

Effect of Educational Program on the Knowledge of Injured Administrative Staff Regarding Safety Computer Use

Yaseen Mohammed Mussa
Lecture of Adult Nursing, University of Kirkuk, Iraq

Abstract

Objectives: To assess the effectiveness of educational program on the knowledge of injured administration staff regarding safety computer use.

Method: A Quasi Experimental ,One Group – pretest – posttest study was carried out through the application of quantitative design through the period from September 1st , 2015 to May 23th , 2016.A purposive sample of (20) individual from injured administrative staff of college of nursing/university of Kirkuk whom use computer were selected for the study, the scale of the study was rated according to the right and wrong answers,data were analyzed through the use of statistical package for social sciences (SPSS) which applied (frequency, percentage , mean of scores, standard deviation and Paired T-test) at p-value ≤ 0.01 .

Results: The results of the study showed that most of the participants (25%), were from age group (31 – 35) years, more than half of the them(60 %) were female, (65 %) of them had more than 10 years service and more than two third (75%) were college graduate, (65 %) had more than 10 years' service and (55%) of them had less than (5 years) experience of computer use, while (30 %) of them had more than 10 years, most of the sample (75%).were collage graduated.

Conclusions: The study finding concluded poor staff knowledge in pretest in compare with high good knowledge in posttest, educational program highly statistically improved the knowledge of administrative staff for requested level in which it may reduce further expected physical problems and risks.

Recommendations Further program in such selection to be routinely repeated during different times .To enhance their healthy life, we recommended to provide posters regarding the positioning and the exercises as a recourse for the staff. Generalization the program among the administrative staff of university of Kirkuk

Key words: Effect , Educational Program , Knowledge , Safety Computer use

1.Introduction

The computer is a vital tool in different jobs and activities, for adults and children. But long periods of using a computer can increase your chance of developing an injury. Inappropriate computer use can cause muscle and joint pain, overuse injuries of the shoulder, arm, wrist or hand, and eye strain Back and neck pain, headaches, and shoulder and arm pain are common computer-related injuries Such muscle and joint problems can be caused or made worse by poor workstation (desk) design, bad posture and sitting for long periods of time although sitting requires less muscular effort than standing, it still causes physical fatigue(tiredness) and you need to hold parts of your body steady for long periods of time. This reduces circulation of blood to your muscles, bones, tendons and ligaments, sometimes leading to stiffness and pain. If a workstation is not set up properly, these steady positions can put even greater stress on your muscles and joints⁽¹⁾.

It is estimated that today at least 75% of all jobs involve some level of computer use; this means three-

quarters of the workforce are being exposed to numerous health problems, the same can be said of students and educators who do not go through any day without access to a computer for academic work⁽²⁾.

Employees who use computer daily for more than hours are more likely subjected to the risks of all these health disorders (carpal tunnel syndrome, computer stress syndrome, computer vision syndrome and muscular skeletal problems)⁽³⁾.

2.Objectives of the study:

- 1- To determine the socio demographic characteristic of the sample.
- 2- To compare between pretest and post test results.
- 3- Assess the effect of educational program on the knowledge of administration staff regarding safety computer use.

3.Methodology

To achieve the objectives of the study A Quasi Experimental ,One Group – pretest – posttest study was carried out through the application of quantitative design. It was carried out to assess the knowledge of administrative staff regarding safety computer use injured with muscular skeletal problems include neck and wrist joint distress, carpal tunnel syndrome, computer stress syndrome, computer vision problem. The study was initiated through the period from September 1st, 2015 to May 23th, 2015. The study was conducted at Collage of Nursing/University of Kirkuk. A purposive (non – probability) sample of (20) participants from administrative staff were selected for the study. A questionnaire was adopted and developed for the purpose of the study. The data were collected through the use of constructed questionnaire The questionnaire comprises of (2) parts. The first part was socio demographic data from which consists of (5) items. It includes: age, gender, level of education, years of employee, and years of computer use. The second part was knowledge of administrative staff regarding safety computer use items. Administrative staff knowledge test consist of (20) questions, multiple choices have been introduced in both pre and posttest. The data collection was carried out for the period from December 7th,2015 for pretest and January 21th,2016 for posttest. The scale of the study was rated according to the right and wrong answers. The score for right answer was (2) while for wrong answer was (1). The percentage of the answers were considered as the following: less than 50 considered as poor knowledge while 50 and more considered as good knowledge. Data were analyzed by using descriptive statistics, which include (frequency, percentages, mean of scores and standard deviation) and inferential statistics (Paired T-test at p-value ≤ 0.01). Statistical Package for Social Science (SPSS) version (17) is used for data analysis.

4.Results

Table (1) : Distribution of the sample according to their socio demographic characteristics

Age groups	Frequency	Percentage
(26 – 30) years	4	20.0
(31 – 35) years	5	25.0
(36 – 40) years	3	15.0
(41 – 45) years	4	20.0
(46 – 50) years	4	20.0
Total	20	100%
Gender	F	%
Femal	12	60.0
Mal	8	40.0
Total	20	100.0
Number of service years	F	%
Less than 5 years	3	15.0
Less than 10 years	4	20.0
More than 10 years	13	65.0
Total	20	100.0
Number of years computer use	F	%
Less than 5 years	11	55.0
Less than 10 years	3	15.0
More than 10 years	6	30.0
Total	20	100.0
Level of education	F	%
Primary	0	0
Secondary	0	0
Institute	5	25
Collage and higher	15	75
Total	20	100.0

The results of table (1) showed that most of administrative staff (25%) were from age group (31 – 35)years. Regarding to their gender, most of the sample (60%)were female , and the remaining (40%) were male . also the result show that (65 %) of them had more than 10 years service. In addition, more than half of staff(55%) had less than 5 years of computer use, collage graduated represent the higher percentage (75%).

Table (2) : Comparison between pre - and post – test results of participants knowledge by frequency and percentage of true and false answers.

Questions	Pre Test					Post Test				
	True	%	False	%	Ass.	True	%	False	%	Ass.
1. Prefer to take regular breaks when using a computer every	4	20.0	16	80.0	F	16	80.0	4	20.0	S
2. Ventilation necessary to place the computer in which it is used to	5	25.0	15	75.0	F	15	75.0	5	25.0	S
3. When visualizing Pc screen for long periods dry eye and feel of thirst due to	6	30.0	14	70.0	F	13	65.0	7	35.0	S
4. Suitable computer screen height	4	20.0	16	80.0	F	17	85.0	3	15.0	S
5. Eye height when sitting	6	30.0	14	70.0	F	17	85.0	3	15.0	S
6. Mouse pad is used to	10	50.0	10	50.0	S	17	85.0	3	15.0	S
7. The distance between the user and the screen must be	5	25.0	15	75.0	F	10	50.0	10	50.0	S
8. When sit on the seat of the computer the feet position are	6	30.0	14	70.0	F	15	75.0	5	25.0	S
9. To avoid overheating of the computers ,it's better to	5	25.0	15	75.0	F	19	95.0	1	5.0	S
10. The Best safe size of computer screen is	10	50.0	10	50.0	S	18	90.0	2	10.0	S
11. The comfortable angle of wrist and forearm should be	7	35.0	13	65.0	F	11	55.0	9	45.0	S
12. Typing elbow angle	8	40.0	12	60.0	F	18	90.0	2	10.0	S
13. The angle of forearm with the upper arm	10	50.0	10	50.0	S	17	85.0	3	15.0	S
14. Seated position at work	10	50.0	10	50.0	S	18	90.0	2	10.0	S
15. A suitable computer chair characterized by	8	40.0	12	60.0	F	16	80.0	4	20.0	S
16. without support	5	25.0	15	75.0	F	13	65.0	7	35.0	S
17. to minimize eyes strain it necessary to	11	55.0	9	45.0	S	15	75.0	5	25.0	S
18. Knee angle when sitting	5	25.0	15	75.0	F	11	55.0	9	45.0	S
19.- taking regular break is necessary for	9	45.0	11	55.0	F	17	85.0	3	15.0	S
20. Repetitive Strain disease caused by	10	50.0	10	50.0	S	19	95.0	1	5.0	S
		30%		70%	3%		100%		.%	100%
		S		F	S		S		F	S

S = Success , F = Failure , Ass = assessment , % = percentage

Table (2) result showed in pre – test , (30%) of the participants knowledge were true (poor knowledge) and (70%) were false (poor knowledge), in compare with post – test in which the participants answer (100%) truly (good knowledge). shows that there is improvement with high significance between pre and posttest of study group in overall questions.

Table (3) : Comparison of mean knowledge scores between the pre - and post – test results by T-test – Paired Two Sample for Means.

Subjects	Pre	Post
Mean	7.20	15.60
SD	2.38	2.70
Observation	20	20
df = 19		
The mean of pretest minus posttest equals -8.40 (95%) Confidence interval of this difference: From -9.67 to -7.13		
standard error of difference = 0.609		
P(T≤t) two - tail = 0.0001		
T-test = 13.7997		

P-value ≤ 0.01 , SD: Standard Deviation , df = Degree of freedom

Table (3) Showed that comparison of mean knowledge scores between pre and posttest were highly significant differences in mean knowledge scores between pre and posttest whereas t-test = 13.7997, p-value= 0.001). This indicate that educational program highly statistically improved the knowledge of administrative staff for highly requested level in which it may reduce further physical problems and risks..

5.Discussion of the Knowledge Regarding Safety Computer Use

The results of table (1) appeared that most of administrative staff age group rated from (31 – 35)years, although they were considered as adult youth, but unfortunately their lack of information about positioning and necessary exercise took their feeling of physical wellness. Regarding to their gender, most of the sample (60%)were female. also the result show that (65 %) of them had more than 10 years service. In addition, although more than half of staff(55%) had less than 5 years of computer use and more than two third (75%) were collage graduated, they white collar workers missed a session, workshop or training in educational lectures regarding the risks of unhealthy postures behind computer table for long period and how avoid the expected health problems.

Regarding to the results in table (2), only (30%) of the sample were succeeded during pretest, which indicate poor knowledge in compare to posttest in which the participants answer (100%) truly which indicate acquiring good knowledge. This result assured that implementation that the educational program put it is action on the administrative staff . In addition, the poor result of pre test appeared due to that the staff did not attended to courses of safety computer use and unplanned work strategy for training and developing the qualification of the employees prior to working on computer. Health problem already related to long period of computer use although most of them were using computer for less than 5 years without any annual evaluation of employee knowledge. In the study conducted by Coury, 97.3% of the individuals who read the manual considered the text clear and 91.9% of them considered it to be of an appropriate size. All of the individuals believed that the text helped to understand the effects of their work posture on their organism and 97.3% said that the text helped them to decrease these effects⁽⁴⁾.

The traditional pedagogical strategy in association with workshops is a place for reflection, thereby making the person an active individual: a person of action and reflection. Moreover, it was reported that this learning technique stimulated interpersonal relationships between employees, thus making discussions between people with the same objectives easier, allowing exchanges of information, assisting them in understanding the knowledge about the seated posture, stimulating employees to reflect about adopting intervention strategies for work risk factors, and reinforcing their responsibilities and rights regarding their own health (5,6).

The result of our study supported by Wahlstro (2014) who stated that inefficiency being that the computer user may have poor etiquette when using peripherals for example incorrect posture when using a peripheral and when exposed to a situation of bad posture over an extensive period of time problems such as bad posture can occur⁽²⁾. Furthermore, organizations can provide training of ergonomics to employees, thus, ensuring safety of its human assets. By analyzing the results and findings, it is concluded that Prolonged computer use (i-e more than four hours daily) creates several problems for its users. The simultaneous occurrence of several health problems associated with computer use among human beings means that human body is continuously subjected to more and more risks⁽⁷⁾.

In the other hand, research has suggested that remaining seated for too long is bad to health, regardless of how much exercise will done. To reduce our risk of ill health from inactivity, we are advised to exercise regularly – at least 90 minutes – as well as reduce time spent sitting or lying⁽⁸⁾.

Other study revealed that frequent computer users suffer from computer vision syndrome, which is a degenerative eye problem which can result in severely reduced eyesight (Myopia), blurred vision, overall eye tiredness and even Glaucoma. Computer Eye Syndrome is an umbrella term for many problems but the causes of these problems can be easily identified⁽⁹⁾. In addition, studies have been conducted into the correlation between computers and eye problems and it was found that the Ionizing radiation given off by monitors has severe detrimental effects on the eye and eyesight on a whole . It is best to move the monitor as far away as possible and increase the size of the font, Studies have found monitor Distance should be between (50-75) cm⁽⁹⁾.

6. Conclusions

- 1 -Most of administrative staff showed poor knowledge in pretest in compare to high good knowledge in posttest.
- 2- Educational program highly statistically improved the knowledge of administrative staff for highly requested level which may play a role in minimizing further health problems

7. Recommendations:

Further long-term studies with more administrative staff are highly recommended to describe the effects of this program in such selection and to be routinely repeated to enhance their health, quality of life, prevent complications and they can achieve physical safety and healthy work environment in their workplace, we also recommended to provide posters regarding the positioning and the exercises of (upper , lower extremities and eye). Generalization the program among the administrative staff of university of Kirkuk as well as the students.

References

1. Robbins, M., Johnson, I. P., & Cunliffe, C. (2009). Encouraging good posture in school children using computers. *Clinical Chiropractic*, 12(1), 35-44
2. WahlstrM., Jens. "Ergonomics, musculoskeletal disorders and computer work". *oxfordjournals.org*. Oxford University Press. Retrieved 20 April 2014.
3. Robbins, M., Johnson, I. P., & Cunliffe, C. (2009). Encouraging good posture in school children using computers. *Clinical Chiropractic*, 12(1), 35-44
4. Coury HJCG. Programa auto-instrucional para o controle de desconfortos posturais em indivíduos que trabalham sentados [Tese]. Campinas (SP): Unicamp; 1994.
5. Mendes MD, Casagrande LDR. Trabalhadores e educação em saúde: utilização da metodologia problematizadora pelo enfermeiro do trabalho. *Rev Bras Saúde Ocup*. 1997;24(89/90):9-14.
6. Ferrari RAP, Jeolú LS. Oficinas de prevenção em um serviço de saúde para adolescentes: espaço de reflexo e de conhecimento compartilhado. *Ciê e Saúde Colet*. 2003;8(2):611-20.
7. Abida, J. H.; Thomsen, JF; Overgaard, E; Lassen, CF; Brandt, LP; Vilstrup, I; Kryger, AI; Mikkelsen, S. "Computer Use and Carpal Tunnel Syndrome: A 1-Year Follow-up Study". *JAMA* (2011)**289** (22): 2963.
8. Ali, KM; Sathiyasekaran, BW (2006). "Computer professionals and Carpal Tunnel Syndrome (CTS)". *International Journal of Occupational Safety and Ergonomics* **12** (3): 319–25. [PMID 16984790](https://pubmed.ncbi.nlm.nih.gov/16984790/)
9. Blehm, Clayton; Vishnu, Seema; Khattak, Ashbala; Mitra, Shrabanee; Yee, Richard W. "Computer Vision Syndrome: A Review". *Survey of Ophthalmology*,(2005). **50** (3): 253–62