanism for illustration and summarizing the whole study variables

2.1   Conceptual framework diagram:-
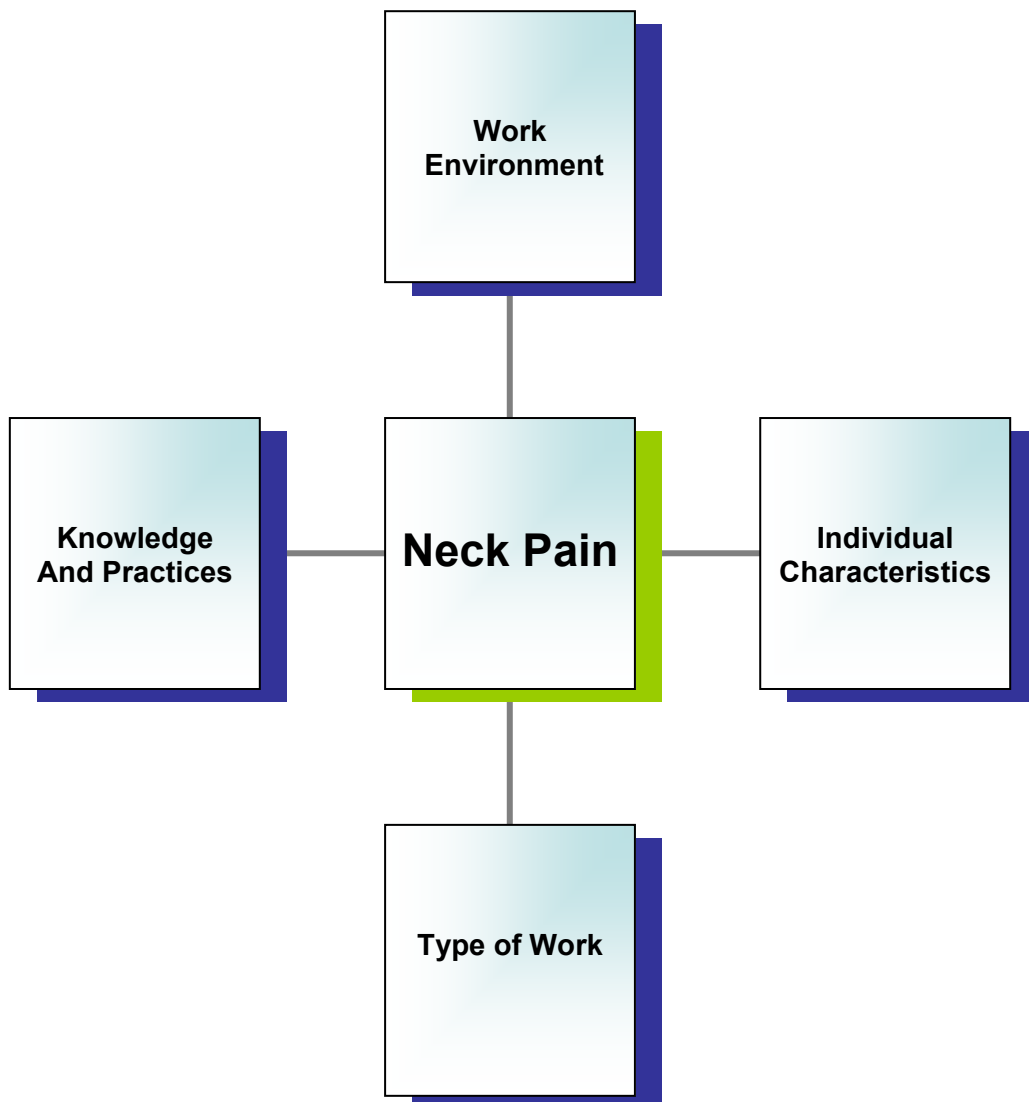
Figure 2.1   Conceptual Frame work

The above conceptual framework is used to support, guide, and direct the research process to make research findings meaningful and applicable.

The diagram denotes that the occurrence of neck pain depends on many factors which may be related to the work environment and type of work, in addition to the individual characteristics of the staff, their knowledge and practices as well; can play an important role in determining the causes of neck pain that Islamic university staff may suffer from which in turn guide the researcher how neck pain could be prevented.

2.2   Theories of neck pain

Neck pain : is the sensation of discomfort in the neck area (MedTerms,2008).

2.2.1   Historical background of neck pain:

Cervical spine disorders have been described since ancient times. More than 5000 years ago, cervical sprains and dislocations was described by the Egyptian physician Imhoptep.

Hippocrates, (born in 460 BCE) developed the cervical traction concept and recognized that injury to cervical spines could result in paralysis. The Greek physician Paul of Aeginia (625 to 690 CE) was the first to perform cervical laminectomies.

In the second century, Galen the physician to the Roman emperor Marcus Aurelius, separated the spinal cord at deferent cervical levels and recorded the subsequent motor and sensory effects (Randall et al., 2000).

2.2.2   Epidemiology of neck pain:

Patient with neck pain represent the second largest population seeking manipulation or manual therapy (Muye et al., 2003). Neck pain is commonly encountered in clinical practice. The prevalence of neck pain with or without arm pain is approximately 13% of females and 9% of males in the general population. One out of every three individuals can recall an incidence of neck pain at least once in there lifetime. This percentage is greater in work place, where 51% to 80% of laborers can recall an episode of neck and arm pain. The frequency of neck complains increase with age in the workplace. In the 25 to 29 age group, 25% to 30% complain of neck stiffness and 5% to 10% complain of pain radiating into the upper limb. In those over 45% years old, 50% complain of neck stiffness and 25% to 40% complain of pain radiating into the upper limb. Over all, 45% of working men have experienced at least one episode of neck discomfort (Randall et al., 2000).

2.2.3   Anatomical review:

Neck is the most mobile portion of the spine and serves three major functions:

1- It supports and provides stability to the head.

2- It enables the head to move in all planes of motion.

3- It protects the structures that pass through it; especially the spinal cord, nerve roots and vertebral artery.

Any restriction or alteration of these basic functions by injury or disease can lead to impairment, disability and handicap (Randall et al., 2000).

The cervical spine is a part of the vertebral column that consists of eight individual motion segments. It begins with the articulation of the occiput on C1 and ending with the articulation between C7 and T1 (Annex no.2). Individual nerve roots exist at subsequent levels from C1 to C8 (Annex no.3), innervating the corresponding myotomes, and dermatomes of the head, neck, and arms (Delisa et al., 1998). In between each vertebra are tough fibrous shock-absorbing pads called the intervertebral discs; each disc is made up of a tire-like outer band and a gel-like inner substance (Annex no.4).

The parts of the cervical spine are quite complex. In addition to bones and discs, it includes the upper region of the spinal cord, 8 nerve roots, an elaborate system of arteries and veins, 32 muscles for strength (Annex no.5) , and numerous ligaments. The joints, muscles, and ligaments assist with movement and stabilize the neck.

2.2.4   Movement of the neck:

Incredibly, the cervical spine supports the full weight of the head, which is usually about 15 pounds. No other region of the spine has such freedom of movement. The cervical spine can move head in nearly every direction: 90˚ of forward motion, 90˚ of backward motion, 180˚ of side to side motion, and almost 120˚ of tilt to either shoulder. Unfortunately, this flexibility makes the neck very susceptible to pain and injury.

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2.2.5 Causes of neck pain:

Neck pain may originate from any of the pain sensitive structures in the neck include the vertebral bones, ligaments (anterior and posterior longitudinal ligaments) the nerve roots, the particular facets and capsules, muscles, and dura. Other structures of the neck region, visceral and somatic structures are encountered (Delisa et al., 1988).

Major and severe causes of neck pain include:

- **Spondylosis**:- degenerative arthritis and osteophytes
- **Spinal stenosis**:- a narrowing of the spinal canal
- **Spinal disc herniation**:- protruding or bulging discs, or if severe prolapse.

The more common and less sever neck pain causes include:

- **Stress**:- physical and emotional stresses can cause muscles to tighten and contract, resulting in pain and stiffness.
- **Prolonged postures**:- many people fall asleep on sofas and chairs and wake with sore necks.
- **Poor posture**:- prolonged use of a computer keyboard.
- **Minor injuries and falls**:- car accidents, sporting events and day to day minor injuries.
- **Referred pain**:- mostly from upper back problems.
- **Over-use**:- muscular strain is one of the most common causes.
- **Obesity**:- weak abdominal muscles often disrupt the spine's balance, causing the neck to bend forward to compensate.

Although the causes are numerous, most are easily rectified by either professional help or using self help advice and techniques (wikipedia, 2007).

2.2.6 Symptoms of neck problems:

The individual with neck pain complains of aching discomfort in the base of the neck and upper back. Headaches, stiffness, torticollis, and noisy joints are common (Delisa et al., 1988).

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Symptoms may include:

Neck soreness on one or both sides, burning pain, tingling sensations, stiffness, pain around the shoulder blades, Arm complaints (pain, numbness, or weakness), pain that moves around the body, dizziness and headache are the common symptom.

Trouble walking or writing, trouble swallowing or talking, nausea, blurred vision, fever, night sweats, tiredness and unintentional weight loss are the less common. (Spine universe, 2007)

Warning Signs:

Neck pain is one of the symptoms of meningitis, a relatively rare but very serious contagious infection; need urgent medical care if neck pain present with:

- High fever
- Sensitivity to light
- Irritability
- Severe tenderness with neck movement

Neck pain also can be due to injury. A severe neck injury could be life-threatening; may need medical treatment if neck pain present with:

- Numbness
- Weakness
- Tingling symptoms

(Spine universe, 2007)

2.3   Treatment of neck pain

Neck pain is treated by numerous physical therapies. They range in complexity depending on the severity and underlying causes of the pain. Treatment is administered by chiropractic, osteopathic and physical therapy. All of these specialties treat neck pain issues. The benefit of mobilization and manipulation is not clear (Gross et al., 2004).

Neck pain can also be eased via many self help techniques such as stretching, strength building exercises. Non-traditional methods such as Acupressure, Reflexology and therapeutic massage are commonly used as well (Hoving et al., 2002).

2.4   Prognosis of neck pain

About one-half of neck pain episodes resolve within one year and about 10% of cases become chronic (Binder, 2007)

2.5   Neck pain and work related factors:

Almost two thirds of EU workers report being exposed to repetitive hand and arm movements and a quarter to vibrations from tools; significant risk factors for work-related neck and upper limb disorders . Many workers, in a wide range of jobs, develop work related upper limb disorders WRULDs and they are the most common form of occupational disease in Europe, accounting for over 45 % of all occupational diseases (OSHA, 2007).

WRULDs are impairments of bodily structures such as muscles, joints, tendons, ligaments, nerves, bones and the localized blood circulation system, that are caused or aggravated primarily by work and by the environment in which work takes place. Symptoms of WRULDs may take a long period of time to develop and they can manifest themselves as pain, discomfort, numbness and tingling sensations. Sufferers may also experience swelling in the joints, decreased mobility or grip strength, and a change in skin color in the hands or fingers.

Many problems can be prevented or greatly reduced by complying with existing safety and health law and following guidance on good practice. Unfortunately, Musculoskeletal disorders (MSDs) are an increasing problem. For the employee, they cause personal suffering and loss of income; for the employer, they reduce business efficiency; and for government, they increase social security costs.

2.6   Factors contribute to neck pain:

Different groups of factors may contribute to neck pain, including physical and biomechanical factors, organizational and psychosocial factors, individual and personal factors. These may act uniquely or in combination.

In this study the researcher interested in studying the following factors:

2.6.1   Physical factors:

Work environment:

- poor workspace layout, making employees work in awkward positions, poor design of tools and machinery.
- excessive heat increase overall fatigue, while excessive cold can make neck harder to grip.
- poor lighting, making workers move into awkward positions to see what they are doing.
- high noise levels, causing the body to tense.

2.6.2   Type of work:

Whether academic, administrative or both. As the work load is different and the tasks and activities as well. Monotonous jobs or high pace of work; time pressure; lack of control over the tasks performed.

2.6.3   Individual factors:

- **Age:** play an important role in the development of different health problems.
- **Sex:** the physical capacity of workers varies (male and female).
- **Knowledge:** assessment of the workers' information about the way of application of the work in a healthy way; lack of experience, training or familiarity with the job.
- **Practices:** static posture, prolonged sitting, poor posture, repetitive movements and sport practices

All of these factors may act separately, but the risk is greater if several risk factors work together.

2.7   Prevention of work related neck pain:

It is important to ensure that all workers receive appropriate information, education and training on health and safety in the workplace, and know how to avoid specific hazards and risks.

Measures may cover the following areas:

- The workplace: improvement in workplace layout

- Work equipment: modification of computers positioning

- Work tasks: reduce physical demands of the job; using new tools or working methods.

- Work management: work can be planned or allocated better and safer systems of work implemented.

- Work organization: better work/rest ratios or job rotation can be arranged.

- Design and procurement: hazards can be eliminated in the planning stage.

- Workplace health promotion, e.g. preventing smoking and obesity.

Worker involvement is essential when tackling workplace hazards. The workforce and their representatives know the workplace as well as anyone (OSHA, 2007).

.2.8   Workplace health promotion:

According to the definition of the World Health Organization (WHO), health promotion includes all measures that enable individuals, groups or organizations to have increased control over the determinants of health. The objective of all measures is the improvements of the health of individuals, groups, organizations and communities.

Health promotion can be described as a process that enables people to reach a higher level of self-determination about their health and to strengthen it. In this sense, health represents a resource for daily life that enables a person or a group to fulfill their expectations and has a highly positive influence on behavioral attitudes.

Workplace Health Promotion (WHP) is the combined efforts of employers, employees and society to improve the health and well-being of people at work. According to Luxembourg Declaration on WHP in European Union, this can be achieved through a combination of:

- Improving work organization and the working environment
- Promoting active participation in the process of WHP
- Encouraging personal development

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Health promotion at work benefits not only workers, but also the employer, with potential reductions in sickness-related costs and improved productivity. This also creates a societal benefit.

Effective WHP occurs when:

- Action is taken based on an analysis of the health requirements and needs of an enterprise
- All stakeholders in an enterprise are involved
- WHP actions seek to improve the quality of working life and conditions as well as focusing on the behavior of the individual worker

Workplace health actions are integrated into management practices and the daily routine of an enterprise   (OSHA, 2007).

Chapter Three

Literature review

Chapter Three

Literature review

Neck pain is a common problem in the society. It has been reported that the prevalence of neck pain among office workers is much higher than in the general population.

In this chapter, the literature for neck pain and risk factors in relation to work will be displayed including incidence, prevalence and general risk factors of neck pain. Prevention, recovery and cost of neck pain will be shown as well.

3.1   Incidence of neck pain:

Korhonen et al., (2003) had investigated work related factors and individual factors as predictors for incident neck pain among office employees working with video display units (VDUs). The results demonstrate 34.4% annual incidence of neck pain. Also they reported that Poor physical work environment and poor placement of the keyboard increased the risk of neck pain. Among the individual factors, female sex was a strong predictor. Smoking showed a tendency for an increased risk of neck pain. There was an interaction between mental stress and physical exercise, those with higher mental stress and less physical exercise having especially high risk. Also they concluded that in the prevention of neck disorders in office work with a high frequency of VDU tasks, they recommended that attention should be given to the work environment in general and to the more specific aspects of VDU workstation layout. Also they suggested that physical exercise may prevent neck disorders among sedentary employees.

3.2   Prevalence of neck pain:

Cagnie et al., (2007) have studied individual and work related risk factors for neck pain among office workers and the result was that 12 month prevalence's of neck pain in office workers was 45.5%. Multivariate analysis revealed that women had an almost two-fold risk compared with men (OR = 1.95). The odds ratio for age indicates that persons older than 30 years have 2.61 times more chance of having neck pain than younger individuals (OR = 2.61). Being physically active decreases the likelihood of having neck pain (OR = 1.85). Significant associations were found between neck pain and often holding the neck in a forward bent posture for a prolonged time (OR = 2.01),

often sitting for a prolonged time (OR = 2.06) and often making the same movements per minute (OR = 1.63). The results of this study indicate that physical and psychosocial work factors, as well as individual variables, are associated with the frequency of neck pain. These association patterns suggest also opportunities for intervention strategies in order to stimulate an ergonomic work place setting and increase a positive psychosocial work environment.

A local research studied the occupational hazards among governmental healthcare workers in Gaza strip, it reported that slightly less than half of the study population (45.9%) complained of myalgia and arthralgia where female workers were affected three times more than male (Jouda, 2006).

Siivola et al., (2004) estimated the prevalence and incidence of neck and shoulder pain in young adults and to identify the associated and predictive factors of neck and shoulder pain based on 7-year follow-up. The result was in 7 years, the prevalence of weekly neck and shoulder pain increased from 17% to 28%. Among those who were asymptomatic at baseline, 6-month incidence of occasional or weekly neck and shoulder pain was 59% 7 years later. In an adjusted model, psychosomatic symptoms remained an associated factor for prevalent neck and shoulder pain 7 years later for both females and males. In females, neck and shoulder pain in adolescence was associated with prevalent neck and shoulder pain in adulthood, and sports loading dynamically in the upper extremities were an associated factor for a low prevalence of neck and shoulder pain 7 years later. In separate analyses of incident neck and shoulder pain, psychosomatic stress symptoms predicted neck and shoulder pain in adulthood. They concluded that in young adults, the incidence of neck and shoulder pain is high, and the associated factors of neck and shoulder pain are already multifactorial in a young population.

The 1-year prevalence of neck pain and possible risk factors among university academic staff were investigated by Chiu et al., (2002) using self-administered questionnaires were distributed to all the full-time academic staff in one of the universities in Hong Kong. The 1-year prevalence of neck pain was investigated. The relationship between individual factors, job nature, psychosocial factors, and neck pain were also analyzed. The 1-year prevalence of neck pain among an academic staff was 46.7%. A significant association was found between gender and neck pain (p = 0.02).

The percentage of female academic staff with neck pain (62%) was higher than that in male staff (38%). This matched the results of other studies, which demonstrated that neck pain was more prevalent in women. There was a significant association between head posture during computer processing and neck pain (p = 0.02). Among those with neck pain during computer processing, 60.5% had a forward head posture. However, a low correlation between psychosocial factors and neck pain was demonstrated (r = 0.343). Academic staff in tertiary institutions could be considered as a high-risk group of job-related neck pain.

A study conducted by Ostergren, (2001) concluded that job related mechanical exposure in both sexes, and psychosocial factors in women, seem independently of each other to play a part for development of shoulder and neck pain in vocationally active people. The effect of psychosocial factors was more prominent in women, which could be the result of biological factors as well as gender issues. These results suggest that interventions aiming at reducing the occurrence of shoulder and neck pain should include both mechanical and psychosocial factors

Barnekow-Bergkvist, (1998) studied the determinants of self-reported neck-shoulder and low back symptoms in general population and reported that in a 16 year follow up that high performance in bench press at the age of 16 was associated with a significant decrease in risk of neck/shoulder symptoms at the age of 34 in men, but not women. Women attain 50–80% of the neck strength of men.

3.3   Risk Factors for neck pain:

3.3.1   Static loading and repetitive movements and neck pain:

According to Bernard, (1997) he stated that static loading on the neck muscles is an important risk factor for the development of neck pain.

Several other literatures have specifically studied the work related physical risk factors for the development of neck pain (Kuorinka et al., 1995 and Ariens et al., 2000).

However, due to differences in the design of these researchers, their conclusions are not fully consistent, although there seems to be consensus that; the main physical risk factors for neck pain are static postures and repetitive neck movement (neck

flexion), forceful movements of the arm, and improper sitting posture at work (Ignatius, 1993 and Dartiques, 1988).

3.3.2   Neck flexion and neck pain:

A trend for a positive co-relation between neck flexion and neck pain was found, although not significant, suggesting an increased risk of neck pain for those who spent a high percentage of the working time (> 70%) with the neck at a minimum of 20° of flexion. Working with the neck at a minimum of 20° of flexion for 25%-50% or 50%-60% of the working time showed no increased relative risk (RR) for neck pain. For this reason, the analysis of the neck at a minimum of 20° of flexion was concentrated on percentages higher than 60% of the working time. Unexpectedly, the RRs for neck pain were lower for the percentage of the working time with the neck at a minimum of 45° of flexion. Other published studies reported results of the relation between neck flexion and neck pain, with odds ratios ranging from 1.7 to 3.4 (Ignatius, 1993; Dartiques, 1988).

3.3.3   Neck rotation and neck pain:

No clear relation was found between neck rotation and neck pain in the literatures. The results of different researchers reported that neck rotation is not consistent. For example, Dartiques et al (1988) reported a positive effect (odds ratio of 2.4) of cervical spine rotation on self reported neck pain, whereas Musson et al., (1989) reported that the association between neck rotation and neck pain was not significant.

3.3.4   Prolonged sitting position and neck pain:

Skov et al., in (1996) showed that significant positive relationship between sitting posture and neck pain, especially workers who sat for more than 95% of the working time. The risk of neck pain was twice as high as for workers who hardly ever worked in a sitting position. He also investigated the effect of working time in a sitting position on self reported neck pain. They found that the odds ratios for neck pain increased with the time spent working in a sitting position (an odds ratio of 2.68 for a quarter of the working time in a sitting position, an odds ratio of 1.92 for half of the working time in a sitting position, an odds ratio of 2.18 for three quarters of the working time in a sitting position, and an odds ratio of 2.80 for all of the working time in a sitting

position), suggesting a clear relation between sitting posture and neck pain (Skov et al., 1996).

Kamwendo et al., (1991) reported an odds ratio of 1.49 for the relation between sitting for more than 5 hours a day and self reported neck pain. Both of these studies had a cross sectional design and used data from questionnaires to assess exposure.

A plausible mechanism for the strong relation between prolonged sitting and neck pain which was found in this study is the static aspect of this posture. Working in a sitting position will lead to a continuous static load on the neck muscles, especially if the design of the workplace is not suitable for the worker. Static loading of the neck muscles will induce biomechanical strain ̶ for example, an increased muscle tone ̶ which may in the long term lead to the development of neck pain (Ariens et al., 2001).

3.4   Work related factors and neck pain:

Various work-related factors have been established as predisposing to pain disorders. In dentists, for example overstrained and awkward back postures can lead back pain, repetitive actions predispose to neck and shoulder disorders, and psychosocial stressors can lead to back, neck and shoulder complaints (Szymanska, 2002).

Women seem to have more shoulder problems than men, and the frequency of shoulder pain increases with age. Smoking and previous trauma are associated with shoulder pain. People at high risk for shoulder pain include those working as cashiers, garment workers, welders, and bricklayers and those who work with pneumatic tools or in the meat industry. Hairdressers, plasterers, assembly workers, packers, and people who work for long hours at computers, such as secretaries and programmers, are also at high risk of neck pain (Paulien, 2001).

3.5   Prevention of neck pain:

Rocha et al., (2005) reported that prevention of musculoskeletal disorders among call center operators requires an integrated approach including improved workstation design, thermal comfort environment, well-scheduled work-rest regime and realistic production goals.

Marcus et al., (2002) reported that the risk of musculoskeletal symptoms and musculoskeletal disorders may be reduced by encouraging specific seated postures.

Using a visual display terminal (VDT) is today a common occupational task with both benefits and hazards. One of the hazards is the occurrence of musculoskeletal disorders. The debate on the relationship between musculoskeletal disorders and VDT usage usually centers around occupational factors (eg, constrained posture, poor ergonomic design of the workplace, equipment design), work-related psychological factors (eg, perceived high job demands, mundane, boring and repetitive job activity, little control, poor support from colleagues and superiors), and psychosocial factors (eg, biodemographic characteristics such as age, previous musculoskeletal injuries, emotional stress, family burden, environmental factors). Improving the ergonomic design of VDT workstations, changing occupational legislation, and improving occupational health services have been suggested as means to decrease the incidence of musculoskeletal disorders among VDT workers (Ong, 1995).

3.5.1 Physical fitness and endurance and neck pain:

Workers with a relatively long endurance time of the neck muscles had a less pronounced relation between neck flexion and neck pain than did workers with a relatively short endurance time. A significant increase in RRs for neck pain was found for workers with the lowest endurance times measured by the static strength test of the neck muscles, whereas for the workers with medium and high endurance times, there was no significant increase in risk of neck pain. These results suggest that working with a flexed neck is a real problem for workers with a low endurance time in the neck muscles (Ariens et al., 2001).

Higher endurance strength in boys predicted lower occurrence of neck/shoulder pain in adulthood, and higher strength in adolescent girls predicted lower occurrence of low back pain (Barnekow, 1998).

The role of physical fitness characteristics and participation in physical activity as predictors of musculoskeletal pain symptoms and injuries has been studied with different study designs. These studies include reports on how baseline muscular strength, flexibility, or physical activity is associated with the future occurrence of low back pain or tension neck in adults (Leino, 1987; Barnekow, 1998).

The relationship between physical load at work and neck pain, approved that it may be influenced by the level of physical fitness of a worker, so that workers with a high level of physical fitness can be exposed to a higher physical load before problems with the musculoskeletal system will occur (Ekholm, 1992).

3.6   Recovery of neck pain:

Poor recovery from shoulder pain is associated with increasing age, severe symptoms, or recurrent symptoms at presentation, and a restricted range of passive abduction with concomitant neck pain. In contrast, mild trauma or overuse occurring before the onset of pain, early presentation, and acute onset are associated with a favorable prognosis (Paulien, 2001). Individual psychosocial factors, such as a passive coping style, fear of movement, and general psychological distress, may play a part in the transition from acute to chronic pain. However, the empirical evidence for the role of these factors comes from studies on low back pain and neck pain (Linton et al., 1992).

Few studies have examined the effect of work related factors on recovery. Ekberg and Wildhagen showed that whether a person took long term sick leave depended more on the work situation than on characteristics of the patient (Ekberg & Wildhagen, 1996).

3.7   Cost of neck pain:

Swedish insurance data showed that 18% of disability payments made for musculoskeletal disorders was spent on neck and shoulder problems. Thus, shoulder pain is widespread and imposes a considerable burden on the affected person and society (Nygren, 1995).

Among employed persons with neck pain, the proportion with lost work time is similar to those with back pain, which is notorious for high absenteeism costs. Manufacturing workers with neck pain lost, on average, about 14 days from work in one year because of their neck problems. Among nurses, more frequent and severe neck pain was associated with a higher probability of work absenteeism as well as having to modify or restrict work activities (Trinkoff et al., 2002)

3.8   Workers knowledge about ergonomics:

Regarding knowledge about safety and occupational services; A study in Gaza found that 77.2% of the participants know about them, while 93.1% of them know the work hazards and 50.3% have no enough knowledge (Jouda, 2006).

In Iran it was stated that 16.3% 0f the laboratory hospital workers in a high level of knowledge about ergonomics while 83.7% of them in a low level. Regarding musculoskeletal complain result, was the worse working conditions, the more lost working days and musculoskeletal complains (Alireza , 2002).

3.9   Summary of literature:

Several literatures have specifically studied the work related physical risk factors for the development of neck pain, incidence studies showed that 34.4% annual incident of neck pain among office employees working with VDUs. While the one year prevalence of neck pain among the full time academic staff of Hong Kong university was 46.7%, a significant association was found between gender and neck pain. Literatures prove that static loading and repetitive movements on the neck muscles are important risk factors for the development of neck pain also a positive co-relation between neck pain and neck flexion, but no clear relation was found between neck rotation and neck pain. A plausible mechanism for strong relation between prolonged sitting and neck pain as working in sitting position will lead to continuous static load on the neck muscles. Physical fitness and endurance are encouraged for the prevention of neck pain.

Chapter Four

Methodology

Chapter four

Methodology

This chapter deals with the steps of implementation according to research plan such as study design ,sampling, instrument used in the study, collected data, data entry, and analysis and statistical materials.

4.1   Study plan:

The first phase of the research thesis proposal included identifying and defining the problems and establishment objectives of the study and development research plan.

The second phase of the research included a summary of the comprehensive literature review regarding neck pain .

The third phase of the research included a field survey which was conducted with the administrative and academic staff in the Islamic University of Gaza who suffers from neck pain.

The forth phase of the research focused on the modification of the questionnaire design, through the panels of experts having experience in the same field of the research to have their remarks on the questionnaire to test and prove that the questionnaire questions are clear to be answered in a way that help to achieve the target of the study. In addition, it was important to ensure that all information received from employees of the university would be useful in achieving the research objective.

The fifth phase of the research focused on distributing questionnaire. This questionnaire was used to collect the required data in order to achieve the research objective. About 102 questionnaires were distributed.

The sixth phase of the research was data analysis and discussion. Statistical Package for the Social Sciences, (SPSS) was used to perform the required analysis.

The final phase includes the conclusions and recommendations.

Figure 3.1 shows the methodology flowchart, which leads to achieve the research objective.
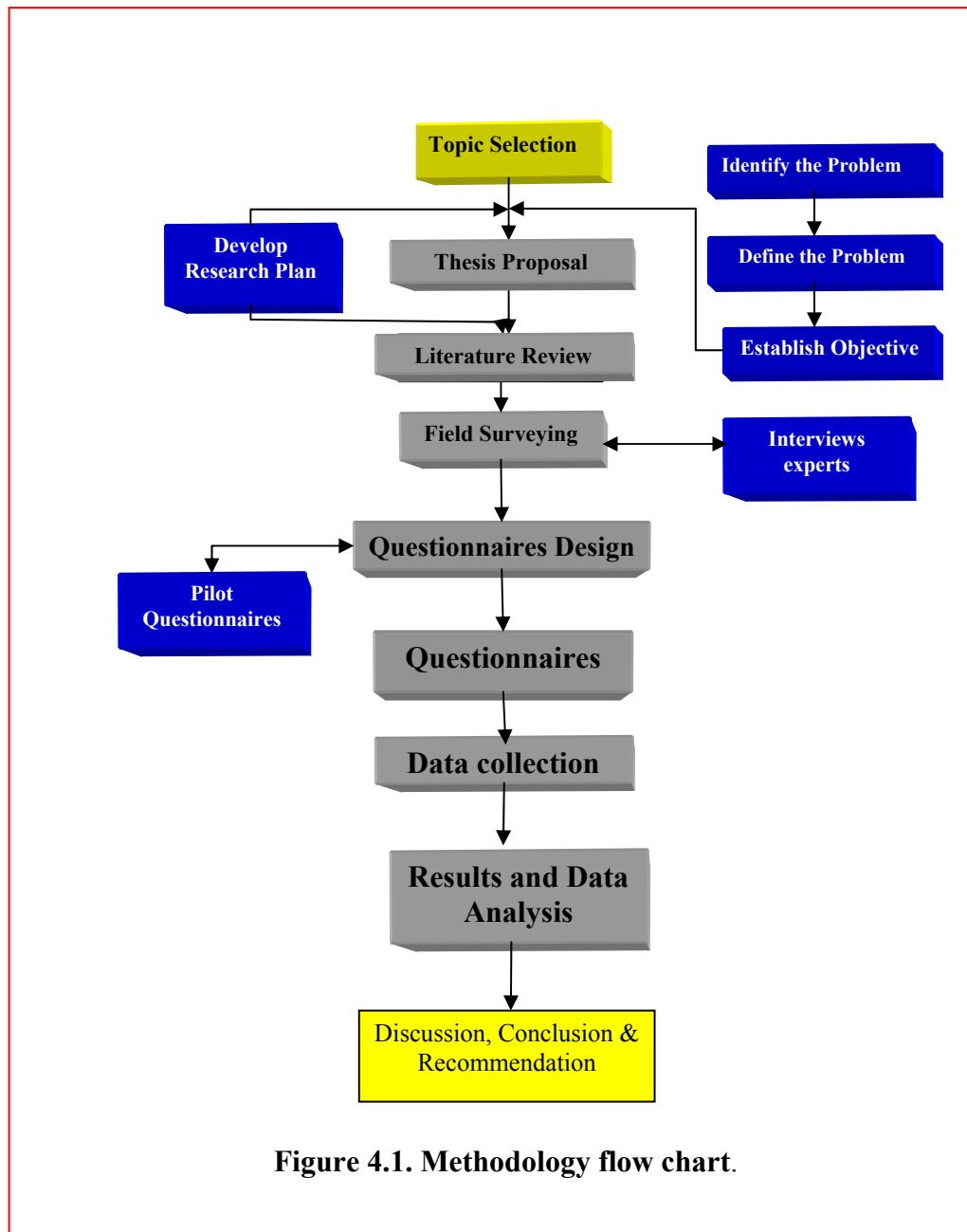
Figure 4.1. Methodology flow chart.

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4.2   Study design:

Descriptive analytical cross sectional study design was carried out to investigate work related factors which lead to development of neck pain among administrative and academic employees of the Islamic University of Gaza.

This design has been selected because it is simple, time saving, less expensive, and useful for descriptive and evaluative purposes in addition to assess the cause and effect at the same point of time (Burn and Grove, 1997; Pilot and Hungler, 1999).

This design also gives some insights into the possible association among variables (Coggon, 1993).

4.3   Operational definitions:

Neck pain: Pain and tenderness around the neck and/or both shoulders which will be assessed by word scale (mild, moderate, severe, and intolerable pain)

Work related factors: physical work environment and poor neck posture, wrong placement of the computer screen and keyboard, prolonged sitting.

4.4   Ethical consideration and procedures:

- Approval from the Islamic University was obtained to collect data.
- A consent form was obtained from Participants before filling the questionnaire (annex no. 6).
- Privacy and confidentiality was strictly maintained.

4.5   Study setting:

The study was conducted in all administrative and academic offices of the Islamic University.

4.6   Study population:

All administrative and academic staff of the Islamic University of Gaza who reported pain who are working for at least one year in the same job.

The total number of the administrative and academia employees is 772 persons (442 administrative and 330 academic). Only 120 of them are eligible for this study.

4.7 Eligibility criteria:

Inclusion criteria:

- All males and females ages between 25 to 60 years old administrative and academic staff of the Islamic University of Gaza who reported neck pain.
- At least one year of work experience in the current position was the only criterion for eligibility to the study.

Exclusion criteria:

Males and females ages between 25 to 60 years old who have:

- Spinal deformities or diseases (eg, arthritis)
- History of spinal surgery
- head or neck trauma

4.8 Sampling:

Survey of all offices of the Islamic University was conducted to find out all employees who suffering from neck pain as a convenient sample.

4.9 Sample size:

This research targets 102 participants of the Islamic University's employees who reported neck pain.

4.10 Instrument:

According to the review of literature and after interviewing experts who were dealing with the subject at different levels, all the information that could help in achieving the study objectives were collected, reviewed and formalized to be suitable for the study survey. After many stages of brain storming, consulting, amending, and reviewing executed by the researcher with the supervisor; way of responding, the aim of the research and the security of the information in order; **face to face structured questionnaire** was developed with closed and open-ended questions. Questionnaire was designed in Arabic language (Annex 7), as most members of the target population were unfamiliar with the English language and to be more understandable. An English version was attached in (Annex 8). The questionnaire was provided with a covering letter which explained the purpose of the study, to encourage high response.

The questionnaire involved information on individual characteristics and work history included questions on age, gender, level of education, duration of employment. Questions on physical work load, and working postures in which the neck is bent or twisted, prolonged sitting during a regular work day. Also questions to evaluate knowledge and practices of participants.

During building of the questionnaire leading questions have been avoided, the questionnaire has been modified to be more simple and short.

The questionnaire composed of five sections designed to accomplish the aim of the research, as follows:

1. The first section contained socio-demographic information

2. The second section contained the medical history.

3. The third section contained the information about the suffering from neck pain

4. The fourth section contained the information about the working nature and working environment:

5. The fifth section contained the awareness, knowledge, practices, opinions and directions.

4.11 Validity of the questionnaire:

Validity refers to the degree to which an instrument measures what it is supposed to be measuring (Pilot and Hungler, 1999). Validity has a number of different aspects and assessment approaches. There are two ways to evaluate instrument validity: content validity and statistical validity, which include criterion-related validity and construct validity.

4.12 Content validity of the questionnaire:

The instrument was submitted to a panel of expert to be judged for face and content validity.

Content validity test was conducted by consulting two groups of experts. The first was requested to evaluate and identify whether the questions agreed with the scope of the items and the extent to which these items reflect the concept of the research problem. The other was requested to evaluate that the instrument used is valid

statistically and that the questionnaire was designed well enough to provide relations and tests between variables. The two groups of experts did agree that the questionnaire was valid and suitable enough to measure the concept of interest with some amendments.

The objectives of the study and the questionnaire were handed to eight local experts from different backgrounds including researchers, public health practitioners, satiations and orthopedic doctors, in two groups as it was mentioned above.

The researcher adopted the content validity index (CVI) developed by Waltz and Bausell, 1981 as a tool to determine the validity of the items included in the questionnaire (annexes no. 9).

Experts rated the content of each item using a four point rating scale. The following scale was adopted: 1= very relevant and don't need any modification; 2= relevant but needs minor modifications; 3= not relevant unless major changes are introduced; 4= not relevant item and should be omitted.

4.13   Pilot study:

Prior to the main study the elaborated questionnaire was tested for comprehensibility, relevance, applicability, clearness and length among twenty participants in a preliminary survey who were chosen randomly.

The final correction of research instrument was made to make the questions more clear. These questionnaires were excluded from the main study data analysis.

4.14   Data collection:

The researcher and one well trained assistant collected the data by interviewing each participant and filling the questionnaire. Each participant should suffer from neck pain at least once and eligible to be included in the study.

All collected questionnaires were reviewed daily by the researcher to ensure that there is no missing data.

Data collection was carried out the period from 15/10/2007 to 15/11/2007.

4.15   Response rate:

The response rate was 100% because the interviewed employees was selected with convenient sample; all employees suffering from neck pain or had suffered from neck pain were asked to participate where positively response for study participation. Face to face interview was carried out for data collection.

4.16   Data entry and analysis:

The questionnaire collected data (102 questionnaires) was entered and analyzed using the Statistical Package for the Social Sciences (SPSS).

The following statistical tests were used:

1. descriptive statistics
2. Chi-Square test χ^2 to test if there is a significant agreement in ranking among different perceptions.

Chapter Five

Results

Chapter Five

Results

This chapter describes the results that have been obtained from 102 employees from Islamic University who have neck pain.

5.1 Socio demographic characteristics:

5.1.1 Age:

Figure 5.1 shows that 29.45% of the participants ages are less than 30 years old, 26.5% are between 30-40 years old, and 44.1% are more than 40 years old.

5.1.2 Gender:

Table 5.1 shows that 69.6% of the participants are males and 30.4% are females.

5.1.3 Marital status:

Table 5.1 shows that 17.6% of the participants are single, 78.4% are married, 2.0% are divorced, and 2.0% are widow.

5.1.4 Resident place:

Table 5.1 shows that 22.5 % of the participants live inside camp, and 77.5% live outside camp.

5.1.5 Governorate:

Table 5.1 shows that 2.9% of the participants are from Raffah governorate, 7.8% are from Khanyounis governorate, 16.7% are from Middle zoon governorate, 58.8% are from Gaza governorate and 13.7% are from Northern Gaza governorate.

5.1.6 Educational level:

Table 5.1 shows that 2.9% of the participants have secondary school education, 25.5% have diploma, 28.4% have bachelor degree, 18.6% have a master degree, and 24.9% have PhD degree.

Table 5.1   Socio demographic characteristics

Variable	Category	Frequency	Percent
Age	Less than 30 years	30	29.4
	30-40 years	27	26.5
	More than 40 years	45	44.1
	Total	102	100.0
Gender	Male	71	69.6
	Female	31	30.4
	Total	102	100.0
Marital status	Single	18	17.6
	Married	80	78.4
	Divorced	2	2.0
	Widow	2	2.0
	Total	102	100.0
Resident place	inside a camp	23	22.5
	outside a camp	79	77.5
	Total	102	100.0
Governorate	Raffah	3	2.9
	Khanyounis	8	7.8
	Middle zoon	17	16.7
	Gaza	60	58.8
	northern Gaza	14	13.7
	Total	102	100.0
Educational level	secondary school education	3	2.9
	Diploma	26	25.5
	bachelor degree	29	28.4
	Master	19	18.6
	PhD	25	24.5
	Total	102	100.0

5.2   Job characteristics:

5.2.1   Type of job:

Table 5.2 shows that 29.4% of the participants are academic, 58.8% are administrative and 11.8% are both academic and administrative.

5.2.2   Number of years in the same job:

Table 5.2 shows that 27.55% of the participants are less than 5 years in the same job, 36.3% range from 5-10 years in the same job and 36.3% are greater than 10 years in the same job.

5.2.3 over time hours in the university:

Table 5.2 shows that 7.8% of the participants always work an over time hours in the university, 28.4% some times work an over time hours in the university, and 63.7% do not work an over time hours in the university.

5.2.4 Additional job:

Table 5.2 shows that 38.2% of the participants have an additional work beside their job in the university, and 61.8% have not an additional work beside their job in the university.

5.2.5 Nature of the additional job:

Table 5.2 shows that 33.3% of the participants the nature of the additional job is office work, 38.5% the nature of the additional job is vocational work and 28.2% the nature of the additional job is both.

Table 5.2   Job characteristics

Variable	Category	Frequency	Percent
Type of job	Academic	30	29.4
	Administrative	60	58.8
	Academic and administrative	12	11.8
	Total	102	100.0
No. of years in the same job	Less than 5 years	28	27.5
	5-10 years	37	36.3
	More than 10 years	37	36.3
	Total	102	100.0
Over time	Always	8	7.8
	Some time	29	28.4
	No	65	63.7
	Total	102	100.0
Additional job	Yes	39	38.2
	No	63	61.8
	Total	102	100.0
The nature of this job is	Office work	13	33.3
	Vocational work	15	38.5
	Both	11	28.2
	Total	39	100.0

5.3   Medical history:

5.3.1   Coronary arteries insufficiency:

Table 5.3 shows that 1.0% of the participants suffered from Coronary arteries insufficiency and 99.0% do not suffer from Coronary arteries insufficiency.

5.3.2   High blood pressure:

Table 5.3 shows that 9.8% of the participants suffer from high blood pressure and 90.2% do not suffer from high blood pressure.

5.3.3   Liver disease:

Table 5.3 shows that 2.0% of the participants have suffered from Liver disease and 98.0% have never suffered from Liver disease.

5.3.4   Other chronic disease:

Table 5.3 shows that 15.7% of the participants have suffered from other chronic disease and 84.3% have never suffered from any other chronic disease

5.3.5   Specifications:

Table 5.3 shows that 37.5% of the participants have a Diabetes Mellitus, 37.5% have Irritable bowel syndrome, 18.8% have Asthma and 6.3% have Peptic ulcer.

Table 5.3   Medical history

Variable	Category	Frequency	Percent
Suffering from Coronary Arteries insufficiency	Yes	1	1.0
	No	101	99.0
	Total	102	100.0
Suffering From high blood pressure	Yes	10	9.8
	No	92	90.2
	Total	102	100.0
Suffering From Liver disease	Yes	2	2.0
	No	100	98.0
	Total	102	100.0
Suffering from any other chronic disease	Yes	16	15.7
	No	86	84.3
	Total	102	100.0
Chronic disease	Diabetes mellitus	6	37.5
	Irritable bowel syn.	6	37.5
	Asthma	3	18.8
	Peptic ulcer	1	6.3
	Total	16	100.0

5.4 Neck pain characteristics, status and complaints:

5.4.1 Suffering from neck pain:

Table 5.4 shows that 34.3% of the participants suffered from neck pain and 65.7% some times suffered from neck pain

The participant who answers yes means that he have pain at the moment of filling of the questionnaire, and the others who answer some times means that he suffered from neck pain at least once during his work in the university.

5.4.2 Suffering from shoulders pain:

Table 5.4 shows that 34.2% of the participants suffered from shoulders pain, 57.8% suffered from shoulders pain some times and 7.8% did not suffer from shoulders pain.

5.4.3 Type of pain:

Table 5.4 shows that 3.9% of the participants reported that the type of pain was tingling, 13.7% the type of pain was numbness, 4.9% the type of pain was burning, 69.6% the type of pain was muscle spasm and 7.8% the type of pain was others.

5.4.4 Nature of pain:

Table 5.4 shows that 11.8% of the participants the nature of pain was continuous, and 88.2% the nature of pain was interrupted.

The result of this question reflect the exposure to the neck pain among the employees which seems to be not so sever; this will be clear in the severity in the next question

5.4.5 Severity of pain:

Table 5.4 shows that 26.5% of the participants reported that the severity of pain was mild, 58.8% the severity of pain was moderate, 12.7% the severity of pain was sever and 2.0% the severity of pain was intolerable.

More than half of the studied individuals suffered from moderate pain that was tolerable and only 15% of them suffered from sever and intolerable pain.

5.4.6   Direction of pain:

Table 5.4 show that 13.7% from the participants the direction of pain was to the right shoulder, 17.6% was to the left shoulder, 4.9% was extended to right hand, 9.8% was extended to Left hand, 52.9% was around neck and shoulder and 1.0% was extended to head.

5.4.7. Onset of Pain:

Table 5.4 shows that 36.3% from the participants agreed that pain starts suddenly, and 63.7% agreed that pain starts gradually.

5.4.8   Duration of pain:

Table 5.4 shows that 24.5% of the participants the duration of pain was less than one day, 12.7% was one day, 25.2% was two days, 33.3% was un specific, and 3.9% was always.

5.4.9   Pain increases:

Table 5.4 shows that 20.6% of the participants have pain increased when getting up from sleep, 67.6% have pain increased during day and work, and 11.8% have pain increased during night and wake him up from sleep.

The result of this question point out to the relationship between the work and neck pain as the result shows that 67.6 % of the participants have the pain increased in the day during work.

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Table 5.4   Neck pain characteristics, status and complaints

Variable	Category	Frequency	Percent
Neck pain	Yes	35	34.3
	Some times	67	65.7
	No	0	0.0
	Total	102	100.0
Shoulders pain	Yes	35	34.2
	Some times	59	57.8
	No	8	7.8
	Total	102	100.0
Type of pain	Tingling	4	3.9
	Numbness	14	13.7
	Burning	5	4.9
	Muscle spasm	71	69.6
	Others	8	7.8
	Total	102	100.0
Nature of pain	Continuous	12	11.8
	Interrupted	90	88.2
	Total	102	100.0
Severity of pain is	Mild	27	26.5
	Moderate	60	58.8
	Sever	13	12.7
	Intolerable	2	2.0
	Total	102	100.0
Direction of pain	Right shoulder	14	13.7
	Left shoulder	18	17.6
	Extend to right hand	5	4.9
	Extend to Left hand	10	9.8
	Around neck and shoulder	54	52.9
	Extend to head	1	1.0
	Total	102	100.0
Onset of Pain	Suddenly	37	36.3
	Gradually	65	63.7
	Total	102	100.0
Duration of pain	Less than one day	25	24.5
	One day	13	12.7
	Two days and more	26	25.5
	Un specific	34	33.3
	Always	4	3.9
	Total	102	100.0
Pain increases	When getting up from sleep	21	20.6
	In the day and during work	69	67.6
	During night and wake you up from sleep	12	11.8
	Total	102	100.0

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5.5   Factors associated with pain:

5.5.1   Stress:

Table 5.5 shows that 24.5% of the participants agreed that the stress starts pain, 26.5% agreed that the stress increases pain, and 49.0% agreed that there is no relation.

5.5.2   The relationship between work and neck pain:

Table 5.5 show that 50.0% of the participants agreed that there is a relationship between their work and pain on their neck that is start pain, 31.4% agreed that there is a relationship between their work and pain on their neck that is increase pain and 18.6% agreed that there is no a relationship between their work and pain on their neck.

The result of this question reflects the relationship between work in the university and neck pain from the employees' point of view as there was more than 80% of the participants agreed that there is a relationship between their work in the university and the starting and increasing of neck pain.

5.5.3   Sick leave because of neck pain:

Table 5.5 shows that 6.9% of the participants were obliged to take sick leave because of neck pain in this semester, and 93.1% were not obliged to take sick leave because of neck pain in this semester

5.5.4   Period of sick leave:

Table 5.5 shows that 57.1% of the participants take a sick leave less than 3 days and 42.9% take a sick leave 3 days or more.

The aim of this question and the previous one was to know the coast of neck pain among the employees of the Islamic University; the result fortunately neck pain doesn't coast the university much days absence as only 6.9 % of the sample were obliged to have sick leave 57% of them for less than three days.

5.5.5   Daily living:

Table 5.5 shows that 15.7% of the participants agreed that neck pain prevents them from their daily living duties, 50.0% agreed that neck pain prevents them from their daily living duties sometimes and 34.3% agreed that neck pain do not prevent them from their daily living duties

That means neck pain doesn't affect daily live activity as the person can live with his pain and adapt himself with pain. On the other hand the nature of the Palestinian people can adapt with more and more difficult situation.

5.5.6 Source of consultation:

Table 5.5 shows that 36.3% of the participants had a consultation from a doctor, 3.9% had consultation from a pharmacist, 1.0% had a consultation from a nurse, 7.8% had a consultation from a physiotherapist and 51.0% did not have a consultation from any Pearson.

As the studied persons were educated the result showed that no body have any consultation from public therapist.

5.5.7 Management of pain:

Table 5.5 shows that 45.1% of the participants had treatment for their neck pain, and 54.9% had not any treatment for their neck pain

5.5.8 Type of management was:

Table 5.5 shows that 54.3% of the participants agreed that the type of the treatment was medication, 41.3% agreed that the type of the treatment was physiotherapy, 2.23% agreed that the type of the treatment was surgery, and 2.2% agreed that the type of the treatment was others.

5.5.9 The result of the treatment:

Table 5.5 shows that 26.1% of the participants agreed that the result of the treatment was pain completely fade, 45.7% agreed that the result of the treatment was pain had decreased, 4.3% agreed that the result of the treatment was pain had increased, and 23.9% agreed that the result of the treatment was no change had happened.

Table 5.5   Factors associated with pain

Variable	Category	Frequency	Percent
Stress	Starts pain	25	24.5
	Increases pain	27	26.5
	No relation	50	49.0
	Total	102	100.0
The relationship between work and neck pain	Yes, it presents pain	51	50.0
	Yes, it increases pain	32	31.4
	No relation	19	18.6
	Total	102	100.0
Sick leave because of neck pain	Yes	7	6.9
	No	95	93.1
	Total	102	100.0
Period of sick leave	Less than 3 days	4	57.1
	3 days or more	3	42.9
	Total	7	100.0
Neck pain and daily living duties	Yes	16	15.7
	Sometimes	51	50.0
	No	35	34.3
	Total	102	100.0
Consultation	Doctor	37	36.3
	Pharmacist	4	3.9
	Nurse	1	1.0
	Public therapist	0	0.0
	Physiotherapist	8	7.8
	No body	52	51.0
	Total	102	100.0
Management for neck pain	Yes	46	45.1
	No	56	54.9
	Total	102	100.0
Treatment	Medication	25	54.3
	Physiotherapy	19	41.3
	Surgery	1	2.2
	Others	1	2.2
	Total	46	100.0
Result of the treatment	Pain completely fade	12	26.1
	Pain decreased	21	45.7
	Pain increased	2	4.3
	No changed happened	11	23.9
	Total	46	100.0

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5.6 Working nature:

5.6.1 Working in sitting position:

Table 5.6 shows that 57.8% of the participants spend most of their time sitting on a desk, 22.5% spend most of their time sitting on a desk sometimes, and 19.6% don't spend most of their time sitting on a desk.

5.6.2 Time for rest within work time:

Table 5.6 shows that 30.4% of the participants have time for rest within their work time, and 69.6% don't have time for rest within their work time.

Comparing the result of this question with the result of question number seven about the type of job it was found that approximately the employees who are working academic job are those who answered yes as in the academic job the employee can have some time free between lectures but in the administrative the free time is not available. This question is asked to determine if the university giving them special time for rest as tea time for example.

5.6.3 Period of rest:

Table 5.6 shows that 29.6% of the participants have changeable rest within their work time, 33.3% have 10 minutes rest within their work time, 22.2% have un limited rest time within their work time, and 14.8% have two hours rest within their work time

5.6.4 Working nature:

Table 5.6 shows that 2.9% of the participants the nature of the work was clerk, 5.9% the nature of the work is computer, 50.0% the nature of the work is clerk and computer, 14.7% the nature of the work is computer and lecture, and 2.9% the nature of the work is laboratory.

Only less than 6 % of the participants doesn't use the computer during their work, while 94% use the computer during their work.

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Table 5.6   Working nature

Variable	Category	Frequency	Percent
Working in sitting position	Yes	59	57.8
	Sometimes	23	22.5
	No	20	19.6
	Total	102	100.0
Time for rest within work time	Yes	27	26.5
	No	75	73.5
	Total	102	100.0
Period of rest	Changeable	8	29.6
	10 minutes	9	33.3
	Un limited	6	22.2
	Two hours	4	14.8
	Total	27	100.0
Working nature	Clerk	3	2.9
	Computer	6	5.9
	Clerk & computer	51	50.0
	Lecture	15	14.7
	Computer & lecture	24	23.5
	Laboratory	3	2.9
	Total	102	100.0

5.7   Working environment:

5.7.1   Ventilation:

Table 5.7 shows that 77.5% of the participants have good ventilation on their offices, and 22.5% don't have good ventilation on their offices.

5.7.2   Lighting on offices:

Table 5.7 shows that 92.2% of the participants have enough lighting on their offices, and 7.8% don't have enough lighting on their offices.

5.7.3   Type of Chair:

Table 5.7 shows that 85.3% of the participants sit on low back chair, 12.7% sit on a high back chair, and 2.0% sit on a plastic chair.

The researcher notices that there is standard type of chairs approximately all the employees use in the university these chairs considered the best from the point of view of the in charge persons; the low back chair is the one the employee will have if he complains of his chair.

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5.7.4 Time spent daily in front of computer:

Table 5.7 shows that 37.3% of the participants spend less than 4 hours daily in front of their computer, 57.8% spend 4 to 8 hours daily in front of their computer, and 4.9% spend more than 8 hours daily in front of their computer.

5.7.5 Computer position:

Table 5.7 shows that 82.4% of the participants their computers are on a special desk, and 17.6% their computers are not on a special desk.

5.7.6 Key board position:

Table 5.7 shows that 75.5% of the participants their key boards are comfortable and useful for their hands, 12.7% their key boards are high, so they have to rise their hands, and 11.8% their key boards are low, so they have to down their hands.

5.7.7 Computer screen position:

Table 5.7 shows that 75.5% of the participants agreed that their computers' screen are on their sight, 12.7% agreed that their computers' screen need to rotate their heads to the right, 6.9% agreed that their computers' screen need to rotate their heads to the left, 2.9% agreed that their computers' screen need to down their heads, and 2.0% agreed that their computers' screen need to raise their heads.

Table 5.7   Working environment

Variable	Category	Frequency	Percent
Ventilation on office	Yes	79	77.5
	No	23	22.5
	Total	102	100.0
Lighting on office	Yes	94	92.2
	No	8	7.8
	Total	102	100.0
Type of chair	Have a low back	87	85.3
	Have a high back	13	12.7
	With neck rest	0	0.0
	A plastic chair	2	2.0
	Total	102	100.0
Time spent daily in front of computer	Less than 4 hours	38	37.3
	4-8 hours	59	57.8
	More than 8 hours	5	4.9
	Total	102	100.0
Computer put on special desk	Yes	84	82.4
	No	18	17.6
	Total	102	100.0
Key board position	Comfortable for your hand.	77	75.5
	High, you have to rise your hands	13	12.7
	Low, you have to down your hand.	12	11.8
	Total	102	100.0
Computer screen position	On your sight	77	75.5
	You have to rotate your head right	13	12.7
	You have to rotate your head left	7	6.9
	You have to down your head	3	2.9
	You have to raise your head	2	2.0
	Total	102	100.0

5.8   Knowledge and practices:

5.8.1   Information about correct sitting on disk:

Table 5.8 shows that 69.6% of the participants had enough information about how to sit correctly on their desks, and 30.4% had not enough information about how to sit correctly on their desks

5.8.2   Application of correct practices like correct sitting on chair:

Table 5.8 shows that 27.5% of the participants apply correct practices like right way to sit on chair, 53.9% some times apply correct practices like right way to sit on chair, and 18.6% do not apply correct practices like right way to sit on chair.

5.8.3   Application of correct practices like variation of work tasks:

Table 5.8 shows that 40.2% of the participants apply correct practices like variation of work tasks, 43.1% sometimes apply correct practices like variation of work tasks, and 16.7% do not apply correct practices like variation of work tasks.

5.8.4   Application of correct practices like taking rest period within work time:

Table 5.8 shows that 21.6% of the participants apply correct practices like taking rest period within work time, 44.1% apply correct practices like taking rest period within work time some times, and 34.3% don't apply correct practices like taking rest period within work time.

5.8.5   Application of correct practices like practice some exercise to relax body muscles:

Table 5.8 shows that 18.6% of the participants apply correct practices like practice some exercise to relax body muscles, 43.1% sometimes apply correct practices like practice some exercise to relax body muscles, and 38.2% don't not apply correct practices like practice some exercise to relax body muscles.

5.8.6   Courses about how to maintain body safe during work:

Table 5.8 shows that 5.9% of the participants have course about how to maintain body safe during their work, and 94.1% don't have any course about how to maintain body safe during their work.

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5.8.7 Importance of these courses:

Table 5.8 shows that 88.2% of the participants agreed that these courses are important, but 11.8% agreed that these courses are not important.

5.8.8 Sports practice:

Table 5.8 shows that 19.6% of the participants practice sports, but 80.4% don't practice any kind of sports.

5.8.9 Type of sport:

Table 5.8 shows that 55.0% of the participants practice walking sport, 40.0% practice Gymnastic, and 5.0% practice Swedish

5.8.10 Bellow:

Table 5.8 shows that 21.6% of the participants use a thin bellow, 64.7% use a moderate bellow, and 13.7% use a high bellow.

Table 5.8   Knowledge and practices

Variable	Category	Frequency	Percent
Information about correct sitting on disk	Yes	71	69.6
	No	31	30.4
	Total	102	100.0
Correct sitting on chair	Yes	28	27.5
	Some time	55	53.9
	No	19	18.6
	Total	102	100.0
Variation Of work tasks	Yes	41	40.2
	Some time	44	43.1
	No	17	16.7
	Total	102	100.0
Taking rest period within work time	Yes	22	21.6
	Sometime	45	44.1
	No	35	34.3
	Total	102	100.0
Practice some exercise to relax body muscles	Yes	19	18.6
	Sometime	44	43.1
	No	39	38.2
	Total	102	100.0
Course about how to maintain body safe during work	Yes	6	5.9
	No	96	94.1
	Total	102	100.0
Importance of these courses	Yes	90	88.2
	No	12	11.8
	Total	102	100.0
Sports practice	Yes	20	19.6
	No	82	80.4
	Total	102	100.0
Type of sport	Walking	11	55.0
	Gymnastic	8	40.0
	Swedish	1	5.0
	Total	20	100.0
Bellow	Thin	22	21.6
	Moderate	66	64.7
	High	14	13.7
	Without	0	0.0
	Total	102	100.0

5.9 Attitude and complains:

5.9.1 Complain about uncomfortable furniture in work:

Table 5.9 shows that 31.4% of the participants complained to their bosses about uncomfortable furniture in their workplace, but 68.6% from the sample did not complain to their bosses about uncomfortable furniture in their workplace.

5.9.2 Type of complaint:

Table 5.9 shows that 15.6% of the participants agreed that the uncomfortable furniture in their work was computer functionless, 59.4% agreed that the uncomfortable furniture in their work was change chair to comfortable one, 9.4% agreed that the uncomfortable furniture in their work was modifying computer screen, 9.4% agreed that the uncomfortable furniture in their work was modifying desk, and 6.3% agreed that the uncomfortable furniture in their work was the ventilation.

5.9.3 Procedure taken:

Table 5.9 shows that 37.5% of the participants agreed that there was a procedure taken about their complaint, but 62.5% agreed that there wasn't any procedure taken about their complaint.

5.9.4 Opinion about furniture in office:

Table 5.9 shows that 63.3% of the participants agreed that the furniture in their offices are suitable, but 36.7% agreed that the furniture in their offices are not suitable.

5.9.5 Opinion about desks:

Table 5.9 shows that 15.7% of the participants agreed that furniture in their offices are acceptable, 43.1% agreed that their desks are good, 22.5% agreed that their desks are very good, 5.9% agreed that their desks are excellent, and 12.7% from the sample agreed that their desks are bad.

5.9.6 Opinion about computer's position:

Table 5.9 shows that 17.6% of the participants their computer's position is acceptable, 44.1% their computer's position is good, 24.5% their computer's position is very good, 6.9% their computer's position is excellent, and 6.9% their computer's position is bad.

Table 5.9   Attitude and complaints

Variable	Category	Frequency	Percent
Complain to their boss about uncomfortable furniture in work	Yes	32	31.4
	No	70	68.6
	Total	102	100.0
Complaint	Computer functionless	5	15.6
	Change chair	19	59.4
	Computer screen	3	9.4
	Modify disk	3	9.4
	Ventilation	2	6.3
	Total	32	100.0
Procedure taken	Yes	12	37.5
	No	20	62.5
	Total	32	100.0
	Yes	12	37.5
Opinion about furniture in office	Yes	68	66.7
	No	34	33.3
	Total	102	100.0
Opinion about desks	Acceptable	16	15.7
	Good	44	43.1
	Very good	23	22.5
	Excellent	6	5.9
	Bad	13	12.7
	Total	102	100.0
Opinion about computers	Acceptable	18	17.6
	Good	45	44.1
	Very good	25	24.5
	Excellent	7	6.9
	Bad	7	6.9
	Total	102	100.0

5.10   Different association between variables:

5.10.1   socio-demographic characteristic and neck pain:

There is a relationship between neck pain and age at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square(χ^2 test) and the results of cross tabulation between age and neck pain, shoulder pain and severity of pain are shown in table 5.10 which illustrated that there is no relation between age and each of (neck pain, shoulders pain, severity of pain) since p-value was greater than 0.05.

Table 5.10   Cross tabulation between age and neck pain, shoulder pain and severity of pain

Neck pain							
	Categories	**Yes**		**Sometimes**		**Total**	
		N0.	%	N0.	%	N0.	%
Age	Less than 30 years	9	8.8	21	20.6	30	29.4
	30-40 years	6	5.9	21	20.6	27	26.5
	More than 40 years	20	19.6	25	24.5	45	44.1
	Total	35	34.3	67	65.7	102	100
Chi-square test= 4.0481				**p-value = 0.132**			

Shoulder pain									
	Categories	**Yes**		**Sometimes**		**No**		**Total**	
		N0.	%	N0.	%	N0.	%	N0.	%
Age	Less than 30 years	8	7.8	19	18.6	3	2.9	30	29.4
	30-40 years	7	6.9	17	16.7	3	2.9	27	26.5
	More than 40 years	20	19	23	22.5	2	2.0	45	44.1
	Total	35	34.3	59	57.8	8	7.8	102	100
Chi-square test=4.250				**p-value = 0.373**					

Severity of pain										
	Categories	**Mild**		**Moderate**		**Sever**		**Intolerable**		**Total**
		N0.	%	N0.	%	N0.	%	N0.	%	N0.	%
Age	Less than 30 years	9	8.8	17	16.7	4	3.9	0	0	30	29.4
	30-40 years	7	6.9	15	14.7	3	2.9	2	2.0	27	26.5
	More than 40 years	11	10.8	28	27.5	6	5.9	0	0	45	44.1
	Total	27	26.5	60	58.8	13	12.7	2	2.0	102	100
Chi-square test= 6.008					**P-value = 0.422**					

There is a relation between neck pain and gender at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.11 which illustrated that there is statistical relation between gender and presence of neck pain and shoulders pain since the p-value was 0.004, 0.006, but there is no statistical relation between gender and each of (type of pain, severity of pain, direction of pain, duration of pain) since the p-value was greater than 0.05.

There is a relation between neck pain and resident place at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.11 which illustrated that there is no relation between resident place and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value was greater than 0.05.

Table 5.11 The relationship between socio-demographic characteristic and neck pain.

	Analysis	Neck pain	Shoulders pain	Type of pain	Severity of pain	Direction of pain	Duration of pain
Gender	Pearson Chi-Square(χ^2)	8.32	10.19	2.83	2.37	1.91	3.52
	Df	1	2	4	3	5	4
	p-value	0.004	0.006	0.586	0.499	0.861	0.474
	Decisions	accept	accept	reject	reject	reject	reject
Resident place	Pearson Chi-Square(χ^2)	0.892	0.205	2.53	1.04	4.15	4.94
	Df	1	2	4	3	5	4
	p-value	0.345	0.903	0.632	0.791	0.527	0.293
	Decisions	reject	reject	reject	reject	reject	reject

5.10.2 Job characteristics and neck pain:

There is a relation between neck pain and type of job at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results of the cross tabulation between type of job and neck pain,

shoulder pain and severity of pain are shown in table 5.12 which illustrated that there is no relation between type of job and each of (neck pain, shoulders pain, severity of pain) since p-value was greater than 0.05.

Table 5.12   Cross tabulation between type of job and neck pain, shoulder pain and severity of pain

Neck pain							
	Categories	**Yes**		**Sometimes**		**Total**	
		N0.	**%**	**N0.**	**%**	**N0.**	**%**
Type of job	Academic	10	9.8	20	19.6	30	29.4
	Administrative	21	20.6	39	38.2	60	58.8
	Both	4	3.9	8	7.8	12	11.8
	Total	35	34.3	67	65.7	102	100.0
Chi-square test=0.030				**p-value = 0.985**			

Shoulder pain									
	Categories	**Yes**		**Sometimes**		**No**		**Total**	
		N0.	**%**	**N0.**	**%**	**N0.**	**%**	**N0.**	**%**
Type of job	Academic	8	7.8	21	20.6	1	1.0	30	29.4
	Administrative	22	21.6	32	31.4	6	5.9	60	58.8
	Both	5	4.9	6	5.9	1	1.0	12	11.8
	Total	35	34.3	59	57.8	8	7.8	102	100.0
Chi-square test= 3.040					**p-value = 0.551**				

Severity of pain										
	Categories	**Mild**		**Moderate**		**Sever**		**Intolerable**		**Total**
		N0.	**%**	**N0.**	**%**	**N0.**	**%**	**N0.**	**%**	**N0.**	**%**
Type of job	Academic	11	10.8	16	15.7	2	2.0	1	1.0	30	29.4
	Administrative	12	11.8	37	36.3	10	9.8	1	1.0	60	58.8
	Both	4	3.9	7	6.9	1	1.0	0	0	12	11.8
	Total	27	26.5	60	58.8	13	12.7	2	2.0	102	100
Chi-square test=4.904					**p-value = 0.556**					

There is a relation between neck pain and number of years in the same job at significant level 0.05

To test the above hypothesis the researcher used Pearson Chi-Square (χ^2 test) and the results are shown in table 5.13 which illustrated that there is no statistical relation between no. of years in the same job and each of (neck pain, shoulders pain,

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type of pain, severity of pain, direction of pain, duration of pain) since p-value was greater than 0.05

Table 5.13   The relationship between no. of years in the same job and neck pain

	Analysis	Neck pain	Shoulders pain	Type of pain	Severity of pain	Direction of pain	Duration of pain
No. of years in the same job	Pearson Chi-Square(χ^2)	0.532	5.35	8.63	2.62	7.46	12.22
	Df	2	4	8	2	6	8
	p-value	0.07	0.253	0.374	0.269	0.280	0.141
	Decisions	reject	reject	reject	reject	reject	reject

5.10.3   Medical history and neck pain:

There is a relationship between neck pain and medical history

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.14 which illustrated that there is no statistical relation between neck pain and medical history (Coronary arteries insufficiency, high blood pressure, Liver disease, any other chronic disease) at significant level 0.05 since p-value was greater than 0.05.

Table 5.14   The relationship between neck pain and medical history

	Analysis	suffered from Coronary arteries insufficiency	suffered from high blood pressure	suffered from Liver disease	suffered from any other chronic disease
Neck pain	Pearson Chi-Square(χ^2)	0.528	1.12	0.223	2.07
	Df	1	1	1	1
	p-value	0.468	0.271	0.637	0.150
	Decisions	reject	reject	reject	reject

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5.10.4   Stress and neck pain:

There is a relation between neck pain and stress at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results of cross tabulation between stress and neck pain, shoulder pain and severity of pain are shown in table 5.15 which illustrated that there is a relation between stress and each of (neck pain, shoulders pain) since p-value was less than 0.05, and there is no statistical relation between stress and severity of pain since p-value was greater than 0.05.

Table 5.15   Cross tabulation between stress and neck pain, shoulder pain and severity of pain

Neck pain							
Stress	Categories	Yes		Sometimes		Total	
		N0.	%	N0.	%	N0.	%
	Start pain	13	12.7	12	11.8	25	24.5
	Increase pain	13	12.7	14	13.7	27	26.5
	No relation	9	8.8	41	40.2	50	49.0
	Total	35	34.3	67	65.7	102	100.0
Chi-square test=11.666				**p-value =0.003**			

Shoulder pain									
Stress	Categories	Yes		Sometimes		No		Total	
		N0.	%	N0.	%	N0.	%	N0.	%
	Start pain	12	11.8	11	10.8	2	2.0	25	24.5
	Increase pain	13	12.7	14	13.7	0	0	27	26.5
	No relation	10	9.8	34	33.3	6	5.9	50	49.0
	Total	35	34.3	59	57.8	8	7.8	102	100.0
Chi-square test= 10.96				**p-value = 0.027**					

Severity of pain										
Stress	Categories	Mild		Moderate		Sever		Intolerable		Total
		N0.	%	N0.	%	N0.	%	N0.	%	N0.	%
	Start pain	3	2.9	19	18.6	2	2.0	1	1.0	25	24.5
	Increase pain	4	3.9	19	18.6	4	3.9	0	0	27	26.5
	No relation	20	19.6	22	21.6	7	6.9	1	1.0	50	49.0
	Total	27	26.5	60	58.8	13	12.7	2	2.0	102	100
Chi-square test=12.209				**p-value = 0.057**						

5.10.5   Working nature, working environment and neck pain:

There is a relation between neck pain and prolonged sitting on a disk at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results of cross tabulation between prolonged sitting and neck pain, shoulder pain and severity of pain are shown in table 5.16 which illustrated that there is no statistical relation between prolonged sitting on a desk and each of (neck pain, shoulders pain, severity of pain) since p-value equal greater than 0.05.

Table 5.16   Cross tabulation between prolonged sitting and neck pain, shoulder pain and severity of pain

Neck pain								
	Categories	Yes		Sometimes			Total	
		N0.	%	N0.	%		N0.	%
Prolonged sitting	Yes	21	20.6	38	37.3		59	57.8
	Sometimes	8	7.8	15	14.7		23	22.5
	No	6	5.9	14	13.7		20	19.6
	Total	35	34.3	67	65.7		102	100
Chi-square test=0.210				p-value = 0.900				

Shoulder pain										
	Categories	Yes		Sometimes		No		Total	
		N0.	%	N0.	%	N0.	%	N0.	%
Prolonged sitting	Yes	22	21.6	31	30.4	6	5.9	59	57.8
	Sometimes	7	6.9	14	13.7	2	2.0	23	22.5
	No	6	5.9	14	13.7	0	%0	20	19.6
	Total	35	34.3	59	57.8	8	7.8	102	100
Chi-square test= 3.193				p-value = 0.526					

Severity of pain												
	Categories	Mild		Moderate		Sever		Intolerable		Total	
		N0.	%	N0.	%	N0.	%	N0.	%	N0.	%
Prolonged sitting	Yes	11	10.8	39	38.2	8	7.8	1	1.0	59	57.8
	Sometimes	9	8.8	10	9.8	3	2.9	1	1.0	23	22.5
	No	7	6.9	11	10.8	2	2.0	0	0	20	19.6
	Total	27	26.5	60	58.8	13	12.7	2	2.0	102	100
Chi-square test=6.042				p-value = 0.419						

There is a relation between neck pain and nature of the work at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.17 which illustrated that there is no relation between nature of the work and each of (neck pain , shoulders pain, type of pain, severity of pain, direction of pain) since p-value equal greater than 0.05, but there is a relation between nature of the work and duration of pain since p-value equal 0.044 which is less than 0.05

There is a relation between neck pain and type of chair the employee sits on at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi- Square (χ^2 test) and the results are shown in table 5.17 which illustrated that there is no relation between the type of chair the employee sits on and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value equal greater than 0.05

There is a relation between neck pain and time spending daily in front of the computer at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square(χ^2 test) and the results are shown in table 5.17 which illustrate that there is no relation between time spending daily in front of the computer and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain) since p-value equal greater than 0.05, but there is a relation between time spending daily in front of the computer and duration of pain since p-value equal 0.044 which is less than 0.05.

There is a relation between neck pain and computer is on a special desk at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square(χ^2 test) and the results are shown in table 5.17 which illustrated that there is no statistical relation between computer is on a special desk and each of (neck pain, shoulders pain, type of pain, severity of pain, duration of pain) since p-value equal greater than 0.05 but there is statistical relation between computer is on a special desk and direction of pain since p-value equal less than 0.05.

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There is a relation between neck pain and key board position at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square(χ^2 test) and the results are shown in table 5.17 which illustrated that there is a relation between key board position and each of (type of pain, severity of pain, direction of pain) since p-value is equal 0.003, 0.004, and 0.012 which is less than 0.05, but there is no statistical relation between key board position and each of (neck pain, shoulders pain, duration of pain) since p-value was greater than 0.05.

There is a relation between neck pain and computer screen at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.17 which illustrated that there is no statistical relation between computer screen and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value was greater than 0.05

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Table 5.17   The relationship between neck pain, working nature and working environment

	Analysis	Neck pain	Shoulders pain	Pain type	Severity of pain	Direction of pain	Duration of pain
Nature of work	Pearson Chi-Square(χ^2)	1.67	8.95	28.06	10.71	31.49	31.89
	Df	5	10	20	15	25	20
	p-value	0.892	0.537	0.108	0.773	0.173	0.044
	Decisions	reject	reject	reject	reject	reject	accept
Chair you sit on	Pearson Chi Square(χ^2)	4.55	1.91	13.64	2.47	6.97	4.67
	Df	2	4	8	6	10	8
	p-value	0.102	0.751	0.092	0.872	0.728	0.791
	Decisions	reject	reject	reject	reject	reject	reject
Time spending daily in front of the computer	Pearson Chi-Square(χ^2)	10.12	20.87	26.92	25.10	70.51	60.54
	Df	11	22	22	33	55	44
	p-value	0.520	0.528	0.980	0.836	0.078	0.049
	Decisions	reject	reject	reject	reject	reject	accept
Computer is on a special desk	Pearson Chi-Square(χ^2)	.995	.299	3.75	1.65	11.53	5.64
	Df	1	2	4	3	5	4
	p-value	0.318	0.861	0.440	0.647	0.042	0.227
	Decisions	reject	reject	reject	reject	accept	reject
Key board	Pearson Chi-Square(χ^2)	2.77	1.31	16.76	18.93	22.57	5.41
	Df	2	4	8	6	10	8
	p-value	0.249	0.585	0.033	0.004	0.012	0.712
	Decisions	reject	reject	accept	accept	accept	reject
Computer screen	Pearson Chi-Square(χ^2)	2.27	1.61	6.95	8.13	20.63	20.93
	Df	4	8	16	12	20	18
	p-value	0.685	0.991	0.947	0.774	0.419	0.181
	Decisions	reject	reject	reject	reject	reject	reject

5.10.6 Knowledge, practices and neck pain:

There is a relation between neck pain and enough information about how to sit correctly on your desk at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.18 which illustrated that there is no statistical relation between the information about how to sit correctly on desk and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value was greater than 0.05

There is a relation between neck pain and applying any of the correct practices like to right way to use chair at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.18 which illustrated that there is no statistical relation between applying any of the correct practices like to right way to use chair and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value equal greater than 0.05

There is a relation between neck pain and applying any of the correct practices like a variation of work practices at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.18 which illustrated that there is no statistical relation between applying any of the correct practices like a variation of work practices and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value was greater than 0.05

There is a relation between neck pain and applying any of the correct practices like taking rest period within work time at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.18 which illustrated that there is no statistical relation between applying any of the correct practices like taking rest period within work time and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value equal greater than 0.05

There is a relation between neck pain and applying any of the correct practices like practice some exercise to relax neck muscle at significant level 0.05

To test the above hypothesis the researcher used the Pearson Chi-Square (χ^2 test) and the results are shown in table 5.18 which illustrated that there is no statistical relation between applying any of the correct practices like practice some exercise to relax body muscle and each of (neck pain, shoulders pain, type of pain, severity of pain, direction of pain, duration of pain) since p-value equal greater than 0.05

Table 5.18   The relation ship between neck pain and knowledge and practices and neck pain

	Analysis	Neck pain	Shoulders pain	Pain type	Severity of pain	Direction of pain	Duration of pain
Enough information about how to sit correctly on your desk	Pearson Chi-Square(χ^2)	2.32	7.41	2.76	1.02	1.38	2.53
	Df	1	2	4	3	5	4
	p-value	0.127	0.690	0.599	0.796	0.926	0.939
	Decisions	reject	reject	reject	reject	reject	reject
Applying any of the correct practices like to right way to use chair	Pearson Chi-Square(χ^2)	3.52	7.32	7.96	11.51	16.25	11.08
	Df	2	4	8	6	10	8
	p-value	0.172	0.120	0.437	0.074	0.092	0.179
	Decisions	reject	reject	reject	reject	reject	reject
Applying any of the correct practices like a variation of work authority	Pearson Chi-Square(χ^2)	1.72	7.11	9.66	7.74	15.53	9.74
	Df	2	4	8	6	10	8
	p-value	0.422	0.130	0.289	0.258	0.114	0.283
	Decisions	reject	reject	reject	reject	reject	reject
Applying any of the correct practices like taking rest period within work time	Pearson Chi-Square(χ^2)	3.24	5.86	5.31	11.89	10.73	14.06
	Df	2	4	8	6	10	8
	p-value	0.197	0.209	0.724	0.064	0.378	0.080
	Decisions	reject	reject	reject	reject	reject	reject
Applying any of the correct practices like practice some exercise to relax body muscle	Pearson Chi-Square(χ^2)	4.83	7.31	3.23	5.87	6.08	10.30
	Df	2	4	8	6	10	8
	p-value	0.089	0.120	0.919	0.437	0.808	0.245
	Decisions	reject	reject	reject	reject	reject	Reject

5.11   How neck pain that result from work could be avoided from the point of view of the employees?

The answers to this question vary but most of the answers insist on the necessity of the rest time during the work day rather than the time of praying and also changing of the chairs to more suitable and healthy one that modified to support neck and shoulders.

Others mentioned to the necessity of workshops and short courses about how to maintain the body safe during work.

Some participants reported that the possibility of the decreasing of working hours and load and increase the number of the employees.

Most of the participants reported that exercise practices and changing of tasks during the day time and movement from time to time could decrease the risk of neck pain.

Chapter six

Discussion

Chapter six

Discussion

In this chapter the researcher will point out the main results of the study and will discuss its implications.

It is worth reminding the reader that the presented information based on 102 participants from the academic and administrative offices of the Islamic University of Gaza who reported neck pain.

To the best of the researcher knowledge this the first study to identify neck pain and its work related factors; as most of researches in Palestine were interested to study Low back pain.

6.1 Socio demographic characteristics:

The interviewed study population covered the ages from 25 years to 60 years old, approximately half (44.1%) of the participants who have neck pain are above the age of 40 years; this result agrees with the study done by Viikari-Juntura et al., (2000) its result show that higher age increased the risk of neck pain. The risk of neck pain increased until the age of 55. The increase with age can be understood by increasing degeneration of the cervical spine with age.

In this study; males constitute 69.6% of the participants while female constituted 30.4% of the participants. Moreover there is a relation between gender and neck pain, p-value equals 0.004, which agreed with most of the studies.

Cagnie et al., (2007) has concluded that the 1-year prevalence of neck pain among an academic staff was 46.7%. A significant association was found between gender and neck pain (p = 0.02). The percentage of female academic staff with neck pain (62%) was higher than that in male staff (38%).

Jouda, (2006) results showed that female workers affected by myalgia and arthralgia three times more than male.

Another study reported that the prevalence of neck pain was as high as 40% for women being slightly higher, and one year prevalence's in occupational settings showed

values varying between 6% and 76%, also with higher values for female workers (Ariens, 1999).

The occurrence of neck pain and neck disorders increases with age until late middle age and decreases thereafter. They are more common among women than among men. (Makela et al., 1991)

Also Korhonen et al., (2003) had investigated work related factors and individual factors as predictors for incident neck pain among office employees working with video display units and he stated that among the individual factors, female sex was a strong predictor of neck pain .

In the present study; the number of males' sufferer of neck pain are more than females sufferers in the Islamic university's employees may be due to the decreased number of female in the employees, also males always take more work load and responsibilities than females in our culture. This is completely different than what is seen in the western countries which equal the female worker with the male one regards to quality of job responsibilities, work load and amount of stress, and also male in our country are likely to be subjective to stress and trauma.

It is noticeable that more than half of the studied employees (60%) are from Gaza. This may be due to the Israeli occupation era that divided the Strip into three parts which in turn led to the transfer of most of the employees to Gaza where they work.

There seems to be no relation between resident place and neck pain since there was no statistical different ($p > 0.05$).

The percentage of the different educational levels was approximately equals except the secondary school level was only 2.9%; in the opposite 25% of them are PhD levels.

Approximately 79% percent of the neck pain sufferers are administrative workers this is thought to be due to the static posture and load of work that they are obliged to do during the work's hours and thirty percent of them are academic as the academic person is obliged to move around and stand most of the time changing his

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position and activities so suffering from neck pain less than the administrative. The results showed that there is no relation between neck pain and type of job (p > 0.05).

The different categories of the no. of years in the same job show approximately equal percentages with slightly lesser for persons who are less than 5 years in the same job.

It was found that 63.7% of the participants do not work an over time hours in the university, and 61.8% from the sample have not an additional work beside their job in the university.

6.2   Medical history:

In general the employees in the Islamic University are healthy and rarely suffer from chronic diseases as the results of the questionnaires which showed that only 6% of the sample suffers from chronic disease.

There is no relation between neck pain and medical history at significant level 0.05 since the p-value equal greater than 0.05.

6.3   Neck pain characteristics, status and complains:

The result of this study shows that 34.3% of the participants were suffering from neck pain at the moment of filling of the questionnaire, and 65.7% suffered from neck pain some times (at least once during their work in the university).

While 34.2% of the participants suffered from shoulders pain at the moment of filling of the questionnaire, and 57.8% of the participants some times suffered from shoulders' pain.

The investigation of the direction of pain shows that 52.9% of the participants the pain is located around neck and shoulder.

Muscle spasm was the most dominant type of neck pain described by almost 70% of the population. Muscle spasm result from over load imposed on the neck and shoulder muscles. Muscle spasm is the most common type of neck pain.

In the present study 88.2 % of the participants suffered from interrupted neck pain, while 58.8 % of them suffered from moderate severity that was tolerable, and only

15% of them suffered from sever and intolerable pain, and 63.7% of the participants agreed that the pain starts gradually and only 25.5 % of them had the pain continued for more than two days. There is a relation between nature of the work and duration of pain (p= 0.044).

As it was mentioned above more than half of the studied employees suffer from neck pain that is gradual in evolution, interrupted in nature, moderate in severity which point out to the muscular origin

Also 67.6% of the participants had the pain increased in the day during work, and more than 80% of the participants agreed that there is a relationship between their work in the university and the starting and increasing of neck pain; that show the relationship between the work and neck pain from the point of view of the participants.

During the last semester fortunately, only 6.9% of the participants were forced to take a sick leave because of neck pain and 57.1% of them the sick leave was less than three days. Neck pain didn't coast the university much days absence this result disagrees with Wahlström et al., (2004) and Burdorf et al., (1998) who reported that among employed persons with neck pain, the proportion with lost work days was similar to those with back pain, which is notorious for high absenteeism costs.

Another study showed that manufacturing workers with neck pain lost, about 14 days on average from work in one year only because of their neck problems (Trinkoff et al., 2002).

Approximately half of the participants agreed that there is a relationship between stress and the start or the increased of neck pain. And the result of Pearson Chi-Square (χ^2 test) test showed that there is a relation between stress and neck pain, and shoulders pain since (p= 0.003, 0.027) this agreed with the previous studies; Pietri-Taleb et al., (1994) found that psychological distress and personality factors had some predictive value for neck trouble among a group of male workers, but the associations were complex and specific for each occupation.

In a previous report, Leino, (1987) found that stress symptoms predicted the development of musculoskeletal disorders 5 and 10 years later (Leino, 1987).

The results of the present study showed that 15.7% of the participants agree that neck pain always prevents them from performing their daily living activities , and 50.0% from the sample agreed that neck pain sometimes prevents them from performing their daily living activities. This coincide with other studies which mentioned that among people with neck pain severe enough to seek medical care; pain severity predicted decreased mental wellbeing as well as limitations in ability to perform activities of daily living and related functional capacities (Kjellman et al., 2002). The longer the episode had lasted, the worse the expected outcome; a substantial minority were still suffering from neck pain one year after seeking medical attention (Punnet, 2004).

Among nurses, more frequent and severe neck pain was associated with a higher probability of work absenteeism as well as having to modify or restrict work activities. Other outcomes included inadequate sleep, reduced participation in non-work activities and recreation, seeking more medical attention, and greater use of pain medications (Trinkoff, 2002).

Half of the participants (50.1%) didn't seek medical consultation and 54.9% of them didn't take any medication to relieve pain; the results reflected the specific negative culture of some Gaza Strip citizens; the way of dealing with pain as most of people have never took any drugs to relieve pain or consult doctors, more than half of the studied persons never consult any body or even take analgesics.

Among those who tried to manage neck pain; medication and physiotherapy was the commonest type of pain management.

It was found that 26.1% of the participants agreed that after treatment pain completely fade away, 45.7% of the participants agreed that the treatment result was pain reduction, 4.3% of the participants agreed that the result of the treatment was pain had increased and 23.9% of the participants agreed that the result of the treatment was no changed had happened.

With the medication to get red of neck pain the person need to change little bit his life style and his activities as well. So the persons whose answers were no change had happened they didn't act correctly during the treatment time, and the two persons whose answers were pain increased.

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6.4 Nature of work and work environment:

In the present study it was found that 80% of the participants spend most of their working hours sitting on a desk (whether always or sometime) and only 26.5% of them have time for rest within their work time which ranged between ten minutes to two hours.

The employees who are working in academic job can have some time free between lectures but in the administrative the free time is not available.

This question is asked to determine if the university gives them special time for rest as tea time for example.

The results showed no relation between neck pain and prolonged sitting which disagree with most of previous studies; Aiens et al., (2001) reported that there was a significant positive association between prolonged sitting at work and neck pain, implying that there was an increased risk of neck pain for people who are working almost all day in a sitting position (more than 95% of the working time).

Only less than 6 % of the participants don't use the computer during their work. And 94% of the participants use the computer during their work. This point out to the necessity to the modification of the computer positioning, and to the information that the employees have to know to keep their bodies in a healthy position during their work.

Regarding to the ventilation, 77.5% of the participants have good ventilation on their offices, and 92.2% of the participants have enough lighting on their offices. The researcher noticed during data collection that the employees work in the laboratory complain from the lack of ventilation in their labs and the employees work in the underground floors complain from lack of lighting.

There was standard type of chairs approximately all the employees(85.3%) used in the university, these chairs considered the best from the point of view of the in-charge persons; the low back chair is the one the employee will have if he complains of his chair.

It was found that 57.8% of the participants spend 4 to 8 hours daily in front of their computer, and 4.9% of the participants spend more than 8 hours daily in front of

their computer. There is a relation between time spending daily in front of the computer and duration of neck pain (p= 0.044)

A percent of 82.4% of the participants their computers are on a special desk, so that the key board is comfortable. There is relation ship between computer is on a special desk and direction of pain. (P-value 0.042)

Also, 75.5% of the participants their key boards are comfortable and useful for their hands except for too long persons or very short one, or for persons who have their computers put on high desk so the key board will be high which indeed increase the risk of neck and shoulder pain; as neck muscles are connected to shoulder and upper limb muscles.

There is a relation between key board position and each of pain type, severity of pain, direction of pain (p= 0.003, 0.004, and 0.012) respectively.

In the present study 75.5% of the participants agreed that their computers' screens are on their sight. Few persons agreed that they have to flex or rotate their heads to look at their computers' screens. The result of Pearson Chi-Square (χ^2) test showed that there is no relation between computer screen and each of (suffer from neck pain, suffer from shoulders pain, pain type, severity of pain, direction of pain, duration of pain) since p-value equal for all factors greater than 0.05

The chairs used by the employees are a mobile so they can rotate for the computer's screen and they don't need to rotate their heads. But some employees don't use this opportunity and rotate their heads. This was noticeable in some divisions like the university registration.

Ariens et al., (2001) concluded that sitting at work for more than 95% of the working time seems to be a risk factor for neck pain and there is a trend for a positive relation between neck flexion and neck pain. No clear relation was found between neck rotation and neck pain. The previous study aims to study the relation between neck pain and work related neck flexion, neck rotation, and sitting.

6.5   Knowledge, attitude, practices and complaints:

The research results showed that 30.4% of the participants have not enough information about how to sit correctly on their disks. While 18.6% from them do not apply correct practices like right way to sit on chair. It was found that 16.7% from the staff do not apply correct practices like variation of work tasks, 34.3% from them don't apply correct practices like taking rest period within work time and 38.2% don't not apply correct practices like practice some exercise to relax body muscle. The rest of the participants are whether always or some times apply the previous correct applications.

There is no relation between knowledge, practices and variables of neck pain (neck pain, shoulders pain, pain type, severity of pain, direction of pain, duration of pain) since p-value equal greater than 0.05

Moreover 94.1% of the participants don't have any educational course about how to maintain body safe during their work, while 88.2% of the participants agreed that these courses are important.

Also 63.3% of the participants agreed that the furniture in their offices are suitable 31.4% of the participants complain to their boss about uncomfortable furniture in their workplace. The majority of complains was changing their chairs as it was mentioned before the chair is changed to low back chair. But 62.5 % from them agreed that there is no action was taken about their complaint.

For the opinions of the employees on their offices furniture, desks and computers, most of the employees agreed that they had good desks and computers (43.1%, 44.1%), and few of them agreed that they have bad desks and computers; indeed the Islamic university is thought to be the best in Gaza regarding to its buildings and furniture and equipments.

Only 19.6% of the participants practice sports that differ between walking, gymnastic and Swedish. The sedentary life style is a risk factor for development of MSD. The result of this study showed that no relation between neck pain and exercise practicing that disagrees with most of the literature.

Pietri-Taleb et al., (1994) reported that physical exercise at least twice a week protected against neck problems.

overall good flexibility in men and good endurance strength in women may help to decrease the risk of tension neck pain symptoms (Mikkelsson et al., 2006).

Also higher endurance strength in boys predicted lower occurrence of neck/shoulder pain in adulthood, and higher strength in adolescent girls predicted lower occurrence of low back pain(Barnekow**,** 1998).

Ariens et al., (2001) suggested that working with a flexed neck is a real problem for workers with a low endurance time in the neck muscles.

Several literatures showed the importance of sport in health even Islam religion insist on sport practicing for healthy body but some Moslems don't stick to these recommendations. During interviewing the employees the researcher noticed that they don't have enough time for sport.

About the bellows that the participants use; 64.7% of the participants use a moderate high bellow, the rest of the sample use high or thin bellow. Using high bellow could cause neck pain because it put neck musculature in stretched position for longer time and similarly using low bellow cause neck pain because it put the neck musculature in short position for long time.

Conclusion

This study was conducted to investigate neck pain and its work-related factors among administrative and academic staff in the Islamic University of Gaza, to describe nature of neck pain, and to find out the interrelation between individual characteristics, neck pain and associated work-related factors and to assess worker's knowledge, attitude, practice and complaints about their work environment.

The results revealed that approximately half of the respondents are more than 40 years old and there is no relation between age and neck pain but there is a relationship between neck pain and gender, males constituted about 70% of the participants most of them are from Gaza, married and live out side refugee camps. The majority of neck pain sufferers work administrative job but the results showed that there is no relation between neck pain and type of job.

In general the employees in the Islamic University are healthy and rarely suffer from chronic diseases. Muscle spasm was the most dominant type of pain that is located around neck and both shoulders. The employees suffer from gradual onset of neck pain, interrupted in nature, moderate in severity. The majority of the participants agree that pain is increased in the day during work; they agree that there is a relationship between their work in the university and the presence and increasing of neck pain. There is a relation between stress and neck and shoulders pain. Neck pain some times affects daily live activities of the employees. Half of the studied persons didn't seek medical consultation and didn't take any medication to get red of pain.

About 80% of the participants spend most of their work time sitting on a desk but the results show no relation between neck pain and prolonged sitting. Ninety four percent of the participants used the computer during their work. Half of the participants spend 4 to 8 hours daily in front of their computer. And 82% of the participants placed their computers on a special desk, the key boards are comfortable and the screens are on their sight.

The employees of the Islamic university don't have enough knowledge about how to sit correctly on their desks and need some courses to improve knowledge about and how to protect their bodies during work. Most of the employees agreed that

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furniture in their offices is suitable and they had good desks and computers. Islamic University's employee doesn't practice sport.

The results suggested that the risk of neck pain may be reduced by encouraging specific seated postures for the employees of Islamic University.

Recommendations

1. Implementation of continuous education programs to the workers for safety use of their bodies during work.

2. Provide special rest time especially for the administrative employees.

3. Further research on the prevalence of neck pain in Gaza Strip.

4. Conduct similar studies on different professions and occupations such as butcher, dentists, sales men and tailors to see the effects of certain body postures on the development of neck pain.

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Annex no.1

Map of Palestine

Annex no.2
Vertebral column

Atlas (C1)
Axis (C2)
C7
T1
T12
L1
Sacrum (S1-S5)
Coccyx
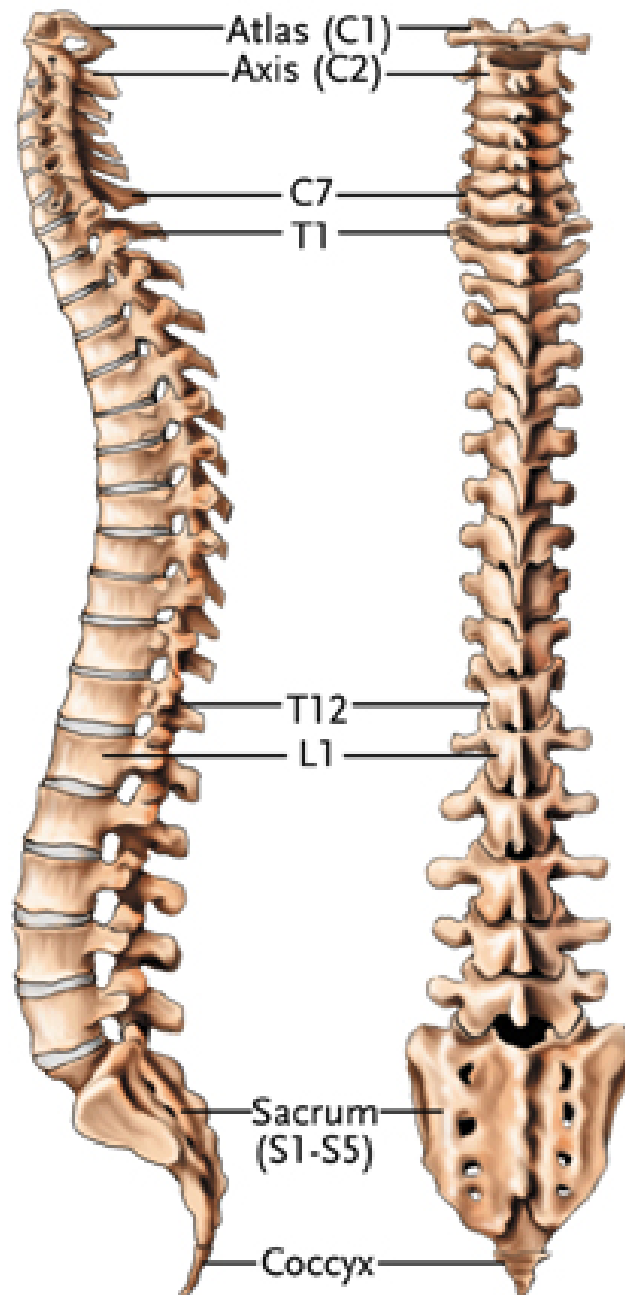
Annex no.3

Spinal nerves

www.manaraa.com
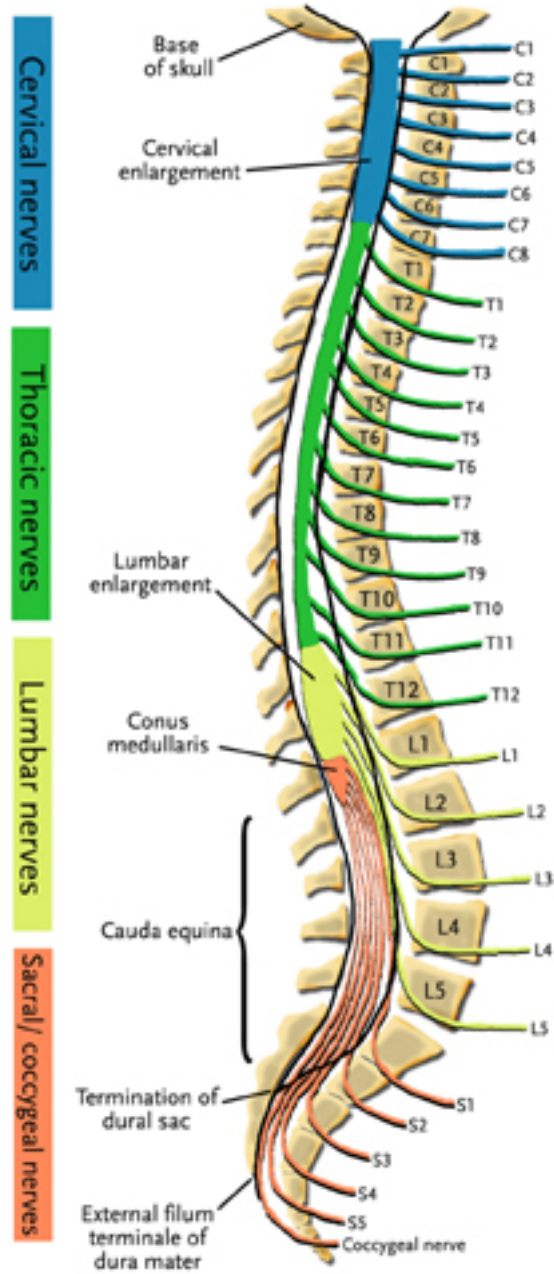
Annex no.4

Intervertebral disc
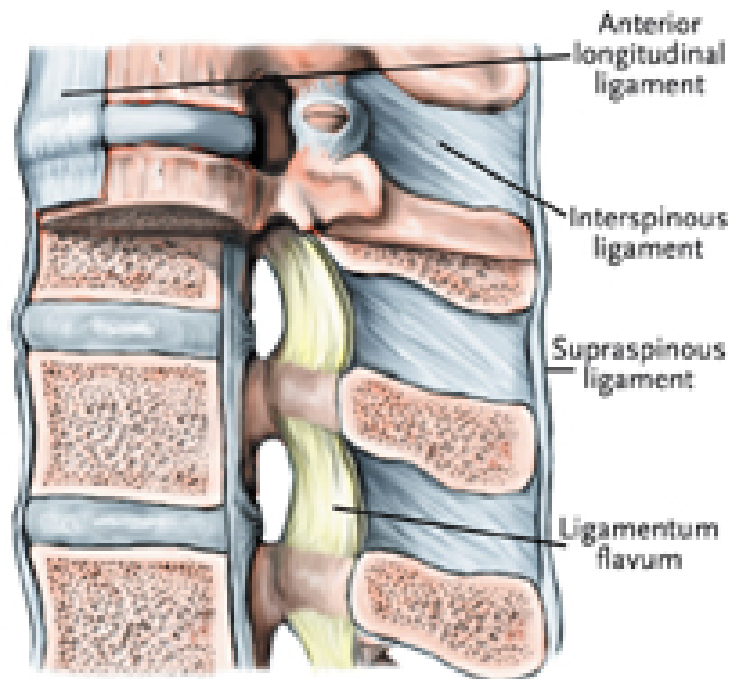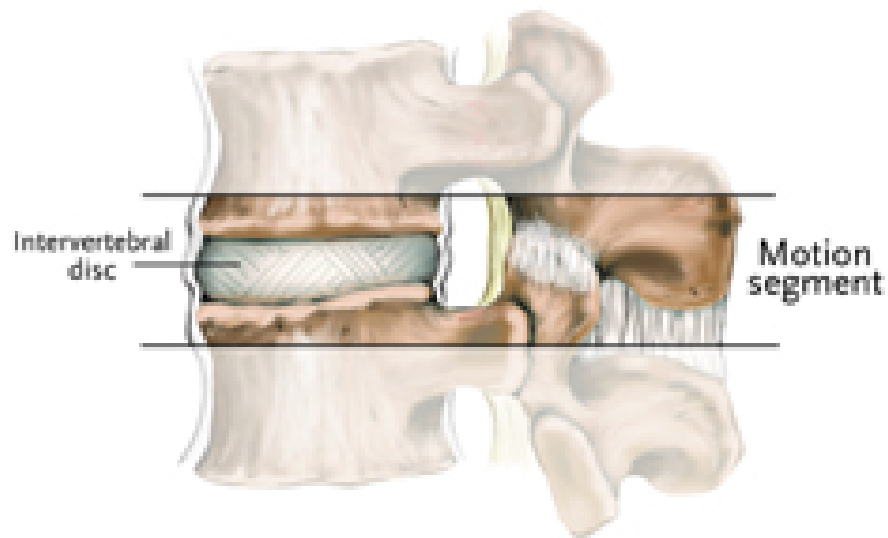
Annex no. 5
Neck musculature

www.manaraa.com

Annex no. 6

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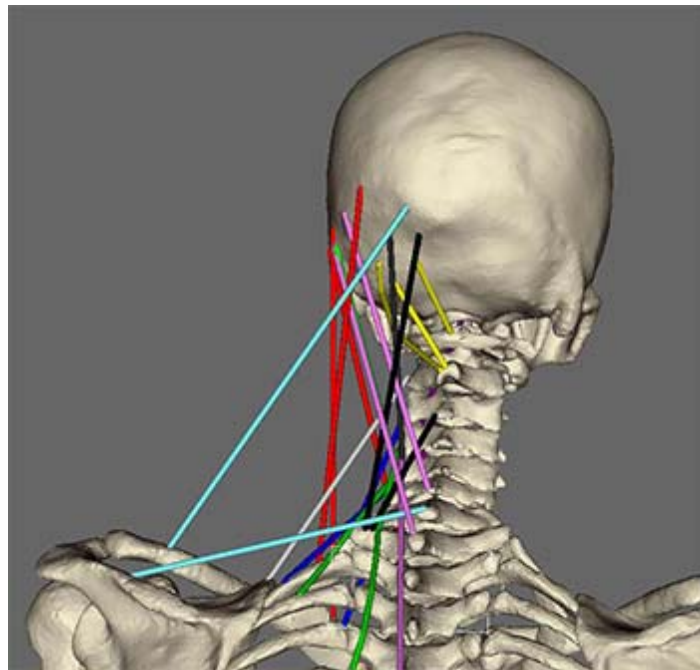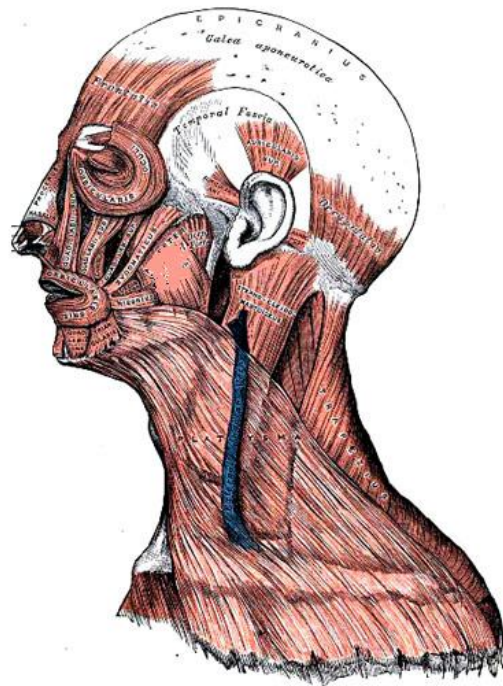
Annex 7

Arabic language questionnaire

آلام الرقبة وعلاقتها بالأعمال المكتبية الخاصة بعمل الإداريين و الأكاديميين في الجامعة الإسلامية بغزة.

<u>**مسلسل:**</u> ....

<u>**أولاً المعلومات الشخصية**</u>

1. العمر: ....

2. الجنس: ☐ ذكر ☐ أنثى

3. الحالة الاجتماعية: ☐ أعزب ☐ متزوج ☐ مطلق/ة ☐ أرمل/ة

4. مكان السكن: ☐ داخل مخيم ☐ خارج المخيم

5. المحافظة: ☐ رفح ☐ خانيونس ☐ الوسطى ☐ غزة ☐ الشمال

6. المستوى التعليمي: ☐ دبلوم ☐ بكالوريوس ☐ ماجستير ☐ دكتوراه ☐ ثانوية عامة

7. نوع العمل: ☐ أكاديمي ☐ إداري ☐ أكاديمي و إداري

8. عدد سنوات العمل في الوظيفة الحالية ....

9. تعمل ساعات إضافية بعد الدوام الرسمي في الجامعة ☐ دائما ☐ أحيانا ☐ لا

10. تقوم بأعمال أخرى خارج الجامعة ☐ دائما ☐ أحيانا ☐ لا

10.1- إذا كان الجواب نعم حدد طبيعة العمل ☐ أعمال مكتبية ☐ أعمال مهنية ☐ كلاهما

<u>**ثانيا التاريخ المرضي**</u>

11. هل تعاني من قصور في الشرايين التاجية؟ ☐ نعم ☐ لا

12. هل تعاني من ارتفاع في ضغط الدم؟ ☐ نعم ☐ لا

13. هل تعاني من أمراض الكبد؟ ☐ نعم ☐ لا

14. هل تعاني من أمراض مزمنة أخرى؟ ☐ نعم ☐ لا

14.1- إذا كانت الإجابة نعم حدد......................

<u>**ثانياً: معلومات التعرض لألم الرقبة**</u>

15. هل تعاني من آلام في الرقبة ؟ ☐ نعم ☐ أحيانا ☐ لا

16. هل تعاني من آلام في الأكتاف ؟ ☐ نعم ☐ أحيانا ☐ لا

17. نوع الألم : ☐ نمنمة ☐ خذلان ☐ حرقان ☐ شدعضلي ☐ أخرى حدد...............

18. طبيعة الألم: ☐ مستمر ☐ متقطع

19. شدة الألم: ☐ خفيف ☐ متوسط ☐ شديد ☐ غير محتمل

20. اتجاه الألم: ☐ الكتف اليمين ☐ الكتف اليسار

☐ ممتد إلى اليد اليمنى ☐ ممتد إلى اليد اليسرى

☐ حول الرقبة و الأكتاف ☐ ممتد إلى الرأس

21. يبدأ شعورك بالألم : ☐ مفاجئ ☐ تدريجي

22. مدة استمرار الألم: ☐ أقل من يوم ☐ يوم ☐ يومان فأكثر ☐ غير محدد ☐ دائم

23. يزيد الألم: ☐ عند الاستيقاظ من النوم ☐ خلال النهار أثناء العمل ☐ أثناء الليل يوقظك من النوم

24. الضغط النفسي: ☐ يظهر الألم ☐ يزيد الألم ☐ لا علاقة له

25. توجد علاقة بين عملك وظهور ألم الرقبة لديك : ☐ نعم يظهر الألم ☐ نعم يزيد الألم ☐ لا علاقة له

26. في العام الدراسي الحالي هل اضطررت لأخذ أجازة مرضية بسبب ألم رقبتك؟ ☐ نعم ☐ لا

1.6.2- إذا الإجابة نعم كم يوما.....................

27. هل يؤثر ألم رقبتك على أداء مهامك اليومية؟ ☐ نعم ☐ أحيانا ☐ لا

28. بسبب ألم رقبتك هل تلقيت استشارة من: ☐ طبيب ☐ صيدلي ☐ ممرض ☐ معالج شعبي

☐ أخصائي علاج طبيعي ☐ لا أحد

29. هل تلقيت علاجا لألم رقبتك؟ ☐ نعم ☐ لا

إذا كانت الإجابة نعم:

29.1- هل كان العلاج الذي تلقيته؟

☐ عقاقير طبية ☐ علاج طبيعي ☐ جراحة ☐ غير ذلك حدد.............

29.2- ماذا كانت نتيجة العلاج؟

☐ اختفى الألم تماما ☐ قل الألم ☐ ازداد الألم ☐ لم يحدث تغيير

ثالثا :المعلومات الخاصة عن طبيعة وبيئة العمل:

30. هل تقضي معظم ساعات الدوام جالساً على مكتبك؟ ☐ نعم ☐ أحيانا ☐ لا

31. هل لديك وقت مخصص للراحة أثناء الدوام؟ ☐ نعم ☐ لا

32.1 - إذا كانت الإجابة نعم مدة الراحة............

32. طبيعة العمل: ☐ مكتبي ☐ كمبيوتر ☐ مكتبي و كمبيوتر معا ☐ إلقاء محاضرات

☐ مكتبي و كمبيوتر إلقاء محاضرات ☐ مخبري

33. التهوية جيدة في مكان العمل: ☐ نعم ☐ لا

34. الإضاءة كافية في مكان العمل: ☐ نعم ☐ لا

35. الكرسي الذي تجلس عليه: ☐ منخفض الظهر ☐ مرتفع الظهر ☐ مع رقبة ☐ بلاستيك

36. عدد الساعات التي تقضيها أمام الكمبيوتر يوميا.....................

37. الكمبيوتر الذي تستخدمه موضوع على طاولة خاصة: ☐ نعم ☐ لا

38. لوحة المفاتيح:

☐ في متناول يدك ومريحة

☐ مرتفعة لذلك تحتاج إلى رفع يديك عاليا

☐ منخفضة لذلك تحتاج إلى خفض يديك

39. شاشة الكمبيوتر:

☐ على مستوى نظرك

☐ تحتاج إلى دوران راسك إلى اليمين

☐ تحتاج إلى دوران رأسك إلى اليسار

☐ تحتاج إلى خفض راسك

☐ تحتاج إلى رفع راسك

رابعا :الوعي المهني والممارسات الحياتية و التوجهات و الآراء

40. هل لديك معلومات عن كيفية الجلوس الصحيح على المكتب؟   ☐ نعم   ☐ لا

هل تطبق/ي من الممارسات الصحيحة مثل:

40.1- الجلوس الصحيح على الكرسي   ☐ نعم   ☐ أحيانا   ☐ لا

40.2 - تنوع مهمات العمل   ☐ نعم   ☐ أحيانا   ☐ لا

40.3 أخد فترات راحة أثناء العمل   ☐ نعم   ☐ أحيانا   ☐ لا

40.4 - ممارسة بعض الحركات الرياضية الخفيفة لتريح عضلات جسم ☐ نعم ☐ أحيانا ☐ لا

41. هل حصلت على دورة تدريبية للحفاظ على سلامة جسمك أثناء العمل؟   ☐ نعم   ☐ لا

42. هل ترى أن هناك ضرورة لمثل هذه الدورات؟   ☐ نعم   ☐ لا

43. هل سبق أن تقدمت بشكوى لرئيسك بخصوص أي تجهيزات غير مريحة في عملك؟ ☐ نعم   ☐ لا

43.1 - إذا كانت الإجابة نعم ما هي..

43.2 - هل تم عمل أي إجراء بخصوص شكوتك؟   ☐ نعم   ☐ لا

44. برأيك تأثيث مكان عملك مناسب :   ☐ نعم   ☐ لا

45. برأيك وضع مكتبك :   ☐ مقبول   ☐ جيد   ☐ جيد جداً   ☐ ممتاز   ☐ سيئ

46. برأيك وضع الكمبيوتر الذي تعمل عليه: ☐ مقبول   ☐ جيد   ☐ جيد جدا   ☐ ممتاز   ☐ سيئ

47. هل تمارس/ي إحدى الرياضات بشكل منتظم؟   ☐ نعم   ☐ لا

47.1-   إذا كان الجواب نعم اذكر/ي...................

48. هل تنام على وسادة :   ☐ رفيعة   ☐ متوسطة   ☐ مرتفعة   ☐ بدون

49. من وجهة نظرك كيف يمكن تفادي آلام الرقبة الناتجة عن عملك في الجامعة؟

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Annex no.8

English language Questionnaire

Neck pain and work-related factors among Administrative and Academic staff in the Islamic university of Gaza

Serial No.:………………

<u>**1st: Socio demographic characteristics:**</u>

1. Age:……………

2. Sex: ❑ male   ❑ female

3. Marital status: ❑ single   ❑ married   ❑ divorced   ❑ widow

4. Resident place: ❑ inside a camp   ❑ outside a camp

5. Governorate: ❑ Raffah   ❑ Khanyounis   ❑ Middle zoon

            ❑ Gaza   ❑ Northern Gaza.

6. Educational level: ❑ Diploma   ❑ bachelor degree   ❑ Master

            ❑ PHD   ❑ secondary school education

7. Type of job: ❑ academic   ❑ administrative ❑ both

8. No. of years in the same job:…………

9. Do you work an over time hours in the university?

            ❑ always   ❑ some times ❑ no

10. Do you have an additional work beside your job in the university?

            ❑ yes   ❑ no

   10.1. If the answer is yes, the nature of this job is:

            ❑ office work   ❑ vocational work   ❑ both

<u>**2nd: medical history:**</u>

11. Do you suffer from coronary arteries insufficiency?   ❑ yes   ❑ no

12. Do you suffer from high blood pressure?   ❑ yes   ❑ no

13. Have you suffered from liver or bile disease?   ❑ yes   ❑ no

14. Have you suffered from any other chronic disease?   ❑ yes   ❑ no

  14.1. If yes specify:……………………………………

<u>**3rd Neck pain characteristics, status and complains:**</u>

15. Do you suffer from neck pain?   ❑ yes   ❑ some times   ❑ no

16. Do you suffer from shoulders pain? ❑ Yes   ❑ some times   ❑ no

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17. Type of pain: ❐ tingling ❐ numbness ❐ burning ❐muscle spasm

❐ others………….

18. Nature of pain is: ❐ continuous ❐ interrupted

19. Severity of pain is: ❐ mild ❐ moderate ❐ sever ❐ intolerable

20. Direction of pain is: ❐ Right shoulder ❐ left shoulder

❐ extend to right hand ❐extend to Left hand

❐around neck and shoulder ❐ extend to head

21. Pain starts: ❐ suddenly ❐ gradual

22. Duration of pain: ❐ less than one day ❐ one day

❐ two days and more ❐ un specific ❐ always

23. Pain increases:

❐ when getting up from sleep.

❐ during day and work.

❐ during night and getting you up from the sleep.

24. Stress: ❐ start pain ❐ increase pain ❐ no relation.

25. There is a relationship between your work and pain on your neck:

❐ yes, it starts pain. ❐ yes, it increases pain ❐ no relation.

26. In this semester have you been obliged to take a sick leave because your neck pain?

❐ yes ❐ no

26.1. If yes how many days……..

27. Is your neck pain prevents you from your daily living duties?

❐ yes ❐ some times ❐ no

28. Because of your neck pain have you been take a consultation from?

❐ A doctor ❐ A pharmacist ❐ A nurse

❐ A public therapist ❐ A physiotherapist ❐ No body

29. Have you any treatment for your neck pain? ❐ yes ❐ no

29.1. If yes, is the treatment was:

❐ medication ❐ physiotherapy ❐ surgery ❐ others:………

29.2. The result of the treatment was:

❐ pain completely fade.

❐ pain decreased.

❐ pain increased.

❐ no changed happened.

4th: Nature of work and work environment

30. Have you spend most of your work sitting on a disk?

    ❐ yes   ❐ sometimes   ❐ no

31. Do you have a time for rest within your work time?   ❐ yes   ❐ no

    31.1. If yes how many:…………………..

32. Working nature is: ❐ clerk   ❐ computer   ❐ clerk and computer

                       ❐ lecture   ❐ computer and lecture ❐ laboratory

33. Do you have a good ventilation on your office? ❐ yes   ❐ no

34. Do you have enough lighting on your office?   ❐ yes   ❐ no

35. Chair you sit on, it is: ❐ have a low back   ❐ have a high back

                            ❐ with neck rest   ❐ a plastic chair

36. How much time do you spend daily in front of your computer?............

37. Your computer is on a special desk?   ❐ yes   ❐ no

38. Your key board is:

       ❐ comfortable and useful for your hands.

       ❐ high, so you have to rise your hands

       ❐ low, so you have to down your hand.

39. Your computer screen is:

       ❐ on your sight

       ❐ you have to rotate your head right

       ❐ you have to rotate your head left

       ❐ you have to down your head

       ❐ you have to raise your head.

5th: Knowledge, attitude, practices and complaints:

40. Do you have enough information about how to sit correctly on your disk?

                         ❐ yes   ❐ no

Do you apply any of the correct practices:

  40.1. right way to use chair: ❐ always ❐ some times   ❐ no

  40.2. variation of work tasks   ❐ always ❐ some times   ❐ no

  40.3 taking rest period within work time: ❐ always ❐ some times   ❐ no

  40.4. practice some exercise to relax body muscle:

                         ❐ always   ❐ some times ❐ no

41. Do you have any course about how to maintain body safe during your work?

☐ yes ☐ no

42. Do you see that these courses are important?   ☐ yes ☐ no

43. Have you been complain to your boss about uncomfortable furniture in your work?

☐ yes ☐ no

43.1. if yes mention:…….

43.2. is any procedure taken?...

44. In your opinion furniture in your office is suitable?

☐ yes ☐ no

45. In your opinion furniture your office is:

☐ acceptable   ☐ good   ☐ very good   ☐ excellent   ☐bad

46. In your opinion your computer's position is:

☐ acceptable   ☐ good   ☐ very good   ☐ excellent   ☐bad

47. Do you practice any kind of sports?   ☐ yes   ☐ no

47.1. if yes mention:………

48. Your bellow is: ☐ thin   ☐ moderate   ☐ high   ☐ without

49. In your point of view how can you avoid neck pain that results from your work?

Annex No.5

Content Validity Index

……………………………………… /

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2007‑7‑10

Neck pain and work-related factors among Administrative and Academic staff in the Islamic University of Gaza

General objective:

To investigate neck pain and its work-related factors among administrative and academic staff in Islamic University of Gaza.

Specific objectives:

1 - To identify the work-related factors which lead to neck pain among administrative and academic staff of Islamic University of Gaza who reported pain.

2 - To describe nature of neck pain among administrative and academic staff of Islamic University of Gaza who reported pain.

3 - To find out the interrelation between individual characteristics, neck pain and associated work-related factors among administrative and academic staff Islamic University of Gaza.

4 - To assess worker's knowledge, attitude, practice and complaints about their work environment.

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أهداف الدراسة:

الهدف العام:

بحث آلام الرقبة و علاقتها بالأعمال المكتبية

.

الأهداف الخاصة:

1 - تحديد العوامل المتعلقة بالعمل والمؤدية لآلام الرقبة للعاملين الإداريين و الأكاديميين في الجامعة الإسلامية بغزة الذين يعانون من ألم في الرقبة.

2 - وصف طبيعة آلام الرقبة التي يعاني منها الإداريين و الأكاديميين في الجامعة الإسلامية بغزة.

3 - إيجاد العلاقة التداخلية بين الصفات الشخصية و آلام الرقبة و الأعمال ذات العلاقة بعمل الإداريين و الأكاديميين في الجامعة الإسلامية بغزة.

4 – فحص مدى معرفة و انطباع وتدريبات و شكوى العاملين عن بيئة عملهم.

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استمارة تحكيم الإستبانة

مفتاح الإجابة:

1   =   السؤال ممتاز ولا يحتاج إلى تعديل

2   =   السؤال يحتاج إلى تعديلات طفيفة مع الإشارة إليها

3   =   السؤال يحتاج إلى تعديلات جوهرية

4   =   السؤال ليس له علاقة بالموضوع و يجب حذفه كليا

ضع علامة (√) حسب المفتاح المبين أعلاه:

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