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Original Research Article

A Study on Health Problems among Software Professionals in Hyderabad, Telangana

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Abstract:

Introduction: India emerged as a major player in the field of Software Engineering in 1990s. Software Industry has become the career option of choice for many young educated Indians because of its lucrative salary and perks. Hence, long working hours, pressure at work, night shifts and lack of sleep among the software Professionals lead them to various health problems which is the main focus of this study.

Methodology: It is a cross sectional study which was done among the software professionals working in Hyderabad. The sample size was calculated by taking the prevalence of visual problems as 52% from a study conducted among software employees by Manish Prasad et al[7] at 95% significance and 10 % absolute precision. Estimated sample size was 400. Three software firms were thus selected by simple random sampling and data was collected from all the software employees who were willing to take part in the study, till the desired sample size was met.

Results: 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. Almost half of them were having complaints of visual and musculoskeletal problems. Majority (45.25%) were having low stress, according to perceived stress scale, followed by moderate stress and high stress being experienced by study subjects and around 29% of the study subjects were diagnosed with insomnia according to Athens insomnia scale.

Conclusion: Majority (71.5%) of the study subjects in the study was males and females were 28.5%. Refractive errors (23.5%), Hypertension (14.6%), Diabetes (7.75%) and tension head ache (7%) were the other important health problems existent among the study population. Comparatively more number of elder (>40 years) study subjects and males were pre diagnosed with hypertension. Hypertension was more commonly occurring among the study subjects who smoked and consumed alcohol.

Keywords: Health problems, Software professionals, Visual problems, Musculoskeletal problems.

Introduction

India emerged as a major player in the field of Software Engineering in 1990s. IT (Information Technology) services and IT enabled service industries in India have become highly visible nodes of the global economy, and also produced a new global image of India as a rising economic power. [1] Software Industry has become the career option of choice for many young educated Indians because of its lucrative salary and perks. [1] Hence, long working hours, pressure at work, night shifts and lack of sleep among the software Professionals lead them to various health problems which is the main focus of this study. [2] Stress is inescapable part of modern life, where work place is becoming a volatile stress factory for most employees. [3] This stress affects the employee's performance, eventually taking a major toll of their health. Job stress is an important determinant of hypertension, which is a major contributor to the world wide epidemic of cardiovascular disease. [4] It is known

that workers in IT sector are predisposed to several cardiovascular risk factors. [5] Software Professionals suffer from constipation and Inflammatory Bowel Syndrome due to improper timely intake of food and lack of dietary fiber. They also suffer from bloating, abdominal pain and diarrhea may be due to stress and high fat food in the form of fast food. [6]

Visual and musculoskeletal disorders are common among Software Professionals which involves muscle, fascia, tendon, neurovascular structures of neck and upper limb also affects other body parts. Long working hours, static postures, poor office ergonomics and repetitive nature of work were identified as some of the risk factors leading to pain and discomfort. Hence it is likely that visual and musculoskeletal problems will continue to create a significant and growing contribution to reduced productivity at work and also reducing the quality of life of Software professionals. Due to night shifts and stress at workplace, software professionals are suffering with lack of quality sleep. Getting the right amount of quality sleep is a key aspect of good health, along with a healthy diet and regular exercise. The objectives of present study is to determine the proportion of various health problems and, to assess the relationship between socio demographic factors and stress with health problems among software professional

Methodology

It is a cross sectional study which was done among the software professionals working in Hyderabad. The study was conducted for a period of one year. The sample size was calculated by taking the prevalence of visual problems as 52% from a study conducted among software employees by Manish Prasad et al [7] at 95% significance and 10 % absolute precision. Estimated sample size was 400. All the software companies present in Hyderabad were listed and only 45 software companies have given permission to conduct the study. Out of the total 45 companies which gave permission, a brief assessment was done to estimate the average number of employees working in each company. It was found that on an average 150 ± 30 employees are working in each company. Hence, it was decided that 3 companies will be selected by simple random sampling through lottery technique to achieve the desired sample size. Three software firms were thus selected by simple random sampling and data was collected from all the software employees who were willing to take part in the study, till the desired sample size was met. After conducting the pilot study in 50 subjects, necessary modifications were made in the questionnaire before collecting the data. The data collection was done over a period of 6 months and was collected using pre-designed, pre-tested 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. 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 analyzed 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. Ethical permission was taken from institutional ethical committee of Gandhi Medical college

Results

The total participants in the study were 400 and the mean age of males and females was 34.79 ± 7.72 years and 32.15 ± 6.66 years respectively.

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

Socio Demographic 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/ Seperated	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)

Majority (42.45%) was in the age group of 31-40 years, 71.5% were males and 74% of subjects were married. Most (74.01%) of the study subjects were married for more than 5 years and almost 42.75% of them were staying in a nuclear family.

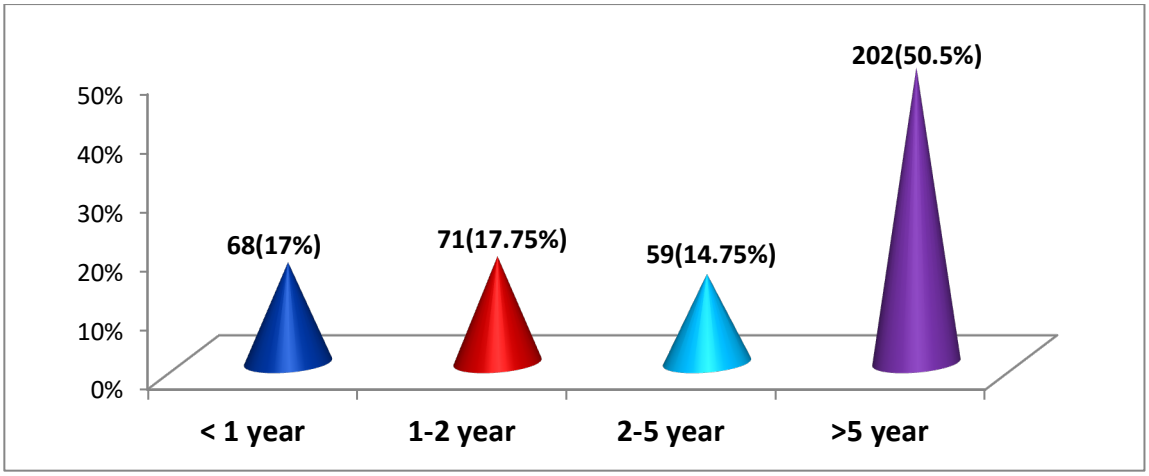

Figure 1: Distribution of study population according to their working experience in this profession (N=400)

Majority (50.5%) of the subjects were having work experience of more than 5 years. Around 74.25% of the study participants were working in the day shifts and only, 25.75% were working in night shifts. Almost 63.25% of the study participants working on the computer for more than 7 hours in a day, 78% of the study subjects were working on laptop and 44% of the study subjects were taking break from their work every 2 hours. Almost 73% of the study subjects carried their food from home, around 47.5% were alcoholics, 32.35% were smokers and only 1.25% was having habit of chewing tobacco/ pan masala. Only 21% of them were doing physical exercise for more than 30 minutes.

Table 2: Distribution of study population according to health problems

Health problem	Number	Percentage
Visual symptoms	209	52.25%
Musculoskeletal symptoms	216	54%
Digestive disorders	85	21.25%
Known diabetic	31	7.75%
Known hypertensive	58	14.5%
Thyroid disorders	13	3.25%
Refractive errors	94	23.5%
Tension headache	28	7%

Majority (54%) of the study population were suffering from musculoskeletal symptoms, the second largest health complaints were those of visual symptoms (52.25%). Other significant health problems among the study population were refractive errors (23.5%), digestive disorders (21.25%), thyroid disorders (3.25%). Around 7.75% of them were known diabetics and 7% of them complained of tension headache.

Around 14.5% of the study subjects were known hypertensives. However on the day of the interview blood pressure of all the study participants was recorded. Mean SBP (systolic blood pressure) and mean DBP (diastolic blood pressure) of study participants was found to be 119.63 ± 8.67 and 80.05 ± 4.58 respectively. Among males the Mean SBP (systolic blood pressure) was- 119.69 ± 10.523 and Mean DBP (diastolic blood pressure) was- 80.07 ± 4.66, whereas among females it was 118.16 ± 7.415 and 79.82 ± 4.605 respectively. Among the 116 female study participants, around 17 (14.60%) of them have given a previous history of PCOS, 20 (17.25%) of them have given history of menstrual irregularities, among whom 6.91% suffering from Dysmenorrhea, 6.03% suffering from Oligomenorrhea and 4.31% suffering from Polymenorrhea. Among 296 subjects who were married, 87.85% of the subjects were normal and only 4.05% of the married subjects were having fertility issues. Among 400 study subjects 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 400 study subjects 71% were not having insomnia and only 29% were found to have insomnia according to Athens insomnia scale.

Among 400 study subjects, 65.25% were normal (BMI- 18.5- 24.9), 21.50% were having over weight (BMI- 25-29.9), 10.5% were obese (BMI- ≥30) and only 2.75% were underweight (BMI- <18.5). Mean BMI of study participants was found to be- 23.46 ± 2.79

Table 3: Relationship between sociodemographic factors with Hypertension and BMI (Body mass index)

Sociodemographic Factor	Variable	HTN (+) (known hypertensive)	HTN (-)	Chi square & P-value
Age	≤40 yrs	30 (10.10%)	267(89.90%)	18.00 P<0.001
	>40 yrs	28 (27.18%)	75 (72.82%)	
Sociodemographic Factor	**Variable**	**BMI ≥25**	**BMI <25**	**Chi square & P-value**
Gender	Male	76 (26.57%)	210 (73.43%)	13.58 P<0.001
	Female	52 (45.61%)	62 (54.39%)	

***Significant- p<0.05; *Highly significant- p<0.001.**

In our study we analysed association between socio demographic factors with hypertension and body mass index. We found highly significant association between age and hypertension and also with gender and body mass index.

Table 4: Relationship between stress and health problems

Variable	Visual symptoms (+)	Visual symptoms (-)	Musculo Skeletal Symptoms (+)	Musculo Skeletal Symptoms (-)	Digestive disorders (+)	Digestive Disorders (-)
Moderate and severe stress	121 (55.25%)	98 (44.75%)	137 (62.55%)	82 (37.45%)	56 (25.57%)	163 (74.43%)
Low stress	88 (48.61%)	93 (51.39%)	79 (43.64%)	102 (56.36%)	29 (16.02%)	152 (83.98%)
Chi square and p- value	1.74 p> 0.05		14.26 P< 0.001		5.39 P< 0.05	

***Significant- p<0.05; *Highly significant- p<0.001.**

In this study we analysed association between health problems and level of stress. We found significant association with stress level and health problems (digestive disorders and musculoskeletal problems) but no significant association was found with the visual problems of the study subjects.

Discussion

In our study, around one fourth (23.5%) of the study subjects belonged to 31-35 years of age, followed by 21.5% of them who were aged between 25 to 30 years. The mean age of study subjects was 34.04 ± 7.52 years; the mean age of males and females was 34.79 ± 7.72 and 32.15 ± 6.66 years respectively. Whereas in a study conducted by A.K. Sharma et al in Delhi, the mean age of the study subjects was 29.8 ± 4.3 years and majority (53.5%) of the subjects were in the age group of 21-30 years. [8] In this study almost 71.5% of them were males which is similar to a study conducted by Deepak Sharan et al in Bangalore [9] Majority (74%) of the study population in our study were married, whereas it only 41% of the subjects were married in a study conducted by Amaravathy et al in Chennai [10], 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. Almost 50.5% of the subjects were having work experience of more than 5 years, which differs from a study conducted by Renjini.R et al, where 27% of the study subjects were having experience of over 5 years [11]. Majority (74.25%) of participants in our study were working in day shift which is different from a study conducted by Saleem et al, where it was observed that 94 % of the participants were working in day shifts only [12]. In this study it was observed that around 209(52.25%) of them were suffering from one or the other visual symptoms, which is similar to a study conducted by Manish A Prasad et al, [7] where it was observed that the prevalence of visual symptoms was found to be 52% and differs from a study conducted by Richa Talwar in Delhi, where it was observed that the prevalence of visual problems was 76 % among the study subjects [13]. Around 54% of the subjects in our study were suffering from one or the other musculoskeletal symptoms, which is found to be similar to a study conducted by V. Padma et al in 2015, where it was observed that the prevalence of musculoskeletal symptoms was 56%. [14] In the our 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 conducted by Balasubramanian vimala et al [15], it was observed that 55.22% having moderate stress, 28% high stresand only 1.6% were experiencing very high stress.

Conclusion

Majority (71.5%) of the study subjects in the study 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. 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. It was observed that 47.5% were alcoholics, 32.35% were smokers. Majority (73%) of the study subjects carried their food from home and only one fifth of them were doing some form of physical exercise. Almost half of them were having complaints of visual and musculoskeletal problems. Only 4% of the married study subjects had issues related to fertility. Majority (45.25%) were having low stress, according to perceived stress scale, followed by moderate stress and high stress being experienced by study subjects and around 29% of the study subjects were diagnosed with insomnia according to Athens insomnia scale. Two thirds of study subjects were having normal BMI and 21.50% of them were overweight. Mean BMI of study participants was 23.46 ± 2.79. Being obese or overweight was more frequent among female study subjects, comparatively and those who worked in the night shifts. Refractive errors (23.5%), Hypertension (14.6%), Diabetes (7.75%) and tension head ache (7%) were the other important health problems existent among the study population. Comparatively more number of elder (>40 years) study subjects and males were pre diagnosed with hypertension. Hypertension was more commonly occurring among the study subjects who smoked and consumed alcohol.

References:

1. L.Ranjit, L.Mahespriya. Study on job stress and quality of life of women software employees. International journal of research in social sciences Volume 2, Issue 2 May 2012.
2. Ramyashilpa, D. Nayak. Impact of Meditation on Alienation and Locus of Control of IT Professionals. International Journal of Humanities and Social Science Invention volume 2 issue 2, February 2013.
3. Geeta Kumari, Dr. Gaurav Joshi, Dr. K. M. Pandey. Job stress in software companies: A case study of HCL Bangalore, India. 2014 Global Journals inc. (US).
4. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: Analysis of worldwide data. Lancet. 2005; 365:217–23.
5. Kesavachandran C, Rastogi SK, Das M, Khan AM. Working conditions and health among employees at information technology - Enabled services: A review of current evidence. Indian J Med Sci. 2006; 60:300–7.
6. Sekar Babu Hariram, G. Mruga Boopathy, Chandran Masi, S. Thenesh Kumar. Occupational health alarm for software employees–a review Int J Pharm bio sci 2013 Jan; 4(1): (b) 550 – 553
7. Manish A Prasad, Vasant Wagh, Abhay Mudey. Study of prevalence of health problems among computer professionals in selected Information Technology (IT) Company in Nagpur district of Central India. Innovative Journal of Medical and Health Science 4: 3 May – June (2014) 96 - 98.
8. A.K. Sharma, S. Khera, J. Khandekar. Computer Related Health Problems among Information Technology Professionals in Delhi. Indian Journal of Community Medicine Vol. 31, No. 1, January - March, 2006.
9. Deepak Sharan, Mathankumar Mohandoss, Rameshkumar Ranganathan. Outcome of treatment of work related musculoskeletal disorders in on-site clinics in Information Technology companies. Proceedings 19th Triennial Congress of the IEA, Melbourne 9-14 August 2015.
10. Amaravathy Karuppaiah Brindha, Shruti Murthy, Kate Trout, Awnish Kumar Singh, Krishna Mohan Surapaneni, Ashish Joshi. Dry eyes among information technology professionals in India. Int Eye Sci, Vol. 15, No. 8, Aug. 2015.
11. Renjini. R. Diet, lifestyle pattern and health profile of professionals in software industry.
12. Saleem M, Priya S, Govindarajan R, Balaji E., Diwahar Anguraj J., ShylendraBabu P. G., Dhivyapriya S. A cross sectional study on work related musculoskeletal disorders among software professionals. International Journal of Community Medicine and Public Health. October-December 2015; 2(4).
13. Richa Talwar, Rohit Kapoor, Karan Puri, Kapil Bansal, Saudan singh. A Study of Visual and Musculoskeletal Health Disorders among Computer Professionals in NCR Delhi. Indian J Community Med, 2009 Oct; 34(4): 326–328.
14. V. Padma, N.N. Anand, S.M.G. Swaminatha Gurukul, S.M.A. Syed Mohammed Javid, Arun Prasad and S. Arun. Health problems and stress in Information Technology and Business Process Outsourcing employees. J Pharm Bioallied Sci 2015 Apr; 7(Suppl 1): S9–S13.
15. Balasubramanian Vimala, Chokalingam Madhavi. A study on stress and depression experienced by women IT professionals in Chennai, India. Psychol Res Behav Manag 2009; 2: 81–91. Published online 2009 Aug 5.