



Kap study of office computer users

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Abstract

Background: -Occupational use of computers and desk has increased rapidly over recent decades and has been linked with various ergonomic problems, which are most commonly seen in desk workers and computer users. The study aimed to determine the effects of ergonomic intervention on work-related musculoskeletal disorders among computer users in office jobs.

Method: - In a KAP study (Knowledge, attitude and practices), the questionnaires were sent to 100 computer users in different offices. The questionnaire asked about sociodemographic data, common problems, working environment, and musculoskeletal problems faced by them.

Results: Descriptive statistics was calculated where frequency was assessed with percentage. Analysis regarding sociodemographic data, workplace environments, computer setup, and musculoskeletal problems was calculated with frequency and percentage.

Conclusion: - Many office computer users experienced numerous musculoskeletal issues due to their lack of ergonomics understanding or usage which lead in lack of performance at work altering the dimension of quality of work in office. Physical Therapist on the other hand plays an important role in spreading ergonomic

awareness and educating the office workers about their posture adaptation and how to relieve pain.

Keywords: Ergonomics, Workplace ergonomics, Work design, Work-related musculoskeletal complaint

Introduction

Ergonomics is the matching of environments, tasks, products, and work organizations to people'sabilities and capacities. In the workplace, ergonomic knowledge can be applied to improve productivity and the well-being of workers. The application of this knowledge is not always realized and several reasons and questions are offered for this. Work-related musculoskeletal disorders (WMSDs) related to computer work have become a serious public health concern. Lack of knowledge about computer ergonomics predisposes users to musculoskeletal disorders. Studies have shown that the percentage of office workers that suffer from MSDs ranges from 20 to 60%. The direct and indirect costs of work-related upper limb MSDs have been reported to be high in Europe, Australia, and the United States. Ergonomic interventions are likely to reduce the risk of office workers developing work-related upper MSK disorders.¹

Office workers usually remain in prolonged un comfortable postures and high static muscle load which may imply a risk for the development of problems.

Known risk factors of ergonomic problems are workplace activities such as static posture, and taking awkward working posture. Alteration of musculoskeletal conditions and pain may also increase due to physical inactivity and severity of psychological disorders, reduction in sleep quality, and development of phobias and may additionally occur.² Musculoskeletal disorders (MSDs) are commonly reported by office workers worldwide, and these disorders can have detrimental effects on workers' health and productivity.

Factors that predict the risk of developing MSDs can be divided into individual, ergonomic, and psychosocial factors. The risk of developing MSDs is higher among workers who have a high work strain, longer mouse and keyboard use, perceived high muscle tension, and previous MSDs in the neck and shoulder; these risk factors were reported in several longitudinal studies with a follow-up ranging from 3 months to 5.4 years.³

Awareness and knowledge of the relationship between computer usage and MSDs are essential for preventing MSDs from becoming more severe. A study conducted by a French company reported that office and blue-collar workers had a higher risk of sickness absence because of upper limb disorders compared with managers and professionals.

A population-based study in Sweden also found that respondents who reported concurrent low back pain and neck-shoulder disorders were at high risk for short- and long-term sickness absences from work. The increase in computer and mouse use has been associated with an increased prevalence of disorders in the neck and upper extremities. Found that poor workstation design, continuous computer use for the entire workday, and repetitive computer work, such as data entry, were associated with an increased risk of developing symptoms. It has also been shown that the

musculoskeletal disorders associated with computer mouse use are increasing. The design and maintenance of a suitable work environment are one of the objectives of ergonomics to improve the worker's performance and reduce stress and fatigue at work. The prevention of ergonomic problems among office workers depends on the accurate identification of exposure to occupational risks. Ergonomics, its application to the workplace, and the potential involvement of physiotherapists in the area is today's need.⁴

Physiotherapists possess a firm theoretical and practical base on which to develop ergonomic and occupational health skills, especially in the musculoskeletal areas. Physiotherapy as a profession has an important role in the application of ergonomics and the challenge before we are to broaden our sights and take our skills into the work place.

In a work setting, ergonomics education/training is the best initial strategy to educate computer users about office ergonomics. Training may also educate individuals from different managerial levels in the organization about office safety, which may simultaneously promote increased levels of safety in the organization. Previous studies conducted on the effectiveness of office ergonomic training reported improvements in knowledge and workstation habits and a reduction in MSDs.⁵

The study aimed to determine the effects of lack of use of ergonomic intervention in offices leading to work-related musculoskeletal disorders among computer users. Various articles showed the lack of knowledge and negligence towards workplace ergonomics. In various government offices there is still no proper arrangement for the workers which was leading to various musculoskeletal problems. Hence, to create awareness and denote the lack of ergonomics in workplace KAP study was performed.

Methodology

This study was done to find out the knowledge of workplace ergonomics in corporate and government job workers working with computers or laptops. The data were collected using questionnaires in languages such as English. The questionnaire included sociodemographic data, psychosocial, pre-diagnosed physical pain, and work-related questions like working hours per day, and workstation-based questions (height of setup, type of chair, footrest, armrest, back support, lighting, etc.), and musculoskeletal disorders. All safety measures were taken during the collection of the data. The study design and the subject sample are as follows. A detailed description of the tools and procedures used in the data collection is given below.

Study Design

A survey was done through a questionnaire by distributing the questionnaire in an online format through Google forms.

Sampling

The sample included 102 office workers from different companies and offices. The sample size was decided with the use of the Survey Monkey website for better accuracy.

Inclusion Criteria

- Office workers
- Both the genders
- Office workers from 21 to 59 age group.
- Worker using a desk with computers

Exclusion Criteria

- Workers who are not a part of any other ongoing research.
- Workers who were not willing to participate.
- Workers who were working from home currently.

Source

The office workers who were working from the office, data were collected through a Google form questionnaire.

Data collection

To find out the knowledge of workplace ergonomics in office workers a self-made questionnaire was used to extract information. The final design was spread out and distributed the questionnaire personally.

The protocol adopted in data collection

The questionnaire was validated by 10 qualified professors, once the outcome was achieved. The questionnaire was pre-tested with 3 office workers before the actual data collection to check the accuracy of responses, language clarity, and appropriateness of the questionnaire. The information provided by the subjects was highly kept confidential.

Organization of data

The response was recorded from the participants who filled out the complete form. The response was later converted into a tabular form and was considered for interpretation and statistical analysis.

Statistical analysis

Descriptive statistics were determined using mean and percentage. Data was collected through Google forms and analyzed in Google spreadsheet. A descriptive analysis of the data was done. 102 participants took part in this study.

Sociodemographic data

Figure 1

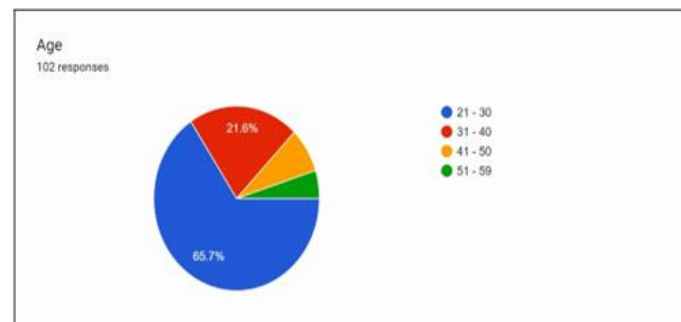
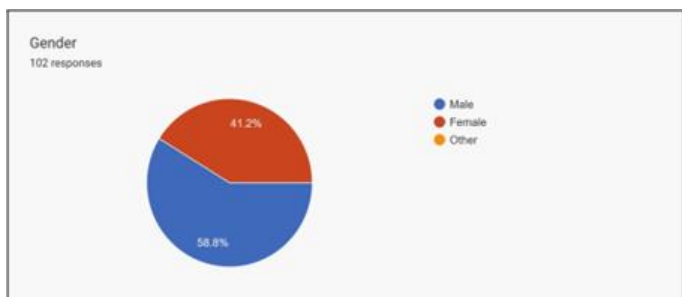


Figure 2



The participants included office workers who were computer users of both genders male and female, Male 60, and female 42. The age group of data collection was from 21 to 59 years of age. Out of which 57 people never heard about what is ergonomics and 45 have heard about it. The ratio of people who know what is ergonomics and who don't know about it was 44:58 people among 102 subjects.

Figure 3

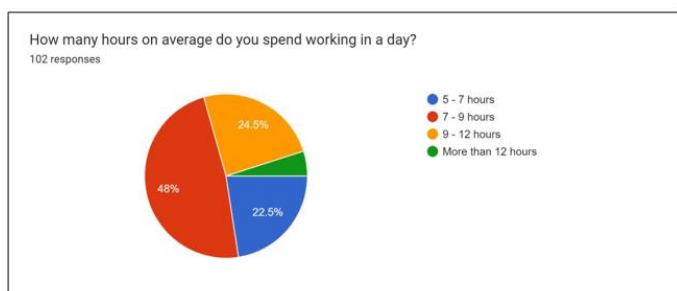
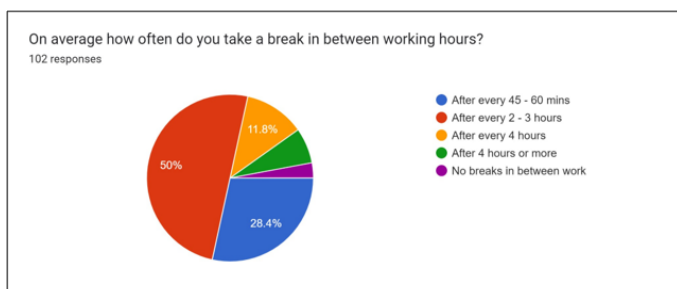


Figure 4



The mean percentage of time spent working on a chair, was 5-7 hours (22.5%), 7-9 hours (48%), 9-12 hours (24.5%), and more than 12 hours (4.9%). The breaks taken in between working hours were mostly after 2-3 hours of work (50%) and (11.8%) after 45-60 mins of work.

Figure 5

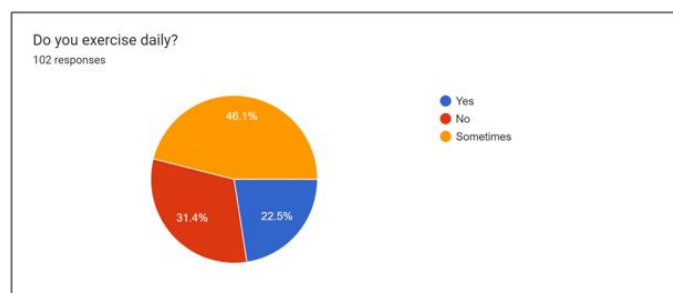
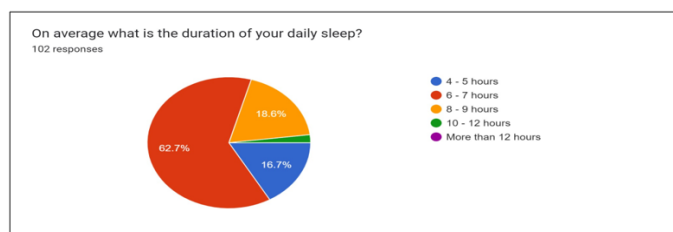


Figure 6



The ratio of daily exercise was mostly 'sometimes' for which the mean percentage was (46.1%), yes (22.5%), and no (31.4%). The duration of daily sleep was a maximum of 6-7 hours in 62.7% out of 100, time given to recover from pain to feel fresh the next day was appropriate in many.

The workplace was dedicated to about 51 people the mean percentage was 50% and 17.6% population had no dedicated workplace and 24.5% of people sometimes changed their workplace. The leg room was decent among 81.4% of people. The mean percentage of space for moving chairs was 87.3%. The lighting of the workplace was 'comfortable' for about 67.6% populations. Satisfaction in the workplace was seen as the mean percentage of the satisfied population was 42.2% and 54.9% were partly satisfied.

The computer setup showed the screen's position at various angles, the correct position was only 22.5% of people later were predisposed to neck pain issues. The mean percentage of available footrests was 50%. The lumbar support of the chair having proper curvature was seen in 49% population, 33.3% had no proper support or used a pillow as a support for the back, and 17.6% had

proper support sometimes. The chair for the workers used should be adjustable so the question was included, the mean percentage was, yes it is adjustable (79.4%), no (20.6%). The wrist rest is available for 46.1% of people and 41.2% answered no.

The general problems faced by the workers were documented through the questionnaire, the mean percentage of workers experiencing neck pain is (60.8%), back pain (67.6%), knee discomfort (11.8%), shoulder pain (34.3%), wrist pain (14.7%), ankle pain 3.9%.

The working capability alteration due to pain was seen in 17.6% population, sometimes 58.8%, and no change in 19.6%. The majority of the population said yes for the general problems they have been experiencing due to more working hours, the posture, and even the environment of the working station.

Discussion

The primary aim of the study was to determine the effects of ergonomic intervention on work-related musculoskeletal disorders among computer users in the office, based on which a KAP study was performed on 102 office workers.

The working posture of office workers varies from person to person and also depending on the stance they adopt. Office workers lack the ergonomic equipment required for tasks that require prolonged sitting, which can lead to musculoskeletal diseases. Long periods of sitting without good ergonomics or enough rest could have exacerbated the condition or perhaps caused the emergence of a new one.^{6,7}

The previous research on work-related musculoskeletal disorders in office workers showed the presence of pain and discomfort mainly in regions such as the neck, shoulder, lower back and knee. Pain in a particular region can cause the arising of pain in other regions due to

substitution or compensation of using that particular area.⁸

Due to office workers' lack of expertise in the exercise or activity they are undertaking, physical activity performed without any supervision might result in musculoskeletal diseases. This can lead to damage or pain in particular areas.⁹

As a result of pain from prolonged sitting in one position, it is seen that workers' ability to work is also impaired because of which more sick leaves have been taken, disrupting the deadlines.^{10,11} The majority of office workers, according to the survey, do not seek treatment for musculoskeletal illnesses because they lack the time or knowledge necessary to treat the specific pain that causes it to worsen, and they instead blame workload stress. Negligence on one's own postural health is more in youngsters which might be a predisposition to various musculoskeletal issues in later life. Now more than ever, ergonomics awareness is necessary.¹²

Conclusion

We draw the conclusion from this study that many office computer users experienced numerous musculoskeletal issues as a result of their lack of ergonomics understanding or usage which led in lack of performance at work altering the dimension of quality of work in office. Physical Therapist on the other hand plays an important role in spreading ergonomic awareness and educating the office workers about their posture adaptation and how to relieve pain.

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