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ASSESSMENT OF SHOULDER PAIN AND DISABILITY AMONG COMPUTER USERS OF ADMINISTRATIVE SECTION IN TERTIARY CARE CENTRE, PUDUCHERRY

Nursing Science

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ABSTRACT

Introduction & Background: Occupational health is an area of public health to promote and maintain the highest degree of physical, mental and social well-being of workers in all occupations (WHO). At workplace, a worker is exposed to many occupational hazards. Among these hazards, ergonomic-related musculoskeletal disorders are becoming a serious problem due to repetitive physical jobs with poor posture, improper body mechanisms while doing the job, poor workstation, etc.[2] Shoulder pain (49.6%) is one among the work-related musculoskeletal disorders next to neck pain (60.3%) and back pain (59.5%) among the computer users.[3] Chronic shoulder pain (63.3%) leads to shoulder disability (30.9%) in turn reducing the ability to work (29.1%) and thus reducing the quality of work.[5] So assessing for shoulder pain and shoulder disability among computer users will help to find the associating factors for the same. The exploration among the computer users will help the human resource managers to plan for wellness programs to prevent shoulder pain and early intervention to prevent disability. **Methods:** The objective of the study was to assess shoulder pain and disability among computer users of administrative section and to find its association with selected demographic variables in tertiary care centre, Puducherry. A cross sectional analytical study was carried out which included all the computer users in administrative department using Convenience sampling technique. Data was collected from 152 computer users by self administered questionnaire method using Shoulder Pain and Disability Index(SPADI). **Results:** Demographic variables analysis reveled that majority of computer users were age group of 31-40years (47.4%), male (75%), moderately built(75.7%), doing physical activity(77%), doing physical activities other than those mentioned in questionnaire(34.2%), doing moderate activity at home(52%), no co-morbidities(77.6%), those with co-morbidities hypertension(41.2%), mode of travel to work by bike(48.7%), designation as Junior Administrative Assistant(39.5%), area of work as Administrative Department(43.4%), comfortable work station(99.3%), type of computer used as HP (58.6%), computer user for 1-10 years(53.9%), moderate work allotment(78.3%), using computers for 5-10 hours of duration(77%), 1-3 breaks from computer per day(67.1%), less than 1 hour duration of break (85.5%), no need for shoulder pain management(73.7%), hot or cold application for pain management(42.5%). Analysis of shoulder pain and disability showed that 67.1% were having a shoulder pain score of 0-20% (67.1%), 80.9% were having a shoulder disability score of 0-20% and 73.7% were having a SPADI score of 0-20% . Inferential analysis showed that there is a significant statistical association between shoulder pain and disability index(SPADI) score with selected demographic variables like type of physical activity($p=0.033$), co-morbidities ($p=0.020$) and doing pain management ($p<0.001$). **Discussion & Conclusion:** A major proportion of participats reported minimum shoulder pain and disability which were found to be associated with demographic variables like physical activity, co-morbidities and pain management.This shows that regular physical activity, no co-morbidities and adequate pain management if pain arises has significantly influenced to keep the shoulder pain and disability index at the minimum level among the computer users of administrative section in tertiary care centre, Puducherry. The study findings emphasize the need for being physically active, having no co-morbidities and effective pain management strategies will keep shoulder pain and disability to minimum and prevent as well.

KEYWORDS

Shoulder pain, disability, computer users, physical activity, co-morbidities and pain management.

INTRODUCTION

BACKGROUND OF THE STUDY

Occupational health is an area of work of public health to promote and maintain the highest degree of physical, mental and social well-being of workers in all occupations (WHO). Healthy workers nurture their organization. At workplace, a worker is exposed to many occupational hazards. Especially in the health sector, there is a steep rise in the patient census in terms of registration, admissions, investigations, treatment and procedures. So this change exerts pressure on the employee and there is more risk for occupational hazards. These workplace hazards fall into six core types – safety, biological, physical, ergonomic, chemical and workload. Occupational health hazard studies are all related to biological, psychosocial, ergonomic and non-biological hazards among which 55.8% of studies are related to biological hazards.[1]

Among these hazards, ergonomic-related musculoskeletal disorders are becoming a serious problem due to repetitive physical jobs with poor posture, improper body mechanisms while doing the job, poor workstation, etc.[2] Shoulder pain (49.6%) is one among the work-related musculoskeletal disorders next to neck pain (60.3%) and back pain (59.5%) among the computer users.[3] Since most of the office work is made paperless with the invention of computers which makes the work easy, efficient and less time consuming. Almost all areas in a healthcare organization have computers and workers at various levels are trained to use it. Even though all types of workers use computers, shoulder pain stands out to be more among the computers users whose work is with computers (55.1%).[4]

Chronic shoulder pain (63.3%) leads to shoulder disability (30.9%) in turn reducing the ability to work (29.1%) and thus reducing the quality of work.[5] Studies show a significant positive correlation between shoulder pain and shoulder disability($r=0.012$, $0<0.001$).[6] Computers are a boon to the health sector but it has its own effects on worker's health. Workplace exercise programme or workstation modifications may be considered according to computer users' need to prevent and reduce shoulder pain which in turn will prevent or reduce disability and improve work performance.[7] So assessing for shoulder pain and shoulder disability among computer users will also help to find the associating factors for the same. The exploration among the computer users will help the human resource managers to plan for wellness programs to prevent shoulder pain and early intervention to prevent disability.

Significance And Need For The Study

Desktop workers experience different hazards like headache (46.36%), sleepiness (40.90%), eye-related problems (39.10%), musculoskeletal pain (34.54%) which is associated with aging ($p=0.000$), long years of work with desktop ($p=0.004$).[8] So the main aim of this study is to assess the level of shoulder pain and disability, and its association with computer users' demographics. This will help the stakeholders to devise strategies for the maintenance and promotion of workers' health and working capacity, improvement of working conditions and the working environment to become conducive to safety and health.

In the era of technology, computers have become a significant non-human part of the health sector. Even though it has ill effects on the users, we cannot deny the fact that it makes work easier and simpler. Though numerous studies have been conducted abroad and in India about occupational health hazards of computer users, the data in the government sector is scanty. Looking at the significance of shoulder pain and shoulder disability among computer users, this study in JIPMER will help to have an insight into computer users' status and help to plan for occupational health and work improvement.

OBJECTIVE OF THE STUDY

Primary

To assess shoulder pain and disability among computer users of administrative section in tertiary care centre, Puducherry.

Secondary
To find the association between shoulder pain and disability with selected demographic variables among computer users of administrative section in tertiary care centre, Puducherry.

Research Question
Is there shoulder pain and disability among computer users of administrative section in tertiary care centre, Puducherry?

OPERATIONAL DEFINITIONS

Assessment: Refers to systematic process to evaluate the shoulder pain and disability among computer users by self administered questionnaire method using Shoulder Pain And Disability Index (SPADI).

Shoulder pain: Shoulder pain refers to any discomfort or pain in or around the shoulder joint due to computer use among the employees of administrative section.

Disability: Refers to a condition or injury of shoulder due to computer use among the employees of administrative section that prevents employee from performing the daily tasks that require fine and gross motor skills.

Computer users: Refers to computer users are employees working on computers for their daily routine work at workplace in administrative block.

Administrative section: Refers to employees working in the administrative block of tertiary care centre doing routine office work.

METHODOLOGY

RESEARCH APPROACH

The approach for the current research project is quantitative research approach.

Research Design
A cross sectional analytical study was adopted for this study

Research Variables
Independent Variables
Age, gender, body built, physical activity, activity at home, presence of co-morbidities, mode of travel to work, designation, area of work, comfortable workstation, type of computer used at work, number of years as a computer user, amount of work allocated per day, number of hours on computer, frequency of breaks from computer, duration of break, shoulder pain management.

Dependent Variable
Shoulder pain and disability.

RESEARCH SETTING

This study was conducted in Jawaharlal institute of postgraduate medical education and research (JIPMER) situated in Pondicherry the capital city of union territory Puducherry, is an institute of national importance (INI). This study was conducted in the administrative block of JIPMER. Around 250 staffs who routinely use computers are employed in the administrative department under various sections such as finance, pay bills, accounts, public relations, administration etc.

POPULATION

Target population: Computer users who work on computers for their daily routine work at workplace.

Study population: One group: Computer users for routine office work in administrative section aged between 21-60 years.

SAMPLE

The sample population consist of all the computer users of administrative section and fulfilling the inclusion criteria.

SAMPLE SIZE CALCULATION

Sample size calculated based on estimating the proportion. Considering the expected prevalence of shoulder disability as 14.6% with 6% absolute precision and 95% confidence interval. The calculated sample size is 150.

SAMPLING TECHNIQUE

Convenience sampling technique.

Sampling Criteria
Inclusion Criteria

- Computer users for routine office work in administrative section
- Computer users of age between 21 - 60 years
- Both regular and contract employee

Exclusion Criteria

- Computer users with a history of trauma and disease of the shoulder (Osteoarthritis, rotator cuff tear, dislocated shoulder, calcific tendonitis, etc.).

Description Of Data Collection Instruments
The instrument used in this study has two sections.

Section I: Demographic Variables
Age, gender, body built, physical activity, activity at home, presence of co-morbidities, mode of travel to work, designation, area of work, comfortable workstation, type of computer used at work, number of years as a computer user, amount of work allocated per day, number of hours on computer, frequency of breaks from computer, duration of break, shoulder pain management.

Section II: Shoulder Pain And Disability Index (SPADI)
The Shoulder Pain and Disability Index (SPADI) was developed to measure current shoulder pain and disability in an outpatient setting. It's designed to be a joint-specific instrument that better measures the impact of joint problems than other health assessment measures. The SPADI is a 13 item self-report questionnaire with 2 subscales (Pain - 5 items and disability - 8 items).

SCORING AND INTERPRETATION OF THE INSTRUMENT

Scoring:

Section I: Demographic Variables
No score was allotted for demographic variables

Section II: Shoulder Pain And Disability Index (SPADI)
Pain subscale
It contains 5 items each having score of 1 to 10. The minimum score is 5 and maximum score is 50. The total score is converted into percentage.

Total pain score:___ / 50 x 100 = ____%
(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 40)

Disbility Subscale
It contains 8 items each having score of 1 to 10. The minimum score is 8 and maximum score is 80. The total score is converted into percentage.

Total disability score:____ / 80 x 100 = _____%
(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 70)

SPADI
The scores of the two subscales are summed to produce a total score ranging from 13 to 130. The total score is converted into percentage.

Total SPADI score: ____ / 130 x 100 = _____%
(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 120)

Interpretation:
The total SPADI score converted as percentage is interpreted as follows
0-20% -mild shoulder pain and disability
21-40% -moderate shoulder pain and disability
41-60% -severe shoulder pain and disability
61-80% -very severe shoulder pain and disability
81-100%-extremely severe shoulder pain and disability

VALIDITY AND RELIABILITY

Structural validity was assessed by a two-factors Confirmatory Factor Analysis (CFA) using the following three indicators: 1) Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) ≥ 0.95, 2) Root

Mean Square Error of Approximation (RMSEA)≤0.06, and 3) Standardized Root Mean Square Residual (SRMR)≤0.08.

Reliability was assessed as internal consistency, test–retest reliability, and measurement error. These analyses were performed on both subscales (Pain and Disability) separately. Internal consistency was evaluated according to these criteria: Cronbach's Alpha (α), where values are recommended between 0.70 and 0.95.

Data Collection Procedure

The study was done after approval by the Nursing Research Monitoring Committee (NRMC), JIPMER and the Institute Ethical Committee (IEC).The study was conducted in the administrative block, JIPMER. The 152 study participants by convenience sampling technique were identified based on the inclusion and exclusion criteria. Informed consent was taken from the participants by explaining the purpose of the study both in the verbal and written forms. Data was collected using self administered questionnaire method. Demographic were collected using the subject datasheet. Each participant's shoulder pain and disability was assessed using Shoulder Pain And Disability Index (SPADI) which took about 10-15 minutes. After data collection hand out on strategies to prevent and reduce shoulder pain during chronic usage of computers was given to all participants. Those who had high SPADI were recommended to consult an orthopaedician to prevent worsening of disability.

Plan For Data Analysis

The categorical variables such as gender, body built, physical activity, activity at home, presence of co-morbidities, mode of travel to work, designation, area of work, comfortable workstation, type of computer used at work, amount of work allocated per day, shoulder pain management are expressed as .The continuous variables such as age, number of years as computer user, number of hours on computer, frequency of breaks from computer, duration of break, shoulder pain and disability are categorized and expressed as frequency and percentage. The association of the categorical variables with the level of shoulder pain and disability are analyzed using Chi–square/fisher's exact test. All the statistical analysis were carried at 5% level of significance.

RESULTS

Table 1: Description Of Demographic Variables Among Computer Users Of Administrative Section In Tertiary Care Centre, Puducherry. (N=152)

Sl. No.	Variables	Category	Frequency (n)	Percentage (%)
1	Age	21-30	25	16.4
		31-40	72	47.4
		41-50	31	20.4
		51-60	24	15.8
2	Gender	Male	114	75.0
		Female	38	25.0
3	Body built	Thinly built	14	9.2
		Moderately built	115	75.7
		Overweight	23	12.1
4	Physical activity	Yes	117	77.0
		No	35	23.0
4.1	Type of physical activity(n=117)	Badminton	13	8.6
		Cricket	27	17.8
		Swimming	6	3.9
		Yoga	19	12.5
		Others	52	34.2
5	Type of activity at home	Light activity	69	45.4
		Moderate activity	79	52.0
		Heavy activity	4	2.6
6	Presence of co-morbidities	Yes	34	22.4
		No	118	77.6
6.1	Co-morbidity (n = 34)	Diabetes mellitus	7	20.6
		Hypertension	14	41.2
		Lung diseases	3	8.8
		Heart diseases	3	8.8
		Thyroid diseases	7	20.6
7	Mode of travel to work	Walk	4	2.6
		Cycle	4	2.6
		Scooter	59	38.8
		Bike	74	48.7
		Car	6	3.9
		Bus	5	3.3
8	Designation	Junior administrative assistant	60	39.5
		Senior administrative assistant	46	30.3
		Data entry operator	34	22.4
		Engineer	7	4.6
		Multi-tasking staff	5	3.3
9	Area of work	Administrative department	66	43.4
		Finance and accounts	34	22.4
		Bill passing & pay bills	25	16.4
		IT wing	16	10.5
		Director and Dean office	11	7.2
10	Comfortable work station	Yes	151	99.3
		No	1	0.7
11	Type of computer used	HP	89	58.6
		ACER	39	25.7
		DELL	15	9.9
		INP	9	5.9
12	Number of years as computer user	1-10	82	53.9
		11-20	59	38.8

		More than 20	11	7.2
13	Amount of work allocated per day	Light work	11	7.2
		Moderate work	119	78.3
		Heavy work	22	14.5
14	Number of hours on computer	1-5	29	19.1
		5-10	122	77
		More than 10	1	3.9
15	Frequency of breaks	1-3	102	67.1
		3-6	47	30.9
		More than 6	3	2
16	Duration of break	≤ 1 hour	130	85.5
		More than1	22	14.5
17	Shoulder pain management	Yes	40	26.3
		No	112	73.7
17.1	Pain management method (n=40)	Hot or cold application	17	42.5
		Physiotherapy	14	35.0
		Medications, supplements, Herbal	9	22.5

Table 2: Association Between Shoulder Pain And Disability Index (SPADI) With Selected Demographic Variables Among Computer Users Of Administrative Section In Tertiary Care Centre, Puducherry (N=152).

Variables	Frequency (n)	SPADI Score					Test value (chi-square/ fisher exact)	p value
		0-20%	20-40%	40-60%	60-80%	80-100%		
Age								
21-30	25	21	2	1	1	0	12.472	0.113
		84.0%	8.0%	4.0%	4.0%	0.0%		
31-40	72	55	11	6	0	0		
		76.4%	15.3%	8.3%	0.0%	0.0%		
41-50	31	19	6	4	2	0		
		61.3%	19.4%	12.9%	6.5%	0.0%		
51-60	24	17	7	0	0	0		
		70.8%	29.2%	0.0%	0.0%	0.0%		
Gender								
Male	114	89	17	6	2	0	5.456	0.119
		78.1%	14.9%	5.3%	1.8%	0.0%		
Female	38	23	9	5	1	0		
		60.5%	23.7%	13.2%	2.6%	0.0%		
Body type								
Thinly built	14	10	3	1	0	0	4.908	0.491
		71.4%	21.4%	7.1%	0.0%	0.0%		
Moderately built	115	83	22	8	2	0		
		72.2%	19.1%	7.0%	1.7%	0.0%		
Overweight	23	19	1	2	1	0		
		82.6%	4.3%	8.7%	4.3%	0.0%		
Physical Activity								
Yes	117	88	18	9	2	0	1.789	0.602
		75.2%	15.4%	7.7%	1.7%	0.0%		
No	35	24	8	2	1	0		
		68.6%	22.9%	5.7%	2.9%	0.0%		
Type of physical activity								
Badminton	13	13	0	0	0	0	18.737	0.033*
		100.0%	0.0%	0.0%	0.0%	0.0%		
Cricket	27	23	1	3	0	0		
		85.2%	3.7%	11.1%	0.0%	0.0%		
Swimming	6	5	0	1	0	0		
		83.3%	0.0%	16.7%	0.0%	0.0%		
Yoga	19	12	4	1	2	0		
		63.2%	21.1%	5.3%	10.5%	0.0%		
Others	52	35	13	4	0	0		
		67.3%	25.0%	7.7%	0.0%	0.0%		
Activity at home								
Light activity	69	51	11	5	2	0	2.332	0.956
		73.9%	15.9%	7.2%	2.9%	0.0%		
Moderate activity	79	58	14	6	1	0		
		73.4%	17.7%	7.6%	1.3%	0.0%		
Heavy activity	4	3	1	0	0	0		
		75.0%	25.0%	0.0%	0.0%	0.0%		
Co-morbidity								
Yes	34	19	10	5	0	0	9.131	0.020*
		55.9%	29.4%	14.7%	0.0%	0.0%		
No	118	93	16	6	3	0		
		78.8%	13.6%	5.1%	2.5%	0.0%		
Mode of travel								
Walk	4	4	0	0	0	0	10.146	0.845

		100.0%	0.0%	0.0%	0.0%	0.0%		
Cycle	4	3	0	1	0	0		
		75.0%	0.0%	25.0%	0.0%	0.0%		
Scooter	59	39	14	4	2	0		
		66.1%	23.7%	6.8%	3.4%	0.0%		
Bike	74	56	11	6	1	0		
		75.7%	14.9%	8.1%	1.4%	0.0%		
Car	6	5	1	0	0	0		
		83.3%	16.7%	0.0%	0.0%	0.0%		
Bus	5	5	0	0	0	0		
		100.0%	0.0%	0.0%	0.0%	0.0%		
Designation								
Junior administrative assistant	60	47	8	3	2	0	6.981	0.885
		78.3%	13.3%	5.0%	3.3%	0.0%		
Senior administrative assistant	46	33	8	5	0	0		
		71.7%	17.4%	10.9%	0.0%	0.0%		
Data entry operator	34	22	8	3	1	0		
		64.7%	23.5%	8.8%	2.9%	0.0%		
Engineer	7	6	1	0	0	0		
		85.7%	14.3%	0.0%	0.0%	0.0%		
Multi-tasking staff	5	4	1	0	0	0		
		80.0%	20.0%	0.0%	0.0%	0.0%		
Work area								
Administrative department	66	45	13	5	3	0	13.027	0.254
		68.2%	19.7%	7.6%	4.5%	0.0%		
Finance and accounts	34	24	4	6	0	0		
		70.6%	11.8%	17.6%	0.0%	0.0%		
Bill passing & pay bills	25	22	3	0	0	0		
		88.0%	12.0%	0.0%	0.0%	0.0%		
IT wing	16	11	5	0	0	0		
		68.8%	31.3%	0.0%	0.0%	0.0%		
Director and Dean office	11	10	1	0	0	0		
		90.9%	9.1%	0.0%	0.0%	0.0%		
Type of computer use								
HP	89	61	20	5	3	0	7.633	0.500
		68.5%	22.5%	5.6%	3.4%	0.0%		
ACER	39	30	5	4	0	0		
		76.9%	12.8%	10.3%	0.0%	0.0%		
DELL	15	13	1	1	0	0		
		86.7%	6.7%	6.7%	0.0%	0.0%		
INP	9	8	0	1	0	0		
		88.9%	0.0%	11.1%	0.0%	0.0%		
Years of computer use								
1-10	82	61	12	6	3	0	5.151	0.492
		74.4%	14.6%	7.3%	3.7%	0.0%		
11-20	59	44	10	5	0	0		
		74.6%	16.9%	8.5%	0.0%	0.0%		
>20	11	7	4	0	0	0		
		63.6%	36.4%	0.0%	0.0%	0.0%		
Amount of work in a day								
Light work	11	11	0	0	0	0	4.151	0.599
		100.0%	0.0%	0.0%	0.0%	0.0%		
Moderate work	119	86	21	9	3	0		
		72.3%	17.6%	7.6%	2.5%	0.0%		
Heavy work	22	15	5	2	0	0		
		68.2%	22.7%	9.1%	0.0%	0.0%		
Total hours on computer in a day								
1-5	29	20	9	0	0	0	10.146	0.146
		69.0%	31.0%	0.0%	0.0%	0.0%		
6-10	122	91	17	11	3	0		
		74.6%	13.9%	9.0%	2.5%	0.0%		
>10	1	1	0	0	0	0		
		100.0%	0.0%	0.0%	0.0%	0.0%		
Frequency of break in a day								
1-3	102	77	14	9	2	0	5.318	0.528
		75.5%	13.7%	8.8%	2.0%	0.0%		
3-6	47	33	11	2	1	0		
		70.2%	23.4%	4.3%	2.1%	0.0%		
>6	3	2	1	0	0	0		
		66.7%	33.3%	0.0%	0.0%	0.0%		
Duration of break in a day								
≤1 hour	130	95	23	10	2	0	1.638	0.669

		73.1%	17.7%	7.7%	1.5%	0.0%		
>1 hour	22	17	3	1	1	0		
		77.3%	13.6%	4.5%	4.5%	0.0%		
Doing pain management								
Yes	40	11	18	8	3	0	56.415	<0.001*
		27.5%	45.0%	20.0%	7.5%	0.0%		
No	112	101	8	3	0	0		
		90.2%	7.1%	2.7%	0.0%	0.0%		

*p value <0.05 is statistically significant

Table 1 shows the frequency and percentage wise distribution of the demographic variables among the computer users of administrative section in tertiary care centre, Puducherry. Among the 152 computer users , the ones with highest frequency and percentage were age group of 31-40years (47.4%), male as gender(75%), moderately built (75.7%), doing physical activity (77%), doing physical activities other than those mentioned in questionnaire(34.2%), doing moderate activity at home(52%), no co-morbidities(77.6%), those with co-morbidities hypertension(41.2%), mode of travel to work by bike(48.7%), designation as Junior Administrative Assistant(39.5%), area of work as Administrative Department(43.4%), comfortable work station(99.3%), type of computer used as HP (58.6%), computer user for 1-10 years(53.9%), moderate work allotment(78.3%), using computers for 5-10 hours of duration(77%), 1-3 breaks from computer per day(67.1%), less than 1 hour duration of break (85.5%), no need for shoulder pain management(73.7%), hot or cold application for pain management(42.5%).

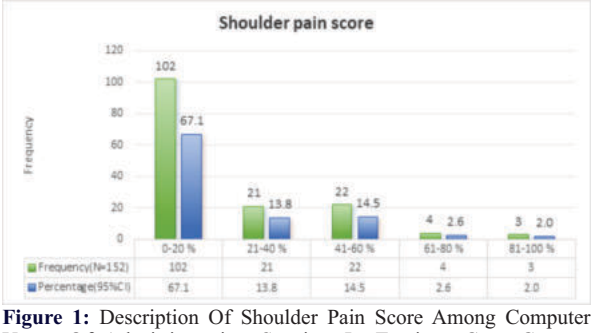

Figure 1: Description Of Shoulder Pain Score Among Computer Users Of Administrative Section In Tertiary Care Centre, Puducherry(N=152)

Figure 1 shows the frequency and percentage wise distribution of shoulder pain score among computer users of administrative section in tertiary care centre, Puducherry assessed using Shoulder Pain And Disability Index(SPADI) scale. Among the 152 computer users, 67.1% were having a shoulder pain score of 0-20%, 13.8% had 21-40% of shoulder pain, 14.5% had 41-60% of shoulder pain, 2.6% had 61-80% of shoulder pain and 2.0% had a shoulder pain score of 81-100%.

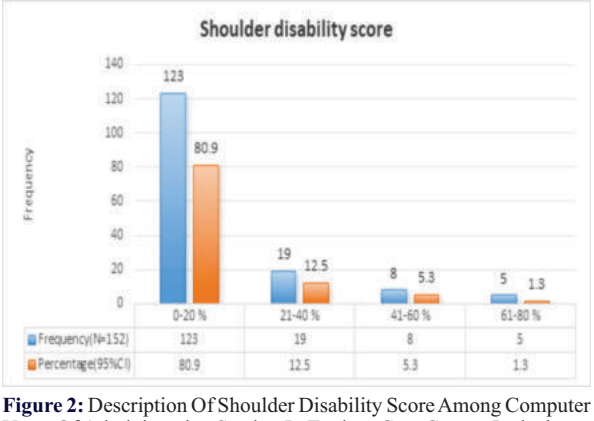

Figure 2: Description Of Shoulder Disability Score Among Computer Users Of Administrative Section In Tertiary Care Centre, Puducherry (N=152)

Figure 2 shows the frequency and percentage wise distribution of shoulder disability score among computer users of administrative section in tertiary care centre, Puducherry assessed using Shoulder Pain And Disability Index(SPADI) scale. Among the 152 computer users, 80.9% were having a shoulder disability score of 0-20%, 12.5% had 21-40% of shoulder disability, 5.3% had 41-60% of shoulder disability and 1.3% had a shoulder disability score of 61-80%.

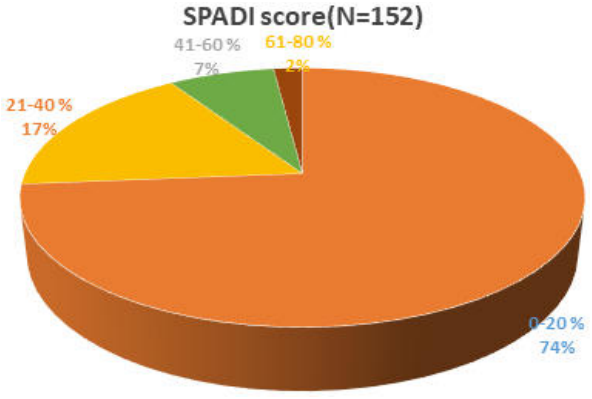

Figure 3: Description Of SPADI Score Among Computer Users Of Administrative Section In Tertiary Care Centre, Puducherry (N=152)

Figure 3 shows the frequency and percentage wise distribution of shoulder pain and disability index(SPADI) score among computer users of administrative section in tertiary care centre, Puducherry assessed using Shoulder Pain And Disability Index(SPADI) scale. Among the 152 computer users, 73.7% were having a SPADI score of 0-20%, 17% had SPADI score of 21-40%, 7% had SPADI score of 41-60% and 2.0% had a SPADI score of 61-80%.

Table 2 shows that there is a significant statistical association between shoulder pain and disability index(SPADI) score with selected demographic variables like type of physical activity(p=0.033), co-morbidities (p=0.020) and doing pain management (p<0.001). The other demographic variables like age(p=0.0.113), gender (p=0.119), body type(p=0.491), presence of physical activity(p=0.602), activity at home(p=0.956), mode of travel(p=0.845), designation(p=0.885), work area(p=0.254), type of computer use(p=0.500), years of computer use(p=0.492), amount of work in day(p=0.599), total hours on computer in a day(p=0.146), frequency of break in a day(p=0.528), duration of break in a day(p=0.669) are not associated with shoulder pain and disability index(SPADI) score.

DISCUSSION

The first objective of the study was to assess the shoulder pain and disability among computer users of administrative section in tertiary care centre , Puducherry.

In the present study, it was seen that among 152 computers users 67.1% had 0-20% pain score, 80.9% had 0-20% disability score and 73.7% had 0-20% SPADI score.A study conducted among health care professionals regarding association of work related musculoskeletal symptoms , and disability among 271 participants revealed that the one with highest frequency and percentage 131(48.3%) has 20-40% pain score , 175(69.6%) has 0-20 % disability score and 131(48.3%) has 20-40% contained score of pain and disability. The SPADI score is almost similar to a study aimed to gather data regarding shoulder pain and disability experienced by orthopedic surgeons. It also aimed to explore the potential correlations between demographic characteristics and work-related factors and their pain and disability. This study interviewed 150 orthopedic surgeons working in the Kingdom of Saudi Arabia, asking questions on the Shoulder Pain and Disability Index (SPADI) scale and about their demographic characteristics. All interviewed orthopedic surgeons were male, married, and nonsmokers. Their SPADI pain subsection score was 25.24%, their SPADI disability subsection score was 21.25%, and their total SPADI score was 22.79%. Among the examined demographic characteristics, total SPADI scores have a significant positive correlation with body weight (Spearman's $\rho = 0.432$; $p < 0.05$) and body mass index (BMI; $\rho = 0.349$; $p < 0.05$). This findings indicate that all orthopedic surgeons generally suffer from moderate shoulder pain and disability. Body

weight and body mass index are important factors that may influence shoulder pain and disability among orthopedic surgeons.[12]

The second objective of the study was to associate between shoulder pain and disability with selected demographic variables among computer users of administrative section in tertiary care centre , Puducherry.

In this present study there is a significant statistical association between shoulder pain and disability index(SPADI) score with selected demographic variables like type of physical activity(p=0.033), co-morbidities (p=0.020) and doing pain management (p<0.001). A cross-sectional study conducted among computer users regarding prevalence of musculoskeletal symptoms by Gosain et.al also found that there is association between the presence of physical activity with shoulder pain and there is significant association between gender, working hours , regular breaks with shoulder pain.[3] A study conducted in Saudi Arabia regarding musculoskeletal symptoms among radiologists found that there is a significant association between age, gender, time spent in computer workstation with musculoskeletal symptoms.[4]

CONCLUSION

This study conclude that the majority of participants were middle aged, male gender, moderately built, engaged in regular physical activity, moderately active at home, no comorbidities, travel to work by bike, designation as Junior Administrative Assistant, work in Administrative Department, have comfortable work station, use HP computer, computer user for 1-10 years, moderate work allotment, using computers for 5-10 hours of duration, 1-3 breaks from computer per day, less than 1 hour duration of break, majority not requiring shoulder pain management, hot or cold application for pain management in those expressed pain. A major proportion of participants reported minimum shoulder pain and disability which were found to be associated with demographic variables like physical activity, co-morbidities and pain management.This shows that regular physical activity, no comorbidities and adequate pain management if pain arises has significantly influenced to keep the shoulder pain and disability index at the minimum level among the computer users of administrative section in tertiary care centre, Puducherry.

The study findings emphasize the need for being physically active, having no comorbidities and effective pain management strategies will keep shoulder pain and disability to minimum and prevent as well. Though the other demographics were not statistically significant but it is essential to have comfortable workstation, breaks at work etc to prevent discomfort when computer are used for prolonged duration.The results of the study have implications for nursing practice, education, administration and research.

Nursing Practice

Raising awareness about managing co-morbidities like hypertension through lifestyle modifications and educating individuals on the importance of maintaining an active lifestyle emphasizing more physical activity to improve overall fitness and reduce shoulder pain and disability.

Educating them on the importance of taking regular breaks during prolonged computer usage with stretching exercise in between and provide guidance on workplace ergonomics can minimize the pain and disability.

Nursing Education

Integrating shoulder pain and disability assessment into nursing curriculum and providing proper training on ergonomics principles, proper education on prevention ,and management of shoulder pain and disability with a focus on promoting physical activity, proper posture, will improve the knowledge and practice among nursing students regarding occupational health.

Nursing Administration

Administrators can organize and conduct various teaching and training programs regarding shoulder pain and disability management which will help the staff as well as the nursing students to enhance their knowledge and keep them aware of current trends regarding the same.

Nursing Research

Similar studies can be done with a large sample size to get more specific data.Similar study can be conducted on employees working in other areas of the tertiary centre where computers are used for extended periods.

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LIMITATION

The study is limited to computer users for routine office work in administrative section of age between 21 - 60 years.

Ethical Consideration

Permission was obtained from the Institute Ethical Committee. Ethical issues involved in this study were minimal risks. Informed consent was obtained from every participant after a brief explanation regarding the study. Confidentiality of the data, right to withdraw from the study and anonymity were explained before data collection .The data collected were kept confidentially.

Conflict Of Interest

None

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None

REFERENCES

1. Tawiah PA, Baffour-Awuah A, Effah ES, Adu-Fosu G, Ashniyo ME, Alhassan RK. Occupational health hazards among healthcare providers and ancillary staff in Ghana: a scoping review. *BMJ Open*. 2022;12(10):e064499. doi:10.1136/bmjopen-2022-064499
2. Almogbil IH, Alrashidi LR, Alhajlah RS, Alqasim AK, Alharbi NS, Alghamdi MA, et al. Prevalence of shoulder and neck pain among healthcare workers in the Central Region of Saudi Arabia. *Cureus*. 2023;15(7):e42286. doi:10.7759/cureus.42286
3. Gosain L, Ahmad I, Rizvi MR, Sharma A, Saxena S. Prevalence of musculoskeletal pain among computer users working from home during the COVID-19 pandemic: a cross-sectional survey. *Bull Fac Phys Ther*. 2022;27(1):51. doi:10.1186/s43161-022-00110-x
4. Shammari MA, Hassan A, Dandan OA, Gadeeb MA, Bubshait D. Musculoskeletal symptoms among radiologists in Saudi Arabia: a multi-center cross-sectional study. *BMC Musculoskelet Disord*. 2019;20:541. doi:10.1186/s12891-019-2933-1
5. Noureen A, Zaheer A, Waqas M. Association of work-related musculoskeletal symptoms and disability among health care professionals. *Rawal Med J*. 2020;45(3):610–4.
6. Londhe S, Pawadshetty V, Umate P, Gaysamudre P. Correlation between work-related shoulder pain and shoulder disability among desktop workers. *Int J Curr Sci Res Publ*. 2023;13:640–3.
7. Lowry V, Charbonneau AD, Roy JS, Dionne CE, Frémont P, MacDermid JC, et al. Efficacy of workplace interventions for shoulder pain: a systematic review and meta-analysis. *J Rehabil Med*. 2017;49(6):529–42.
8. Gogoi M, Kalita M. Assessment of occupational health hazards of the computer users. *J Ergonomics*. 2022;12:308. doi:10.35248/2165-7556.22.12.308
9. Alzahrani AH, Alqahtani B. The association between shoulder pain and disability among Saudi office workers. *Cureus*. 2023;15(10):e48052. doi:10.7759/cureus.48052
10. Roach KE, Budiman-Mak E, Songsiridej N, Lertratanakul Y. Development of a shoulder pain and disability index. *Arthritis Care Res*. 1991;4(4):143–9. doi:10.1002/art.1790040403
11. Roy JS, Braën C, Leblond J, Desmeules F, Dionne CE, MacDermid JC. Examining measurement properties of the Shoulder Pain and Disability Index: results of a systematic review. *J Rehabil Med*. 2017;49(5):421–31. doi:10.2340/16501977-2225
12. Asiri FA, Alqahtani AA, Assiri AH, Alqahtani MH, Motlag DS, Tedla JS, et al. Shoulder pain and disability scores and the factors influencing them among orthopedic surgeons working in the Kingdom of Saudi Arabia: a cross-sectional study. *J Pers Med*. 2024;14(1):55. doi:10.3390/jpm14010055.