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RESEARCH ARTICLE

EVALUATION OF PROFESSIONAL STRESS AMONG SOFTWARE PROFESSIONALS IN SOUTH INDIA

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ABSTRACT

Professional stress is one of the posing threat to mental and physical health in modern life. The present study was aimed to evaluate the professional life stress among software professionals in south India. Professional life stress score (PLSS) was assessed based on age, gender, work experience and type of work. Further, resting blood pressure was also assessed. The present findings showed that 85% of the workers had a mild type of stress and 15%of the workers had Moderate Stress. High degree of stress was reported by none of the participants. Unmarried professionals showed a significant ($P<0.001$) increase in the PLSS score. Based on the type of the designation desk job and human resource recruitment professionals showed a highly significant increase ($P<0.001$) in the professional life stress score. Moderate Stress groups showed a non significant increase in systolic and diastolic blood pressure compared to the Mild stress group. Based on the present results we suggest that there is a prevalenceof Low to Moderate level of professional life stress among software employees. The management of the software organization must focus on implementing intervention programmes to manage stress

INTRODUCTION

India being the Information Technology hub with lakhs involved as software Professionals, there is a need to assess prevalence of professional stress. Interest in professional stress research is growing primarily because of the increasing incidence of the adverse effects of profession on psychological and physical health of employees (Lynch *et al*., 1997, ; Siegrist *et al*., 19903; Bosma *et al*., 1998)

Software organizations are often observed under huge stress(Surendra Kumar 2012).The nature of this job professional's is highly time-bound, client oriented and technology intensive. The trends in turn, coupled with other diverse factors including change of technology, client interaction, fear of obsolescence, family support and work overload (Chaly *et al*., 2014).Professional stress occurs when there is discrepancy between the demands of work place and an individual's ability to carry out the work and complete the demands. Literature survey shows that stress might lead physical, psychological and behavioral problems (Cooper and Marshall, 1976; Light*et al*., 1992; Schnall*et al*., 1992). There is an urgent need to understand the dynamics of the professional stress in software professionals and its associated health morbidities. Therefore, the present study was designed to assess the severity of stress among the software professionals based on age, gender, work experience and type of work using professional life stress scale questionnaire(David Fontana, 1989) to find out the amount of stress caused by professional work alone.

MATERIALS AND METHOD

A cross-sectional survey was carried out to evaluate the professional life stress among the software professionals working in various software companies in south India. The study was approved by the institutional Ethical committee. A total of 155 healthy software professionals having a work experience of minimum three months with minimum six hours working per day were included in this study. General physical examination along with measurement of anthropometric parameters including blood pressure and Systemic examination were carried out in all the subjects. The participants with any major illness and family distress were excluded from the study. Based on the age the employees were grouped into 3 categories (20-25 years, 26-30 years and more than 30 years). On the basis on work experience they were grouped in the following manner, 1-5 years, 6-10 years and more than 11 years of experience. Based upon the type of work the employees do they were grouped in 4 categories, Group A – desk job, HR recruitment, Group B – consulting, project manager, domain lead, Group C- programmer, developer, data analysis, data administration. Group D- IT support, production support, application support.

Measures used

Professional life stress scale is a screening tool developed by David Fontana in 1989(David Fontana, 1989). It contains 22 questions which screens for professional stress by assessing various domains of profession. The scoring range is between 0 and 60. The PLSS score was interpreted as follows:

Score (0-15): Mild Stress; Stress isn't a problem in the life.
Score(16-30):Moderate range of stress for a busy professional person. It's nevertheless well worth looking at how it can reasonably be reduced.

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Score(31-45): High Stress is clearly a problem, and the need for remedial action.

Score(45-60):High stress is a major problem, and something must be done without delay. They might be nearing the stage of exhaustion in the general adaptability syndrome.

The software professionals were approached personally in their work place. The questionnaire was given to the and was explained in order to avoid any ambiguity. Subjects who participated in the study were allowed a few minutes to read the questionnaire and ask any questions concerning the contents. They were assured of the confidentiality of their responses and were requested to give appropriate answers. The filled questionnaires were collected on the same day. Each answer was having a score. For each question, score was given as per the Key given for the Professional Life Stress Test.

Statistical Analysis

All statistical tests were conducted using SPSS software. The data collected was analysed by Pearson's correlation co-efficient and descriptive analysis. P <0.05 was considered significant.

RESULTS

General characteristic of the population

A total of 155 subjects participated in the study. Out of them 71% were males and 29% were females (Fig 1).

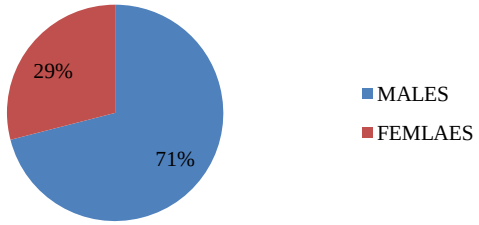

Fig1 Distribution of study population based on the gender

Based on age distribution

28% of the study sample was between 20 years and 25 years, 44% were between 26 years and 30 years and 28% were above 30 years (Fig 2).

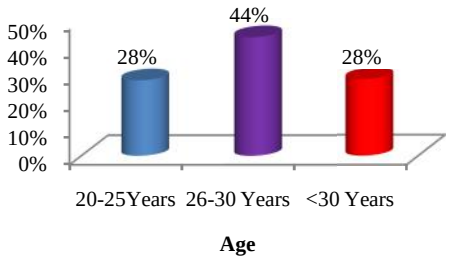

Fig 2 Percentage distribution of age in the study population

Based on duration of work as software engineer

51% of the study sample had work experience as software engineer for<5years, 31% had work experience between 6 years and 10 years, 18% were working for more than eleven years(Fig 3)

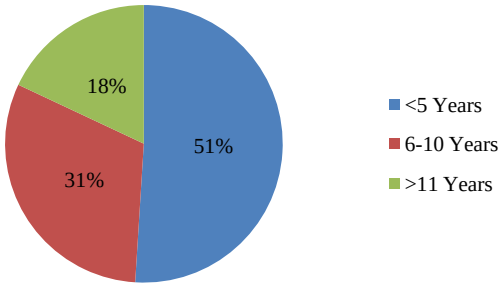

Fig 3 Percentage Distribution Of The Study Population Based On Duration Of Work As Software Engineer:

Based on marital status:

46% of the study sample weresingle at the time of interview and 54% were married.. None reported to be in alive-in relationship (Fig 4).

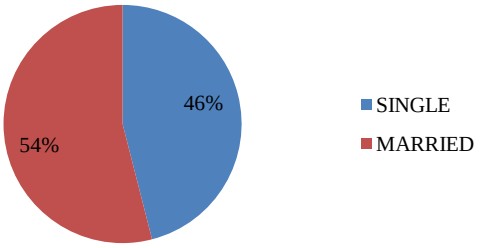

Fig 4 Percentage Distribution Of The Study Population Based On the marital status

Based on the type of the Job:The percentage of distribution was as follows 6% of the study participants belonged to Group A, 27% in Group B,50% in Group C and 17% were in Group D(Fig5)

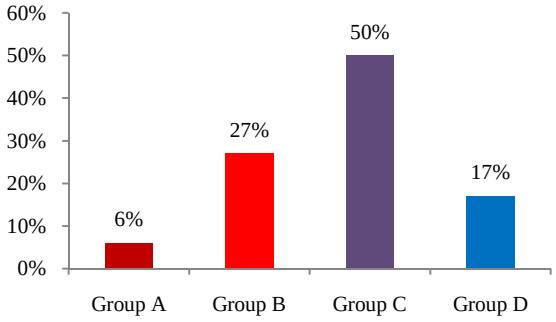

Fig 5 Percentage Distribution Of The Study Population Based On the type of the job designation

Results of professional life stress scale:85% of the employees were in mild category of stressand15% had Moderate degree of Stress and none of the participants had High degree of stress. (Fig 6).The mean PLSS score (Fig7)in the mild stress group was 8.32±3.35 and in the moderate stress group it was 20.25±255.When the individuals were grouped on the basis of age and gender and work experience(Table II, III, III), PLSS score did not show any significant difference between the groups. Unmarried professionals showed a significant

(P<0.001) increase in the PLSS score when compared to married professional. Based on the type of the designation Group A showed a significant correlation in comparison with the other groups. A non significant increase in both systolic and diastolic Blood pressure was observed in moderate stress groups compared to mild stress group (Table IV)

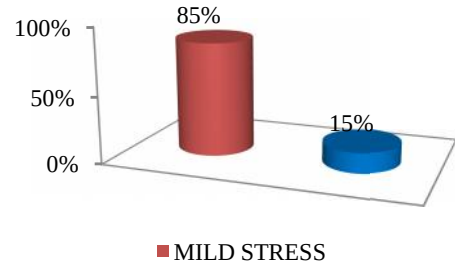

Fig 6 Percentage distribution of PLSS score in the software Professionals

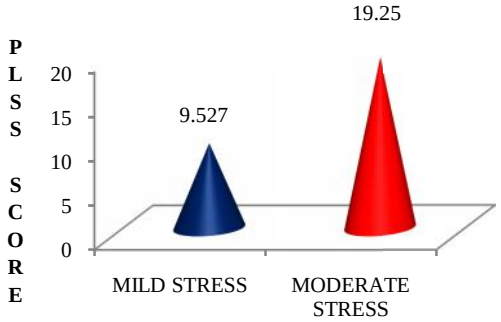

Fig 7 PLSS score in the software Professionals; values are expressed as Mean ±SD.

stressed due to overwork, job insecurity, information overload, and the increasing pace of life. These events produce distress: the degree of physiological, psychological and be havioural deviation from healthy functioning(Pickering *et al*., 1992).In our previous reports we have compared the effect of perceived stress and professional stress in the software professionals(Ramesh Bhat *et al*., 2014).In this study we have shown the influence of professional life stress alone as a measuring tool to find out the exact nature of work place stress in software workers.

In our study sample males were more in number than females. Other studies on IT professionals reflect similar findings (Smith*et al*., 2002) The gender difference may be largely due to cultural and social influences(Gefen and Straub ,1997).Additional responsibilities in woman life might have lead them to opt professions which are less time consuming and less stressful unlike software profession(Tannen , 1994; Seining 1998). In this study we found only mild to moderate degree of stress among the software professionals. This finding is in contrast to the work done by other researchers who found high degree of stress in software professionals (Konrad and Cannings, 1997; Cooper and Marshall, 1976; Ivancevich *et al*., 1983; Sharma *et al*., 2006). Incidence of mild to moderate degree of stress in our study might be probably because of having realistic targets, Proper time management with improved work culture, better opportunities for carrier development and recognition for their good performance. Further, in our study we have taken into consideration only work place stress excluding other forms of stress like familial stress, social stress and financial needs. Job stress is a common work place problem experienced by all professionals irrespective of their nature of work; however, this phenomenon

TABLE 1 PLSS score among the study group based on the Age and Gender; values are expressed as Mean ±SD

	AGE (years)			GENDER	
	20-25	**26-30**	**More than 30**	**male**	**female**
Mean Plss score	10.54±3.83	9.81±4.48	10.05±6.63	10.2±4.87	9.78±5.39
P value	0.76(Non significant)			0.64(Non significant)	

TABLE 2 PLSS score among the study group based on the work experience and types of job; values are expressed as Mean ±SD.

	WORK EXPERIENCE(years)			TYPE OF JOB			
	0-5	6-10	More 11	A	B	C	D
MEAN PLSS SCORE	10.25 ± 4.47	9.17 ± 4.13	11.14 ± 7.27	13.56 ± 7.55	7.98 ± 5.09	10.37 ± 4.94	11.38 ± 2.98
P VALUE	0.23 (Non significant)			0.003(High significant)			

TABLE 3 Comparison of PLSS scores on the basis of marital status; values are expressed as Mean ±SD.

	Marital status	
	Single	**Married**
Plss score	18.56±7.55**	10.38±2.98

TABLE 4 Comparison of Blood Pressure between Mild and Moderate Stress Groups

Plss score	**Blood pressure(mmhg)**	
	Systolic	**Diastolic**
Mild	130±8.01	82±1.05
Moderate	134±7.77	86±5.32
P-value	0.25 (ns)	0.26 (ns)

DISCUSSION

Stress is a negative consequence of modern living. People are

is more common in software professionals which might be probably due to constant change in technology, client interaction, long working hours, work overload and realistic targets for career development and recognition for their good performance. Males showed slightly higher stress score than females. Additional responsibility shouldered by male population for the attainment of physiological needs of the family might be the reason for the higher stress perception. Based on the duration of work experience, we found that individuals with more than 10years of experience showed higher stress scores. This might be due to the increased responsibility as the year of experience increases. Inrecent years, new employees are given better training and are introduced to the profession in a phased manner which might help them to adjust and cope with the profession better. In our

study the professionals under the designation consulting, project manager, domain lead showed the least score whereas desk job and Human resource recruitment showed maximum mean score .This might be due to the work pressure pertained under each category of job.

In the present study, Singles reported a higher level of job stress than the married. This can be viewed from the societal value that is peculiar to culture which frowns at late marriage. Married worker derives emotional support from the spouse may douse the job tension after the day's work which may not be available to single workers (Vimala and Madhavi, 2009).A non significant increase was observed in systolic and diastolic blood pressure in individuals with moderate stress group than those under mild stress. Stress induced increase in the blood pressure might be probably due to the psychological disturbances and fluctuations in the autonomic functions(Olatunji, 2014; Markovitz*et al*., 1993; Mathias, 1991; McCaffrey and Blanchard, 1985).

India being a leading sector in information technology, its development largely depends on its employees' mental and physical health. Moderate stress in long term might be a risk factor for developing various health problems among software engineers. This might indirectly hinder the progress of software organizations. Preventive strategies like training in stress management might help the software professionals to cope with their profession better without affecting their lifestyle and health.

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