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Journal of Ergonomics

Research Article

Assessment of Occupational Health Hazards of the Computer Users

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ABSTRACT

Computers have become an important part of life and are widely used in the office workplace, which provides efficiency, comfort and the ability to carry out work within a short period of time. Practically, computers are standard and necessary device for all the employees engaged in private or in public sectors. Around 90 million adults in the world are using computer on a regular basis. Nearly 60 million people in the world are expected to have eye related problems because of using computer. The study is focused on assessment occupational health hazards and of the computer users and to identify the relationship between occupational health hazards with age, gender and years of involvement. The study was conducted in 110 computer users of four randomly selected institute of Jorhat, Assam. For the purpose interview method and pretested interview schedule was applied. Activity profile include information such as years of experience, total working hours, frequency of using computer at work, problems faced in the workspace, rest periods etc. For assessment of health hazards a three point rating scale was used. As (Never=1), (Sometimes=2), (Often=3) to identify the occurrence of the different occupational health hazards among computer users. For identification of the association between the occupational health hazards with selected independent variables chi square test was applied. The findings showed that half of the respondents (50.90%) had a work experience of 9-12 years. Majority of the users (88.18%) spent 6-8 hours on computer every day. Only 20 per cent of the total respondents faced some of the problems in their work place. Almost half of the respondents (51.80%) took rest for 30 minutes. On analyzing the different occupational health hazards it was observed that headache was the most frequently occurring health hazards and rank-I with a mean of 1.73. It was found that there was no association between gender and occupational health hazards ('p=0.510) but significant association between age ('p=0.000**) and years of involvement ('p=0.004**).

Keywords: Computer users; Occupational health hazards; Activity profile

INTRODUCTION

The basic activities performed in an office includes using computers, answering phone calls, sending emails or fax, maintaining records in soft format or hard format with most of the above mentioned tasks performed through a computer [1]. India has a computer population of over 20 million people, with over 16 million of people suffering from eyesight problems [2]. Computer works involves reading, typing, movement of eye, fingers and clicking of the mouse cursor on the monitor. Performing any of the activity under poor working environment, repetition of an activity for long period of time throughout the day along with adoption of poor posture leads to temporary pain and discomfort, later turning into different health hazards. Almost 93.40 per cent of the computer users have one or more complaints of pain in different parts of body and neck pain being the most common about 61.30 per cent subsequently followed by finger, lower back and shoulder regions. Along with carpal tunnel syndrome, neck shoulder syndrome, cervical spondylitis. Computers when used for a long period of time without taking appropriate breaks in between along with poor workspace design tends to cause vision related problems and also resulting in pain or discomfort in the neck, upper back, shoulders, and arms regions. Thus it can be stated that workspace environment must fit to worker in order to achieve efficiency and productivity and also for ensuring their health and making the workplace comfortable [3,4]. Keeping this in mind an attempt was undertaken to assess the occupational health hazards of office employees engaged in computer work.

MATERIALS AND METHODS

The present study was carried out in Jorhat district of Assam. The sample in the study was selected by random cum purposive

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Received: 09-Sep-2022, Manuscript No. JER-22-19342; **Editor assigned:** 13-Sep-2022, PreQC No. JTH-22-19342(PQ); **Reviewed:** 27- Sep-2022, QC No. JTH-22-19342; **Revised:** 04-Oct-2022, Manuscript No. JTH-22-19342 (R); **Published:** 12-Oct-2022, DOI: 10.35248/2165-7556.22.12.308.

Citation: Gogoi M, Kalita M (2022) Assessment of Occupational Health Hazards of the Computer Users. J Ergonomics. 12: 308.

sampling technique. For the study four educational institutes were selected randomly and from which a total of 110 samples were selected purposively fulfilling the criteria of using computer for more than 4 hours daily at least for 5 or more years. For the purpose interview method was applied for gathering the data. Pre tested interview schedule was used for collection of data. Activity profile include information such as years of experience, total working hours, frequency of using computer at work, problems faced in the workspace, rest periods etc. For assessment of health hazards tree point rating scale was used. A 3 point scale was used as (Never=1), (Sometimes=2), (Often=3) to identify the occurrence of the different occupational health hazards among computer users. For identification of the association between the occupational health hazards with selected independent variables chi square test was applied.

RESULTS

The demographic profile of the study showed that 64.60 per cent of the respondents were male, and 65.50 per cent of the total selected respondents were found to be young and belonged to an age group of 25-35 years. Majority of the respondents (84.60%) were from nuclear family and 72.70 per cent had family comprising of about 4-5 members. About 81.80 per cent were reported to be married followed by 91.80 per cent had their monthly income of Rs. 20,000/- to 50,000/- with graduates being the most common education qualification among the respondents (74.60%) and 97.20 percent stated their dominant hand to be right.

Activity profile of the computer users

Activity profile include information such as years of experience, total working hours, frequency of using computer at work, problems faced in the workspace, rest periods.

Years of involvement

It was highlighted that half of the respondents (50.90%) had a work experience of 9-12 years, followed by 36.40 per cent respondents had an experience of 5-8 years and only a few (12.70%) had experience of more than 13 years.

Total working hours

It was apparent from the data that 88.20 per cent of the respondents work for 6-8 hours on computer, which was followed by 11.80 per cent of the respondents for 4-6 hours on computer. Since the working hours in government office is about 6 or 8 hours (depending upon the organization), thus there is no respondent who uses computer for more than 8 hours.

Frequency of using computer

It was revealed that maximum i.e. 88.18 per cent of the respondents use computer for 6-8 hours and 8.18 per cent for 4-6 hours every day followed by 1.82 per cent of the respondents use computer both less than 5 days a week and 5 days a week respectively for about 4-6 hours (Figure 1).

Workplace comfort

Maximum of the respondents, 80 per cent stated their workplace to be comfortable, and the rest (20%) of the respondent found it uncomfortable

Common problem faced in the workplace

It was depicted that among the above mentioned respondents who faced problem in workplace is 20 per cent. Out of these total respondents about 40.90 per cent of the respondents felt the problem of improper lighting, the lighting requirement for an office space should be 300-500 lux as per International Energy Conservation Code (IECC), followed by congested workplace (31.8%), poor ventilation (13.6%), too low workplace (9.1%) and too high workplace (4.5%).

Rest periods

It was observed from the Figure 2 that 51.80 per cent of the respondent had taken rest for about 30 minutes followed by 32.70 per cent of the respondent had rest break for about 15 minutes and 15.50 per cent of the respondent had less than 15 minutes rest break. And it was recorded that none of the respondents take a rest period of more than 30 minutes. The rest period is very less among the employees may be due to the COVID-19 pandemic. In the pandemic situation work pattern is somewhat changed and utilization of soft copy in any government office was more as compared to hard copy.

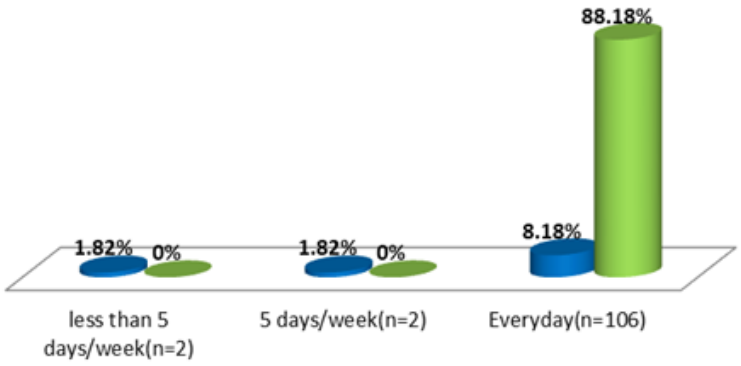

Figure 1: Distribution of respondents according to total working hours and frequency of using computer. Note: (■)4 - 6 hrs; (■) 6 - 8 hrs

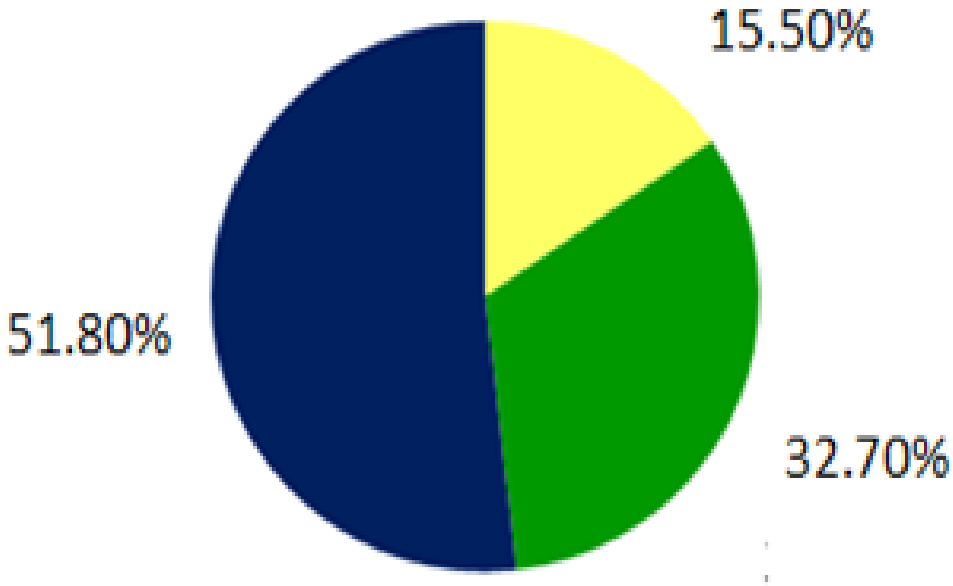

Figure 2: Distribution of respondents according to rest periods.

DISCUSSION

Occupational health hazards of the computer users

Every occupation has health hazard, thus even the office employee using computer are exposed to one or the other occupational health hazards. Some of the common work related health hazards are depicted in Table 1 and Figure 3, with their response categorized using 3 point scale (Never=1, sometimes=2, often=3). It was found that 46.36 per cent reported the incidence of headache followed by 40.90 per cent sleepiness, 39.10 per cent irritation in the eyes, 38.18 per cent watery eyes, 34.54 per cent reported incidence of spondylitis, 30.90 per cent fatigue, and both insomnia and blared vision were felt by 28.18 per cent of the respondent sometimes or occasionally. Similarly, very few occurrence of health hazards were found by less than 16.40 per cent such as irritation in the eye followed by spondylitis 15.45 per cent and 13.63 per cent reported headache and often occurrence of the other health hazards (fatigue, sleepiness, water eyes, insomnia, depression, numbness of finger, blared vision, cramps in body parts) was found to be less than 10 per cent. It was found that 89.09 per cent of the respondent have never felt depression followed by numbness of finger (88.18%), cramps in body parts (85.45%), insomnia (67.27%).

It was observed that headaches (1.73) ranked-I as its occurrence is often found to be triggered from the other health hazards such as irritation in the eyes (rank II) resulted due to constant looking at the bright screen, spondylitis (1.65) ranked III, sleepiness (1.53) ranked IV, watery eyes (1.50) ranked V, fatigue (rank VI), insomnia (rank VII) and blared vision (1.35) ranked VIII, and it can be stated that most of the occupational health hazards for the computer users usually directly or indirectly related to the eye region. Cramps in body ranked IX and lastly only a very few incidence of numbness in fingers (1.15) were reported ranked-X and depression (rank XI) (Table 1). In similar studies conducted in various parts of the world (such as India, Iran, Italy) and irrespective of the location musculoskeletal disorders was found in between 67.72% -85.00% followed by 76.3% suffering from eye problem, 89.16% fatigue, 57.56% blared vision, depression (55%), cramps in body parts (43.33%), and numbness of fingers (31.66%) causing extreme discomfort then there is heavy work load as compared to normal [5-8].

Relationship between occupational health hazards with age, gender and years of involvement

To identify the relationship between occupational health hazards with age, gender and years of involvement a null hypothesis was formulated [8,9]. Significance level 5% It was observed from Table 2 that there is no significant relationship between gender and occupational health hazards ('p'=0.510) but significant relation was found between occupational health hazards with age ('p'=0.000**) and years of involvement ('p'=0.004**). A provided explanation is due to the fact that regardless of the gender all the computer users falls under sedentary category with pretty much the same activity profile. It was found that in the study population age of the woman respondent were significantly low i.e. 25-35 years which was the probable case of finding no relation with gender. Thus, it can be concluded that with increase in age and more years of experiences, the incidence of occupational health hazards is more. So, alternative hypothesis is accepted for age and years of experiences. Null hypothesis is rejected for gender only among the young adults age.

Table 1: Distribution of respondents according to the occurrence of occupational health hazards.

Work-related health hazards	Never (1)		Sometimes (2)		Often (3)		Total score	Mean	Rank
	f	%	f	%	f	%			
Irritation in eyes	49	44.50	43	39.10	18	16.40	189	1.71	II
Headache	44	40.00	51	46.36	15	13.63	191	1.73	I
Fatigue	71	64.54	34	30.90	5	4.54	154	1.40	VI
Sleepiness	58	52.72	45	40.90	7	6.36	169	1.53	IV
Water eyes	61	55.45	42	38.18	7	6.36	166	1.50	V
Insomnia	74	67.27	31	28.18	5	4.54	151	1.37	VII
Depression	98	89.09	11	10.00	1	0.90	123	1.11	XI
Numbness of finger	97	88.18	9	8.18	4	3.63	127	1.15	X
Blared vision	75	68.18	31	28.18	4	3.63	149	1.35	VIII
Cramps in the body part	94	85.45	11	10.00	5	4.54	131	1.19	IX
Spondalyitis	55	50.00	38	34.54	17	15.45	182	1.65	III

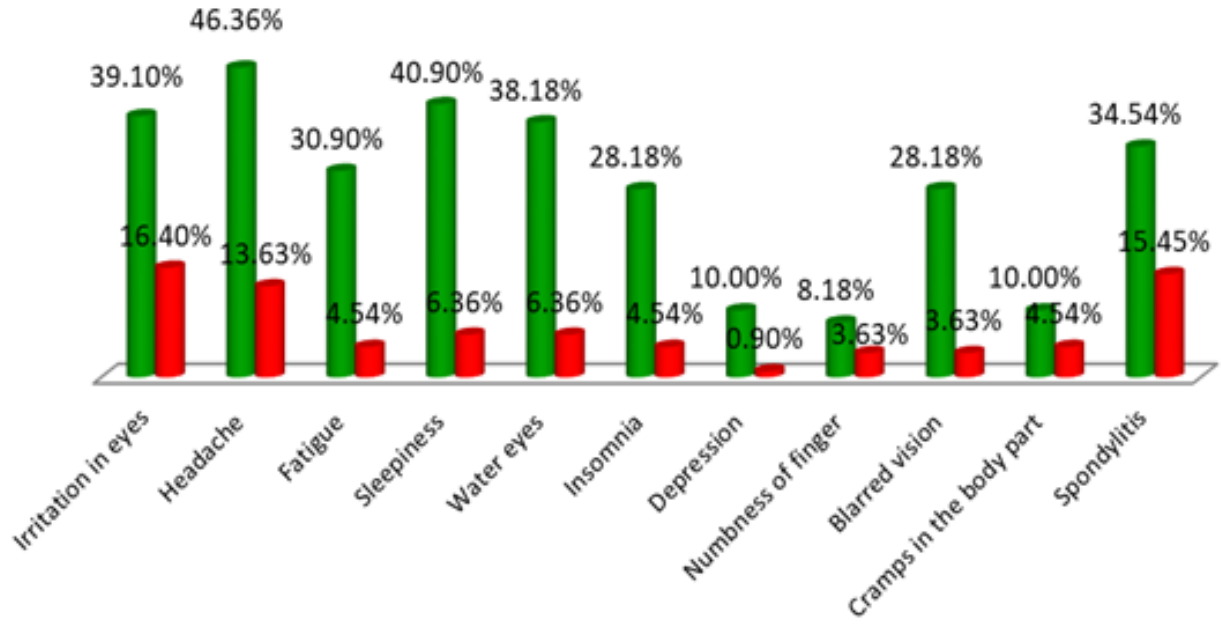

Figure 3: Distribution of respondents according to occupational health hazards. Note: ( ) Somtimes; ( ) Often

Table 2: Identification of the relationships between occupational health hazards with age, gender and years of experience.

Dependent variable	Independent variable	χ^2	p' value
Occupational health hazards	Age	102.809	0.000
	Gender	12.217	0.510
	Years of involvement	48.881	0.004

CONCLUSION

Occupational health hazards are the hazards to which we are exposed based on the occupation different occupation have different hazards. The results in the study showed that irritation in the eyes, headache, fatigue, sleepiness, watery eyes, depression, insomnia, spondylitis, blared vision, numbness of finger being the common hazards to which computer users are exposed among which headache, irritation in the eye and spondylitis being the top three. Occupational health hazards have significant relation with age, gender and years of involvement.

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