# **Original Research Article**

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# Study on stress among software professionals in Madhapur area of Hyderabad, Telangana

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#### **ABSTRACT**

**Background:** Stress is inescapable part of modern life, where workplace is becoming a volatile stress factory for most employees. Occupational stress/work stress/job stress can occur when there is discrepancy between the demands of the environment/workplace and an individual's ability to carry out and complete these demands. There is paramount need to address the factors which are leading to stress at the earliest since they are increasing rapidly. The objectives of the study were to determine the levels of stress among software professionals and to determine its association with key socio-demographic variables and with working environment.

**Methods:** A cross sectional study was conducted among software professionals working in Madhapur area of Hyderabad using self-administered, pre-designed and pre-tested questionnaire after taking informed consent. Data was analyzed using MS Excel and Epi Info software.

**Results:** Among the study participants, 71.5% were males and 28.5% were females. Mean age of the study participants was 34.04±7.52 years. Around 45.25% were having low stress, 33.5% moderate stress and only 21.25% had high stress according to perceived stress scale. Significant association was found between stress and age, type of family, marital status, gender and working hours per day.

**Conclusions:** In the study, most of them were having low stress according to perceived stress scale. Females were having high stress compared to males. Software professionals have to be educated on factors which are leading to stress to prevent its adverse effects.

Keywords: Software professionals, Perceived stress scale, Occupational stress, Stress

## INTRODUCTION

India emerged as a major player in the field of software engineering. It has become the career option of choice for many young educated Indians because of its lucrative salary and perks. Parents also insist their children to take up software related courses for an early settlement in life. On the other hand, the nature of job in software industry has a negative impact on the employee's physical and mental health. Long working hours, pressure at work,

night shifts and lack of sleep among the software professionals lead them to stress.

Stress is inescapable part of modern life, where workplace is becoming a volatile stress factory for most employees.<sup>2</sup> Occupational stress/work stress/job stress can occur when there is discrepancy between the demands of the environment/work place and an individual's ability to carry out and complete these demands. A variety of factors like severe resentment, impractical expectations from superiors, being

achievement oriented, lack of job safety and the inability to accept failure have led to a host of psychological difficulties among software professionals. This reflects itself in the form of social, marital and sexual problems.<sup>3</sup>

A variety of factors like severe resentment, impractical expectations from superiors, being achievement oriented, lack of job safety and the inability to accept failure have led to a host of psychological difficulties among software professionals.

This stress affects the employee's performance, eventually taking a major toll of their health. Some companies have regular "stress breaks" intended to help the employees strike a healthy balance between work and fun.<sup>4</sup>

The objectives of the study are to determine the levels of stress among the study subjects and to determine association with key socio demographic variables and working environment.

### **METHODS**

A cross sectional study was done among the software professionals working in Madhapur area, Hyderabad. The study was conducted for a period of one year (March 2018 to February 2019). The prevalence of stress for the study was taken as 35% with precision of 15%.5 Estimated sample size was 330, however a sample of 400 was taken for the study. A total of 109 software companies are present in Madhapur area in Hyderabad. They were listed and companies were selected by simple random sampling through lottery technique till the desired sample size was met. Data was collected using pre-tested pre-designed, and semi-structured questionnaire. The questionnaire was self-administered after obtaining oral informed consent.

Questionnaire consisted of components like socio demographic characteristics, working patterns and work environment, lifestyle patterns and perceived stress scale. At the end of questionnaire, any misconceptions or queries were clarified and the respondents were thanked for extending their co-operation. The data obtained was compiled, tabulated and statistically analysed using MS Excel and Epi Info software. Simple proportion is expressed in terms of percentages. Statistical measures obtained were frequencies, percentages, proportions, means and standard deviation. Chi-square test is done wherever applicable.

#### **RESULTS**

A total of 400 respondents were included in the study. Study participants mean age was 34.04±7.52 years. Majority of study participants (42.25%) were in the age group of 31-40 years, 71.5% were males and 74% were married. Most (42.75%) of them were staying in nuclear family. Mean age of males was 34.79±7.72 years and that

of females were 32.15±6.66 years. Majority (74.01%) of study subjects were married for more than 5 years (Table 1).

Table 1: Socio-demographic distribution of study participants (n=400).

Socio dei	nographic variable	N (%)
Age (in years)	≤30	128 (32)
	31-40	169 (42.25)
	>40	103 (25.75)
Gender	Males	286 (71.5)
	Females	114 (28.5)
Marital status	Married	296 (74)
	Unmarried	85 (21.25)
	Widowed/separated	19 (4.75)
Type of family	Nuclear family	171 (42.75)
	Joint family	24 (6)
	Three generation family	89 (22.25)
	Staying away from family	116 (29)

Around 50.5% of study subjects were having work experience of more than 5 years, 74.25% were working only in day shifts and most (63.25%) of them were working for more than 7 hours on computer in a day. Majority (60%) of them belonged to the primary engineer cadre. Most (78%) of the study subjects were working on laptop, followed by 16.25% of them who worked only on desktop. Only 5.75% of them were using both laptop and desktop based on the situation. Around 44% of the study subjects were taking break from their work every 2 hours.

Among the 400 study subjects 47.5% were alcoholics, 32.35% were smokers and only 1.25% were having habit of chewing tobacco/pan masala (Table 2).

Table 2: Working patterns and environment of study participants (n=400).

Working patterns and er	N (%)	
Work experience (in	≤5	198 (49.5)
years)	>5	202 (50.5)
Working shifts	Day	297 (74.25)
Working sinits	Night	103 (25.75)
Working hours on	≤7	147 (36.75)
computer	>7	253 (63.25)

In the present study majority (45.25%) were having low stress, 33.5% were having moderate stress and only 21.25% were high stress according to perceived stress scale. Among all the age groups low levels of stress was more common, except among 31-35 years age group, where most of them were experiencing moderate levels of stress. Higher levels of stress were also more common among 31-35 years age group of study subjects. Majority of the males (52.44%) were experiencing low levels of stress, whereas majority of females (49.12%) were experiencing moderate levels of stress (Table 3).

Table 3: Distribution of study population according to perceived stress scale.

Level of stress	N (%)
Low stress	181 (45.25)
Moderate stress	134 (33.5)
High stress	85 (21.25)

In our study we analysed association between socio demographic factors and level of stress level. We found significant association with stress level and age, gender, stay with/without family and marital status (p<0.05) (Table 4).

In our study we analysed association between working factors and level of stress level. We found significant association with stress level and working factors (working cadre and hours of work per day) but no significant association was found with the type of shift they were working (p>0.05) (Table 5).

Table 4: Association between socio-demographic variables and stress.

Socio-demographic factor	Variable	Moderate and severe stress N (%)	Low stress N (%)	Chi-square and p value
Age (in years)	≤40 (n=297)	172 (57.91)	125 (42.09)	4.65;
	>40 (n=103)	47 (45.63)	56 (54.37)	p<0.05
Gender	Male (n=286)	136 (47.55)	150 (52.45)	20.98;
	Female (n=114)	83 (72.80)	31 (27.20)	p<0.001
Family	Staying with family (n=284)	143 (50.35)	141 (49.65)	76.
	Staying away from family (n=116)	76 (65.51)	40 (34.49)	7.6; p<0.05
Marital status	Single (n=104)	43 (41.34)	61 (58.66)	10.192;
	Married (n=296)	176 (59.45)	120 (40.55)	p<0.05

<sup>\*</sup>Significant- p<0.05; \*Highly significant- p<0.001.

Table 5: Association between working environment and stress.

Working factor	Variable	Moderate and severe stress N (%)	Low stress N (%)	Chi-square and p value
Wanting as due	Junior cadre (n=240)	118 (49.16)	122 (50.84)	7.54;
Working cadre	Senior cadre (n=160)	101 (63.12)	59 (36.88)	p<0.05
Wauling having non-day	≤7 (n=147)	61 (41.49)	86 (58.51)	16.47;
Working hours per day	>7 (n=253)	158 (62.45)	95 (37.55)	p<0.001
Work shifts	Day (n=297)	155 (52.18)	142 (47.82)	3.05;
WORK SHIITS	Night (n=103)	64 (62.13)	39 (37.87)	p>0.05

<sup>\*</sup>Significant- p<0.05; \*Highly significant- p<0.001.

#### **DISCUSSION**

In our study the mean age of study subjects was 34.04±7.52 years and majority of study subjects (42.25%) were in the age group of 31-40 years, whereas the mean age of the study subjects was 29.8±4.3 years and most (53.5%) of the subjects were in the age group of 21-30 years in a study conducted by Sharma et al in Delhi.<sup>5</sup> In this study majority (71.5%) were males which is similar to a study conducted by Sharan et al in Bangalore.<sup>7</sup> Majority (74%) of study subjects in our study were married whereas it was only 41% of the study subjects were married in a study conducted by Amaravathy et al in Chennai.<sup>8</sup> Since a higher number of study subjects in our study were in the age group of 31 to 40 years, majority of them were married.

Majority (50.5%) of the study subjects in our study were having work experience of more than 5 years, which was similar to a study conducted by Banu et al in Chennai where 50.6 % of them were having experience of more

than 5 years. Majority (74.25%) of them in our study were working in day shifts, whereas in a study conducted by Saleem et al it was observed that 94% of the participants worked in day shift only. 10 In our study, majority (63.25%) of the study participants work on the computer for more than 7 hours in a day, which is almost similar to a study done by Talwar in Delhi, where 72% of the subjects were spending more than 6 hours on the computer. 11 Arumugam et al conducted a study in Chennai among information technology professionals, where it was reported that all the subjects were working for more than 7 hours in a day. 12 Most (44%) of the study subjects were taking break from their work every 2 hours, whereas in a study conducted by Saleemet al in Madurai, it was observed that 34.4% of the study participants were taking break from the work after every 60 to 90 minutes.<sup>10</sup>

In the present study it was observed that 45.25% subjects were having low stress, 33.5% were having moderate stress and only 21.25% were high stress according to

perceived stress scale, whereas in a study done by Vimala et al conducted a study in Chennai it was observed that 55.22% of study subjects experienced moderate levels of stress, 28% experienced high stress, and only 1.6% experienced very high overall stress.<sup>13</sup> Among the study subjects aged 40 years and below, 57.91% of them were experiencing moderate to severe stress, whereas in a study conducted by Mohan et al in Chennai, it was reported that subjects aged below 40 years were experiencing high level of stress.<sup>14</sup> Higher proportions (72.8%) of females were experiencing more stress compared to males in our study, whereas in a study conducted by Saurabh et al in Mumbai, it was observed that stress was more common among male participants compared to females.<sup>15</sup> In the present study higher proportions of married people were having higher levels of stress, whereas in a study done by Shrivastava et al in Mumbai among software professionals, it was observed that higher levels of stress was found among unmarried subjects.16

#### **CONCLUSION**

In our study majority (71.5%) of the subjects was males and females were 28.5%. The mean age of study subjects was 34.04±7.52 years, where mean age of males was 34.79±7.72 years and mean age of females was 32.15±6.66 years. Three fourths of the study population were married, most (42.75%) of them staying in a nuclear family and only a meager of 6% of them was staying in a joint family. Two thirds of the study subjects were working as engineers (junior cadre), almost half of them were having work experience of more than 5 years and three fourths of the study participants were working only in day shifts. About 63.25% of the study participants work on the computer for more than 7 hours in a day, laptop was the most (78%) commonly used device. Around (44%) of the study subjects were taking break from their work every 2 hours.

In the present study majority (45.25%) were having low stress, according to perceived stress scale, followed by moderate stress and high stress, being experienced by study subjects. Comparatively higher levels of stress was being experienced by younger study subjects (<40 years), females, married study subjects and those who were living away from their families. Higher levels of stress was observed among study subjects working in higher cadres, exposed to longer screen time, smokers and those working in night shifts.

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