Case series

A Study on Depression by Zung Self-Rating Depression Scale among Medical Faculty and Computer Using Population in Lucknow

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Abstract

Background: The occupational hazards of computer use are much more serious and disabling than any other occupation. Health problems in computer users appear to be interrelated and they are musculoskeletal, visual, stress and depression related.[1]

Methods: A cross sectional study was conducted among all 319 third year computer engineering students and 79 teaching staff in Engineering colleges of lucknow city for 1year from January 2018 to December 2019. The study subjects were interviewed using pre-designed and pretested proforma including Zung Self-Rating Depression Scale.

Results: In our study majority (75.37%) of study subjects belonged to 20-22 years age studying B.E Computer science and 274(68.84%) were females and 124(31.15%) were males. Amongst study subjects mild depression were more common who works on computer for 6-9hr for more than 9years 7(1.75%).

Conclusion: In our study mild depression is more common in students working on computer for 6-9hr for more than 9years which accumulate over a period of time resulting in severe depression affecting physical and mental health.

Keywords: Depression, computer related health problems, Zung Self-Rating Depression Scale, engineering students

Introduction

Almost every country in the world uses upgraded technology and has improved its standard of living due to the invention of the computer. Modern day computers have eased our life in many ways. Private bodies, autonomous institutions and almost every organization are being computerized for smooth and faster flow of data and information. Computer work has generated a new genre of occupational health problems. Computer-induced medical problems can be described as an umbrella term for the various problems a computer user can develop

from prolonged and incorrect computer use. Computer use causes wide range of symptoms including headache, eyestrain, musculoskeletal problems, stress and depression etc.[2] Depression, is an important psychologic disorder which is extremely prevalent and most common cause of disability. The educational process itself is influenced by student state of physical and mental well-being.[3] If not diagnosed early can lead to severe depression impairing the physical and mental health. Since computer science students are future engineers working in IT industry, it is important to determine the prevalence of depression to prevent it from assuming epidemic proportions. Hence a need was felt to carry out the present study to assess the depression by Zung Self-Rating Depression Scale among computer science students and staff.

Methodology:
A cross sectional study was conducted among computer engineering students and teaching staff in Engineering colleges of Lucknow city January 2018 to December 2019.

Inclusion criteria:
Students and teaching staff working on computers for minimum of 3hours continuously per day for 3 times in a week for 6 months are included in the study.[4] After consulting with the head of department of computer science department of Engineering colleges; teaching staff and third year computer engineering students are included in the study.

Exclusion criteria:
1. Computer engineering students belonging to first, second and final year.
2. Students belonging to other departments of engineering colleges.

Study tool: The study subjects were interviewed using pre-designed and pretested proforma including Zung Self-Rating Depression Scale, which is 20-item self-report questionnaire that is widely used as a screening tool covering affective, psychological and somatic symptoms associated with depression. Each item is scored on a Likert scale ranging from 1 to 4. A total score is derived by summing the individual item scores, and ranges from 20 to 80.[5] The scores fall into four ranges:[5,6]
• 20-49 Normal Range.
• 50-69 Mildly Depressed.
• 70-80 Moderate to Severely Depressed.
 Data was analyzed by using proportions and chi square test. The statistical software SPSS 12 is used for the analysis of the data and Microsoft word and Microsoft Excel have been used to generate graph, tables etc.

Results and Discussion:
        In our study majority (75.37%) of study subjects belonged to 20-22 years age studying B.E Computer science and 274(68.84%) were females and 124(31.15%) were males (**Table 1**) and in study done by Eric B. Schlossberg et al[7] (2004) in 206   Electrical Engineering and computer science graduate students of the University of California at Berkeley in whom majority (85%) belongs to 21-25yr age group and (85%) were males and study done by Sen A and Stanley Richardson[8] (2007) in Malaysia among 136 under graduate students (studying computing or medicine) revealed that 71% of the respondents were less than 30 years old and 65% of them were females. The study revealed that 319 (80.15%) of the study subjects were studying B.E, followed by 41 (10.3%) graduates, 35(8.7%) postgraduates and 3 (0.75%) doctorate, (**Table 1**). This study was done among students and teaching staff in contrast to

study done by Husnun Amalia et al[9] in 2010 among 99 (100%) are computer science students of university of Indonesia and Cammie Chaumont Menéndez et al[10] in their study done in 2009 in USA revealed that 160(100%) are engineering graduate students.

Duration of using computers:

The present study reported that majority of the study subjects 164(41.2%) used computers for 3-6 hour followed by 117(29.4%) less than 3hour, 75(18.84%) for 6-9 hour and 42(10.55%) for more than 9 hr (**Table-2**). Since in this study the study subjects have got practical classes for 3hr in a day hence majority (41.2%) of them work on computers for 3-6hr. Richa Talwar et al[4] (2009) in their study on computer professionals in Delhi reported that 88(44%) individuals worked in front of computers for 6-9hours followed by 60(30%) for 3-6hours and 52(26%) for more than 9hours per day. A study done by Che-hsu (Joe) Chang PT et al[11] (2007) in USA among undergraduate students, reported that daily computer usage longer than 3 hr was significantly associated with an odds ratio 1.50 (1.01–2.25) of reporting symptoms. A K Sharma et al[12] (2006) in their study on IT professionals with varied job profiles in New Delhi revealed that average working hours per day on computer in call center and software development were higher i.e. 9 ± 0.67 hours and 8.3 ± 0.81 hours respectively as compared to 5 ± 0.41 hours in data entry/ processing group. Our study subjects were third year computer science students and teaching staff therefore majority (48.99%) have 3-6yr computer exposure followed by 101(25.37%) less than 3yr, 56(14.1%) for more than 9yr and 46(11.6%) for 6-9yr (**Table-3**) which is similar to study done by A K Sharma et al[12] (2006) on IT professionals with varied job profiles in New Delhi where in majority 72(36%) worked on computers for 3-6years followed by 35(17.5%) for 6-9yers, 31(15.5%) for <3years, 28(14%) for 12-15years, 27 (13.5%) for 9-12 years and 7(3.5%) for >15years.

Study subjects according to Zung's self rating depression scale:

The present study shows that 382(95.97%) of the study subjects have no depression (Male-95.96%, Female-95.98%) with score less than 50 , 16(4.02%) had mild depression (Male-4.03%, Female-4.01%) with score 50-69 and none had severe depression **(Table-4)** in contrast to Study done by A K Sharma et al[12] (2006) on IT professionals with varied job profiles in New Delhi reported that depression was present in 8% by Zung's self-rating scale.

Association between Zungs Self rating depression scale and duration of work on computers.

The present study shows that mild depression were more common among study subjects, who work daily on computers for 6-9hr 9(2.26%), followed by 3-6hr 6(1.26%), more than 9hr 1 (0.25%) and absent among those who work less than 3hr on computer (**Table-5**). Amongst study subjects mild depression were more common who works on computer for 6-9hr for more than 9years 7(1.75%), followed by 3(0.75%) working for 3-6hr for <3hr, 2(0.5%) 3-6hr and 6-9hr for 3-6yr, 1(0.25%) for 3-6hr for 6-9yr and 1(0.25%) for >9hr for >9yr. Amongst study subjects depression were more common, who worked on computers for >9yr which was statistically significant.$(\chi^2 = 8.701, p<0.05)$.

Table 1: Distribution of study population according to socio-demographic factors.

Socio-demographic factors	MALE		FEMALE		TOTAL	
	No.	%	No.	%	No.	%
Age in years						
20-22	89	71.77	211	77	300	75.37
22-23	20	16.12	18	6.56	38	9.54
≥24	15	12.09	45	16.42	60	15.07
Total	**124**	**100**	**274**	**100**	**398**	**100**
Marital status						
Married	15	12	30	11	45	11
Unmarried	109	88	244	89	353	89
Total	**124**	**100**	**274**	**100**	**398**	**100**
Religion						
Hindu	93	75	186	67.9	279	70.1
Muslim	29	23.38	83	30	112	28.14
Christian	1	0.8	4	1.5	5	1.23
Others	1	0.8	1	0.4	2	0.50
Total	**124**	**100**	**274**	**100**	**398**	**100**
Education						
Student	104	83.87	215	78.46	319	80.15
Graduate	13	10.48	28	10.21	41	10.3
Postgraduate	7	5.6	28	10.21	35	8.7
Doctorate	0	0	3	1.09	3	0.75
Total	**124**	**100**	**274**	**100**	**398**	**100**
Occupation						
Student	104	83.9	215	78.5	319	80.15
Staff	20	16	59	21.5	79	19.85
Total	**124**	**100**	**274**	**100**	**398**	**100**
Socio-economic status						
I	0	0	11	4.01	11	2.76
II	23	18.54	66	24.08	89	22.36
III	76	61.3	139	50.72	215	54
IV	25	20.16	58	21.16	83	20.88
V	0	0	0	0	0	0
Total	**124**	**100**	**274**	**100**	**398**	**100**

Table 2: Distribution of the study subjects according to the duration of working on computers in a typical day.

Duration	Male		Female		Total	
	No.	%	No.	%	No.	%
<3hr	41	33.1	76	27.73	117	29.4
3-6hr	48	38.8	116	42.33	164	41.2
6-9hr	31	25	44	16.05	75	18.84
>9hr	4	3.23	38	13.86	42	10.55
Total	**124**	**100**	**274**	**100**	**398**	**100**

Table 3: Distribution of the study subjects according to the duration of using computers (in years).

Duration	Male		Female		Total	
	No.	%	No.	%	No.	%
<3yr	38	30.6	63	22.99	101	25.37
3-6yr	58	46.8	137	50.0	195	48.99
6-9yr	10	8.06	36	13.1	46	11.6
>9yr	18	14.5	38	13.9	56	14.1
Total	124	100	274	100	398	100

Table 4: Distribution of the study subjects according to the Zung's self rating depression scale.

Score	Male		Female		Total	
	No.	%	No.	%	No.	%
<50	119	95.96	263	95.98	382	95.97
50-69	5	4.03	11	4.01	16	4.02
70-80	0	0	0	0	0	0
Total	**124**	**100**	**274**	**100**	**398**	**100**

Table 5: Association between Zung Self rating depression scale and duration of work on computers.

| score | Duration of work on computers | | | | | | | | | | | | | | | | | | | |
| | <3yr | | | | 3-6yr | | | | 6-9yr | | | | >9yr | | | | TOTAL | | | |
	<3hr	3-6 hr	6-9hr	>9hr	<3hr	3-6 hr	6-9 hr	>9 hr	<3 hr	3-6 hr	6-9 hr	>9 hr	<3 hr	3-6 hr	6-9 hr	>9 hr	<3 HR	3-6 HR	6-9 HR	>9HR
<50	41	40	7	10	54	81	35	21	13	20	7	5	9	17	17	5	117	158	66	41
%	10.3	10	1.75	2.5	13.56	20.35	8.79	5.2	3.26	5.02	1.75	1.25	2.26	4.27	4.27	1.25	29.39	39.69	16.58	10.3
50-69	0	3	0	0	0	2	2	0	0	1	0	0	0	0	7	1	0	6	9	1
%	0	0.75	0	0	0	0.5	0.5	0	0	0.25	0	0	0	0	1.75	0.25	0	1.5	2.26	0.25
70-80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
χ^2-Value	4.17				3.695				1.217				8.701				17.6			
P-value	P>0.05				P>0.05				P>0.05				P<0.05				P<0.001			

Figure- 1 : Association between Zungs Self rating depression scale and duration of work on computers.
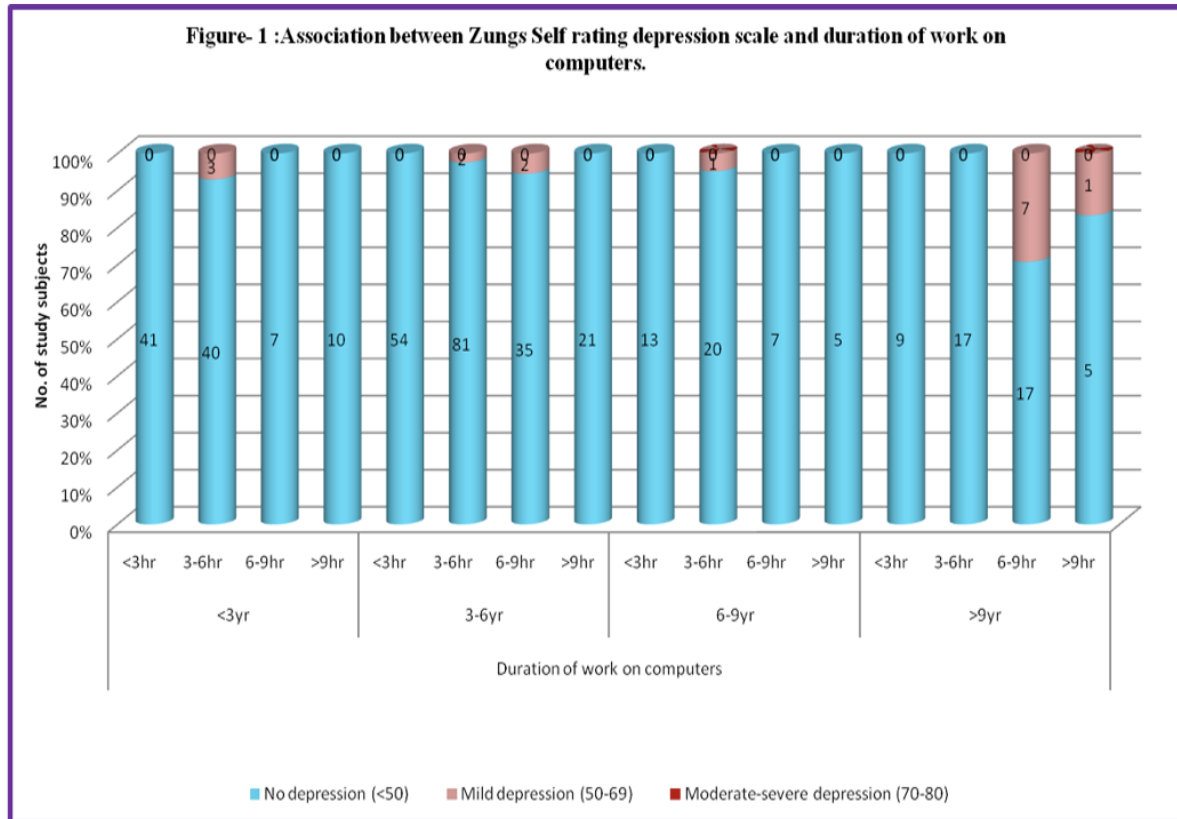
Conclusion:

In our study mild depression were more common who works on computer for 6-9hr for more than 9years. Majority of the study subjects used computers daily for 3-6 hours continuously for 3-6years causing depression which accumulate over a period of time resulting in severe depression affecting physical and mental health, it is identified and resolved sooner rather than later in an effort to reduce.

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