A Cross-Sectional Study to Assess the Prevalence of Neck and Back Pain in Computer Professionals

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Int J Health Environ Res 2024;2:43–46.

Abstract

Introduction As technology advances, the majority of the people now need to work with computers. However, improper posture while sitting for extended periods of time can have negative health effects, including neck and back pain. The aim of the current study was to evaluate the prevalence of neck and back pain among computer professionals.

Materials and methods An analysis was conducted on 70 computer professionals including both male and female professionals. Relevant details were collected using google questionnaire and assessment was done according to the Neck Disability Index and Oswestry Disability Index .

Results The overall proportion of neck discomfort in 70 participants was 35.14% with no disability and mild disability, 24.28% with moderate disability, and 4.28% with severe disability. Neck as well as back pain was more prevalent in the 41- to 50-year age group, followed by the 31- to 40-year age group; the least affected group was those in the age group of 20 to 30 years.

Conclusion According to the study's findings, back pain is more frequently experienced in all three age groups than neck discomfort. The causes of pain include ill-fitting desk arrangements and extended periods of time spent sitting still in front of a computer without any breaks. It is highly recommended that computer professionals take a brief pause and engage in some stretching exercises during work hours.

Keywords
- neck pain
- back pain
- computer use
- disability index
- exercise

Introduction

Working with computers is now necessary for most people, especially for computer professionals, as everything is growing more advanced. However, adopting poor posture when sitting for extended periods of time can have negative medical effects, including back and neck issues. Although these issues are more prevalent in the elderly, they can affect people of any age for a variety of reasons, including improper seating arrangements, uneven or high screens, and extended workdays. Approximately 75% of professionals use computers in their daily work.[1]

For computer professionals, there are numerous reasons for back and neck problems. These are the most typical injuries caused by using computers for long hours. Long periods of sitting combined with bad posture and desk arrangement can exacerbate existing muscle and joint

DOI https://doi.org/10.1055/s-0044-1791652.
ISSN XXXX-XXXX.

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

issues.[2] According to Jill M. Henderzahs-Mason P.T., a computer screen that is too high, too low, too far away, or too dim can contribute to poor posture. The average human head weighs almost 12 lb (5.4 kg). When your neck is bent to 45 degrees, your head exerts nearly 50 lb (23 kg) of force on your neck. In addition to straining joints and muscles in your neck and shoulders, the pressure affects the breathing and mood. While sitting is less taxing on the muscles than standing is, it nevertheless wears one out physically and necessitates holding certain body parts immobile for extended periods of time. These poses might put more strain on the joints and muscles if a workspace is not properly configured. Thus, there are several reasons why spending a lot of time in front of a computer can be detrimental. All of the body joints would become strained from prolonged computer chair use. This lowers blood flow to all affected structures, which may cause discomfort and tenseness in the muscles. Furthermore, the majority of individuals are unaware of the harm that prolonged computer use can do.[2–4]

Computer-related back and neck pain is normally caused by three problems:

- *Uncomfortable chairs*: Office chairs that do not support the body properly and have poor body alignment can create pressure on various areas of your spine. They can contribute to pain in the back and neck.

- Poor *posture*: Poor posture can cause neck pain by straining muscles and ligaments that support the neck, resulting in injury over time. The head and shoulders forward posture is the most common example of poor posture that contributes to neck pain. This occurs when the neck slants forward, placing the head in front of the shoulders.

- *Inactivity*: Sitting in any position for more than 20 minutes contributes to back pain by reducing the flexibility of the tendons and ligaments. It is estimated that 40% of people with back pain have spent long hours at their computer each day.

The objective of the current study was to evaluate the prevalence of neck and back pain among computer professionals under different age groups.

Materials and Methods

A cross-sectional study was designed in which 70 computer professionals of both genders were selected. The following inclusion and exclusion criteria were used.

Inclusion Criteria

- Volunteers willing to participate.
- Both male and female professionals.
- Age group: 20 to 50 years. The participants were further divided into three categories: those in aged 20 to 30, 31 to 40, and 41 to 50 years.
- Using computer for more than 3 hours a day.

Exclusion Criteria

- Those younger than 20 years and older than 50 years.
- Students.
- Noncomputer professionals.
- Person with any medical problem related to the back and neck.

Tools for Survey

- Neck Disability Index scale.
- Oswestry Disability Index scale.

Procedure: The survey was carried out via an online Google Form questionnaire that included computer experts that met both the inclusion and exclusion criteria. The Oswestry Disability Index scale and the Neck Disability Index scale, each with 10 items, were used to evaluate the survey. Initially, the poll asked the professionals how many hours a day and how many days a week they spend working in front of a computer.

Neck Disability Index Scale

It is a scale that has been used for the purpose of providing information about how neck pain affects a person's ability to manage everyday life. It contains 10 sections: pain intensity, personal care, lifting, work, headaches, concentration, sleeping, driving, reading, and recreation.[5] Scoring was done by the following formula: (total points achieved by an individual divided by 50) $\times$ 100 (►**Table 1**).

Oswestry Disability Index Scale

It is a scale that has been used for the purpose of providing information on how back pain affects a person's ability to manage everyday life. It contains 10 sections: pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life, traveling, changing, and degree of pain.[6] Scoring has done by the following formula: (total points achieved by an individual divided by 50) $\times$ 100 (►**Table 2**).

Results

Evaluation of Neck Pain

The data collected were analyzed by calculating them in percentage. Out of 70 participants, 35.14% had no disability, 35.14% had mild disability, 24.28% had moderate disability, and 4.28% had severe disability as the overall proportion of neck discomfort. The distribution of neck pain–associated disability among different age groups is shown in ►**Fig. 1**.

Table 1 Neck pain disability index scale

Points	Percentage	Disability
0–4	0–8%	No
5–14	10–28	Mild
15–24	30–48	Moderate
25–34	50–64	Sever
35–50	70–100	Complete

Table 2 Back pain disability index scale

Points	Percentage	Disability
0–4	0–20	Minimal
5–14	21–40	Moderate
15–24	41–60	Severe
25–34	61–80	Crippled
35–50	81–100	Bed ridden

Evaluation of Back Pain

The data collected were analyzed by calculating them in percentage. Out of 70 participants, 62.85% had minimal disability, 25.71% had moderate disability, and 11.42% had severe disability due to back pain. The distribution of neck pain–associated disability among different age groups is shown in ►**Fig. 2**.

Discussion

According to the current study, senior computer professionals are more likely than younger professionals to experience neck and back pain as a result of spending a lot of time sitting in front of a computer. An earlier investigation on the incidence of musculoskeletal pain and work-related risk factors among computer-using office workers in Estonia was carried out by Oha et al in which a self-assessment questionnaire was created and distributed to 415 users, 202 of whom completed it. The questionnaire inquired about potential individual and work-related risk factors, as well as musculoskeletal issues at several anatomical regions. The following questions were covered: demographics, education, height, smoking habits, current occupation, pain in various anatomical regions and associated disability for daily living tasks, awareness of others who suffer from musculoskeletal pain, fear-avoidance beliefs regarding upper limb and low back pain, awareness of repetitive strain injury or similar terms, distress from common somatic symptoms, mental health, and absence from work due to musculoskeletal issues and other illnesses during the previous year. The study concluded that the neck and back were more frequently affected and that older users experienced noticeably more pain than younger users.[4]

The current study and the study conducted by Oha et al differed in that the questionnaire for the latter study was self-made, whereas the present study used a questionnaire based on two scales: the Neck Disability Index and the Oswestry Disability Index.

The limitations of the current study include a small sample size. The clinical relevance of the present study is

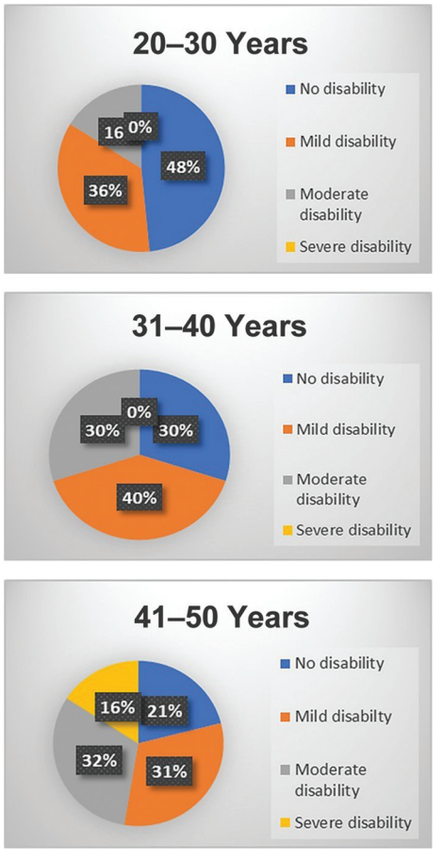

Fig. 1 Pie chart showing prevalence of neck pain in different age groups.

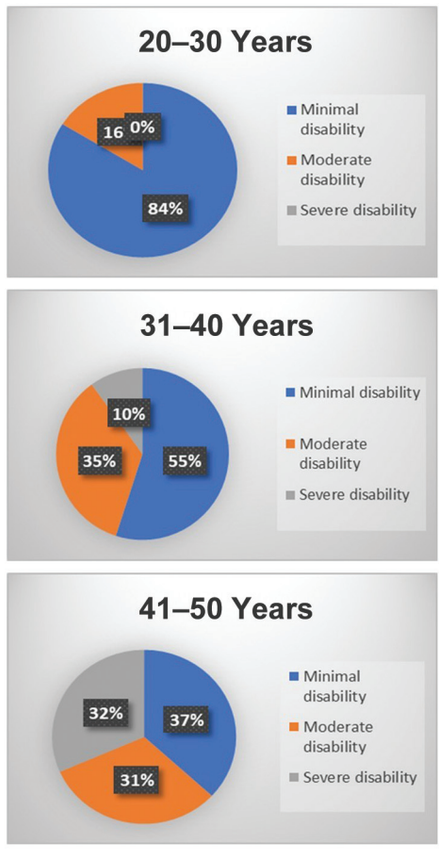

Fig. 2 Pie chart showing prevalence of back pain in different age groups.

that undertaking preventive measures is essential to avoid neck and back pain, which in computer professionals can result in major health concerns. The main causes of neck and back pain are poor posture, sleeping patterns, and extended periods of time spent in front of a computer or laptop. It is possible to avoid this by helping computer workers with their posture, sleeping habits, and level of physical exercise.

Future plans for the study include a sizable sample size, various selection criteria, and additional questionnaire components.

Conclusion

The study's final finding indicates that among computer workers, neck discomfort is most common, followed by back pain. Additionally, older age groups are more affected than younger age groups as pain intensifies with age. It is advised that computer professionals who must operate for extended periods of time in a specific position take a little break after working to lessen the strain on their spinal column.

Conflict of Interest
None declared.

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