Effectiveness of Self Instructional Module on Knowledge regarding prevention of Musculoskeletal Discomfort among Sedentary Workers

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PROBLEM STATEMENT:

'To assess effectiveness of self instructional module on knowledge regarding prevention of musculoskeletal discomfort among sedentary workers in selected areas of Wardha city.'

INTRODUCTION:

The National Institute for Occupational Safety and Health (NIOSH) estimates that, at present, there are more than 100 million computer workers since the latter 1970s, the number of computer workers utilizing computers has increased from a few thousand to more than 450,000. In the coming years, like postural or musculoskeletal problems are common to many sedentary jobs. Operator complaints are most often related to the neck, shoulders, back, and wrists. Complaints mentioned less often involve the arms, hands, and legs. Researchers indicate musculoskeletal symptoms are more frequently reported by computer operators than workers in traditional jobs.

According to scientific and medical information, including data from studies conducted/sponsored by Occupational Safety and Health Department, serious musculoskeletal health symptoms are most often associated with computer jobs requiring constrained working positions for an entire work shift. In a seated position, the computer worker is subject to continuous stress on almost all postural muscles. The amount of the stress is dependent upon the position of various parts of the worker's body. Holding the head to the side or forward may lead to neck and shoulder fatigue and pain. Other neck and shoulder complaints result from the use or position of the operator's arms. For example, elevation of the arms will add to neck and shoulder strain. Prolonged, constrained postures required by the job will make this condition worse. Over the long-term, continued wear and tear may result in a gradual deterioration of joint tissues.

WHO (2006) recognizes that occupational health is closely linked to public health and health systems development. Therefore the Occupational Health Programme, together with its partners, aims at addressing a large number of determinants of workers' health, including risks for disease and injury in the work environment, social and individual factors, and access to health services. The workplace is a suitable setting for protecting and promoting the health of workers and their families.

The most common body areas to watch for the hands, wrists, elbows, shoulder, and neck. The problem may vary from aches to pain, burning, numbness or tingling. These symptoms may be felt during typing or mouse use or at other times when no work is being done, including during the night when the symptoms may wake up.

If musculoskeletal discomfort is neglected and if not treated early complication may develop and worker can loss job, due to his or negligence and risk factors.

Here researcher can say that need for study is felt due to no effective information available to employees /workers regarding musculoskeletal discomfort.

Most of population is affected by musculoskeletal discomfort due to lack of knowledge about musculoskeletal discomfort.

Where as most of the population unaware about the preventive measures & treatment.

OBJECTIVES :

1. To assess the knowledge of sedentary workers regarding prevention of musculoskeletal discomfort.
2. To evaluate the effectiveness of Self Instructional Module on prevention of Musculoskeletal discomfort among sedentary workers.
3. To associate the knowledge with selected demographic variables.

HYPOTHESIS :

H0: There will be no significant increase in the level of knowledge regarding musculoskeletal discomfort among sedentary workers after administration of self instructional module.

H1: There will be significant increase in the level of knowledge regarding musculoskeletal discomfort among sedentary workers after administration of self instructional module.

CONCEPTUAL FRAMEWORK :

The present study aims at developing and evaluating the effect of self instructional module on knowledge regarding prevention of musculoskeletal discomfort among sedentary workers. The framework of the present study is based on the 'system's model' for development of learning material for continuing education of health worker (WHO 1985). The conceptual framework is divided into three phases - input, throughput and output.

Input: In this study input refers to sedentary workers working with computer and being with computer work more than 5 yrs. In this study their initial knowledge will be assessed by the pre-test based on a structured questionnaire.

Throughput: self instructional module on knowledge regarding prevention of musculoskeletal discomfort was administered to the sedentary workers working with computer, after conducting the pre test.

Output: In this study, output refers to gain in knowledge scores in post-test of the of sedentary workers regarding prevention of musculoskeletal discomfort. . The post-test will be conducted 7 days after administration of SIM of the gain in knowledge scores also will have an effect on their practices of sedentary workers on in the future.

REVIEW OF LITERATURE :

For the present study is organized under the following headings :

Literature related to musculoskeletal discomfort among sedentary workers working with computer.

Literature related to effectiveness of self Instructional Module.

RESEARCH DESIGN :

A one group pre test and post test design (Quasi experimental) was chosen for the study.In the present study a pre test was administered by means of structured questionnaire depicted as O1 and then module was given depicted as X, a post test was conducted using the same self instructional module depicted O2.

The study design is depicted as:

Pre Test	Intervention (self instructional module)	Post Test
O1	X	O2

VARIABLES UNDER STUDY
INDEPENDENT VARIABLE:

Self instructional module on prevention of musculoskeletal discomfort

DEPENDENT VARIABLE:
Knowledge about prevention of musculoskeletal discomfort

TOOL PREPARATION
A tool is an instrument or equipment used for collecting the data.

DEVELOPMENT OF THE TOOL :

The investigator developed the tool after updating his theoretical knowledge by receiving relevant literature on musculoskeletal discomfort and it's prevention.

The investigator's own experience, theoretical knowledge and guidance from the expert along with the review of literature helped in developing the tool necessary for the study.

The following tool is developed for the study

Structured Questionnaire

Description of the tool

Questionnaire: A structured questionnaire was prepared to determine the knowledge of sedentary workers on prevention of musculoskeletal discomfort.
A questionnaire is a totally structured instrument, the subjects are asked to respond to exactly the same questions in same order, and they are given the same set of option for other response". The questionnaire consisted of all closed ended questions as they were

easier to administer and analyze. They can also be completed in a given amount of time.

Section I : Dealt with demographic data.
Section II : Structured questionnaire on knowledge regarding prevention of musculoskeletal discomfort. Which consisted of multiple choice items.

ANALYSIS AND INTERPRETATION DATA :

This chapter deals with analysis and interpretation of the data collected from 60 samples from selected areas of Wardha city. The present study has taken up to assess the effectiveness of self instructional module on knowledge regarding prevention of musculoskeletal discomfort.

The quantitative data was analyzed by SPSS (14.0).Descriptive statistics was performed individually on the responses to the items on knowledge of practices. The data was analyzed based on the following objectives.

o The collected data is tabulated, analyesd, organized and presented under the following headings.

Section I: It deals with the distribution of sedentary workers with regard to demographic data.

Section II: Significant difference of knowledge score regarding knowledge on prevention of musculoskeletal discomfort among sedentary workers before and after administration of self instructional module.

Section III: Level of knowledge score regarding knowledge on prevention of musculoskeletal discomfort among sedentary workers before and after Administration of self Instructional module.

Section IV: Distribution of subjects in relation to knowledge regarding prevention of musculoskeletal discomfort among sedentary workers before and after administration of Self Instructional Module.

Section V: Comparison of significant of difference between Knowledge score in relation to Demographic variable.

SETTING OF THE STUDY :

The setting of the study refers to the area where the study is conducted. The setting for this particular study was proposed to be in in selected areas of Wardha city .The sedentary workers working with computer were selected mainly from Datta Meghe Institute Of Medical sciences University, Acharya vinoba bhave rural hospital ; sawangi (meghe),District post office and DTP operators from Wardha city.

IDENTIFICATION OF TARGET AND ACCESSIBLE POPULATION :

The proposed study was undertaken in areas of Wardha and sedentary workers working with computer was selected.

SAMPLING TECHNIQUE was non-probability, Convenient sampling.

SAMPLING SIZE : sixty sedentary workers who fulfilled the criteria laid down for the selection of the sample.

CRITERIA FOR SAMPLING

INCLUSION CRITERIA
Aged between 25-57 yrs.
Working At least 6 hours / day with computer with minimal physical exercise.
Willing to participate.

EXCLUSION CRITERIA
Workers less than 5 yrs of experience.
Those who are having musculoskeletal disorder.
Those who do regular exercise.
Not available at the time of collection

SCORING
A score of '1' was given for each correct answer and score '0' was given for every wrong answer. The total score was 22.
No negative score was given.

TECHNIQUE
The technique used was self reporting.

VALIDITY:
In order to obtain content validity. The tool was given one expert from Department of Community Medicine, two from Physiotherapy College and seven experts from Nursing Department.

RELIABILITY:
Reliability analysis done by Guttmann Split Half Coefficient = .75 .The tool is reliable.

PLAN FOR STATISTICAL ANALYSIS :
The collected data was coded, tabulated and analyzed by using descriptive statistics (mean percentage,

standard deviation) and inferential statistics. Significance difference between pre and post test readings was tested by using t-test , comparison between two groups were compared using one group ANOVA and Multiple comparison was done by using Tukey multiple comparison test.

The data is presented in the form of tables and graphs

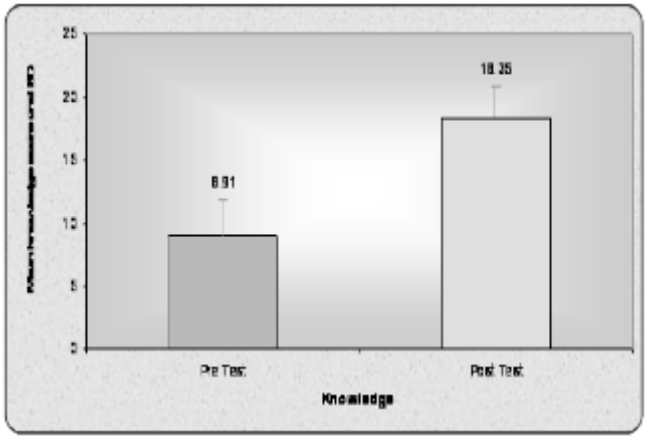
Overall	Max. score	Mean	Stand. devia -tion	Mean %	t-value	p-value
Pre Test	15	8.91	2.99	40.53	39.61	0.000
Post Test	22	18.35	2.61	83.40		S,p<0.05

SIGNIFICANT DIFFERENCE OF KNOWLEDGE SCORE REGARDING KNOWLEDGE ON PREVENTION OF MUSCULOSKELETAL DISCOMFORT AMONG SEDENTARY WORKERS BEFORE AND AFTER ADMINISTRATION OF SELF INSTRUCTIONAL MODULE.

Significance of difference between pre test and post test knowledge score in relation to knowledge and prevention of musculoskeletal discomfort. (student paired t test)

The below table shows the significance of difference between pre test and post test knowledge score in relation to knowledge and prevention of musculoskeletal discomfort;

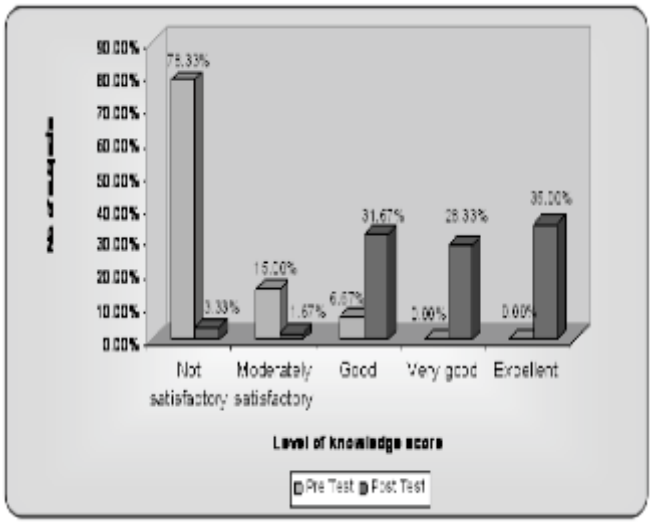
In Pre-test mean knowledge score was 8.91, ± 2.99 and In Post-test it was 18.35 ± 2.61 .Which is 83.40 % of total score. There is Significance of difference between pre test and post test knowledge score in relation to knowledge and prevention of musculoskeletal discomfort and p-value is <0.05 significant (p= 0.000). Thus H 1 is accepted and it is concluded that SIM effective.



test knowledge score in relation to knowledge regarding prevention of musculoskeletal discomfort.

	Not satis factory (0-11)	Mode rately satis factory (12-14)	Good (15-17)	Very good (18-19)	Excellent (20-22)
Pre test	47 (78.33%)	9 (15%)	4 (6.67%)	0 (0.00%)	0 (0.00%)
Post test	2 (3.33%)	1 (1.67%)	19 (31.67%)	17 (28.33%)	21 (35%)

Above table shows level of score in pre-test and Post-test ,In Pre-test majority of the score was not satisfactory (78.33%),15% were Moderately satisfactory and 6.67% were having good level of score. In Post-test majority of level of score was good (31.67%) ,Very good (28.33%) and excellent (35%) and 1.67% in moderately satisfactory and 3.33% belong to not satisfactory category. Above table clearly represents that there is increase in the level of score in Post-test in comparison to the Pre-test. Thus H1 is accepted and it is concluded that SIM effective.



DISCUSSION :

The finding of the study have been discussed with reference to the objective of the research and assumption of the study. The analysis shows that 43.33% of the subject were of the age group of 25-34 yrs. And 35-44 43.33% respectively and 13.33% of subject were of the age group of 45-57 yrs.

There were 81.67% of males and 18.33% of female sedentary workers who works with computer.

In study there are 81.33% were married ,15% unmarried

and 3.33% were single respectively.

80%of Hindus and 20% of Buddhist subject were studied.

There were 36.67% of subjects Higher secondary,48.33%were graduate,15% postgraduate respectively. As per their type of family 56.67% subjects living in joint family,35%innuclear family and 8.33% in extended family respectively.

Most of the sedentary workers (38.33%) ;monthly income were in between Rs.5001 -10000.and 28.33% of subjects monthly income were up to Rs.5000.and 16.67% of subjects monthly income were fell in between Rs.10001-above 15000. respectively. Most of the sedentary workers were doing private job.46.67% working in private sector, as compared to 21.67% in Government and 31.67% were doing their own business.

Out of selected subjects in study 38.33% subjects having 5-10 yrs. Of work experience, 36.67%were having 11-15 yrs. Of work experience and 25% of subjects having more than 15yrs. Of experience.

In Post-test majority of level of score is falls in good (31.67%) ,Very good (28.33%) and excellent category (35%) and 1.67% in moderately satisfactory and 3.33% belongs to level of not satisfactory category. This suggested that most of samples had good level of knowledge.

LIMITATIONS :

The study was carried out on a small population so the findings cannot be generalized for a large population.

The relevant literature was scanty, as hardly any nursing study has been conducted on the topic under investigation.

Sedentary workers working with computer. at least 6 hrs per day. with minimal physical activity.

Sedentary workers having musculoskeletal disorder.
Those who do regular exercise.
Age limit to 25 to 57 years.
Experience more than 5 yrs.
The study was limited to the experience level of the researcher.

RECOMMENDATIONS :

Based on above mentioned limitations, investigator recommends that-

It is suggested that the study may be replicated using a larger population.

A study in the health team members to explore the knowledge of musculoskeletal discomfort/

A comparative study among rural and urban areas to assess the knowledge about prevention of musculoskeletal discomfort

The same study can be done in pre test, post test design with self instruction module or teaching plan or with control group.

Survey can be done to assess the knowledge on prevention of musculoskeletal discomfort.

The self instructional module significantly brought out improvement in the knowledge of sedentary workers regarding musculoskeletal discomfort.

Analysis of data showed that there was significant difference between pre test and post test knowledge score.

CONCLUSION :

The self instructional module significantly brought out improvement in the knowledge of sedentary workers regarding musculoskeletal discomfort.

Analysis of data showed that there was significant difference between pre test and post test knowledge score.

REFERENCES :

Books:

1. *Denise F.Polit, (2008) Cheryal. Nursing Research: 8th edition, Philadelphia :. Lippincott Wilkins publication; pp507-664.*

2. *Goldman Ausiell.(2004),Text book of medicine: 22nd edition Saunders publication; pp 2149 - 2152.*

3. *Jacqualeline Fawett.(1999),Theory and Research: 3rd edition,. Lisa A. Billo publication. ; pp 305-334.*

4. *Janice M. Morse and Peggy Anee Field, (2005) ,Nursing Research : 2nd edition, Nelson Thorne pvt. Ltd. Publication ; pp103.*

5. Joyce Black ,Esther Matassarin Jacob.(1997),Medical surgical nursing: 5th edition Philadelphia : W.B. Saunders ; pp 614- 617 .

6. K .Park .(2003),Preventive and Social Medicine :17th edition Indore: Bhanot publication ; pp 259- 265.

7. Lewis Collier , Heitkemper.(1997),Medical surgical nursing:4th edition Philadelphia : 1997 W.B. Saunders; pp 235-245.

8. Nancy Burns, Susan K. Grove, (1995),Understanding Nursing Research:. 2nd edition Published by Harcort (India) pvt. Ltd ; pp184-220.

9. Patrica L. Munhall,(2007), Nursing Research . A Qualitative prespective : 4th edition Libarary at congress; pp 502-504.

JOURNALS:

14. Amit bahl,Dr.G.K.Rath.(2006).Role of radiology in management of musculoskletal conditions,Orthopedic today,july-september; vol-viii, no.3,pp.139-141.pp.

15. Anthony delitto, A.ferland et al.(2008). streching exercises,Journal of physiotherapy,september;vol-38,no-9 pp.267-268.

16. Adegbehinbe olayinkao, et. al.(2008)musculoskeletal discomfort-epidemiology and treatment seeking behavior of sedentary school students in a Nigerian community ,Indian journal of community medicine,jan-; vol .34,no.1.pp.115-116.

17. Andersen JH,K Margaret et al.(2007).Physical ,psychosocial and individual risk factors for neck/shoulder pain with pressure tenderness in the muscles among sedentary workers performing monotonous,repetitive work. Indian journal of occupational and environmental medicine,jan-april;vol-12,issue-1.pp-168.

18. Bergqvist ,wolgast et al. (2007).Opportunities for flexible rest breaks as one of the conditions important in preventing or alleviating upper body muscular problems. Indian journal of occupational and environmental medicine,jan-april;vol-12,issue-1.pp-189

19. Coury HJ (1998) self administered preventing programme for sedentary workers reducing musculoskeletal symptoms or increasing awareness.,Applied Ergonomics. Dec;29(6):415-21.

Websites:-

44. www.who.com/health topics/musculoskeletal discomfort/2008

45. www.pubmed.gov/search/research/ musculoskeletal discomfort/sedentary workers

46. www.ijoonline.com/sedentary workers

47. www.ilo.com/research/statistics/occupational hazard

48. www.osha.gov

49. www.articlecity.com/breaks for workers

50. www.guidline.gov
.

51. info@humanscale.com.

52. www.healthcrow.com

53. www.BLS.gov/statistics/sedentary workers

54. http://www.census.gov.