

Original Article

Comparison of occupational stress in teachers and software professionals : A questionnaire study.

Prathibha K M^{1*}, Malarvizhi Ravichandran², Priscilla Johnson²

1. Department of Physiology, Saveetha Medical College and Research Institute, Chennai, India.

2. Department of Physiology, Sri Ramachandra University, Chennai, India.

Received: 09th October-2013 Accepted: 25nd November-2013 Published: 30th-December 2013

Abstract

Background: National Institute for Occupational Safety and Health (NIOSH) defines occupational stress as "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker". Limited availability of current research on occupational stress in the education as well as the information technology (IT) sectors motivated us to conduct this study that juxtaposes stress among these two groups, whose roles become increasingly important, as our nation looks towards globalization. The present study is to evaluate and compare the levels of occupational stress among teachers and software professionals. **Methods:** This cross sectional analytical study was conducted in August 2007 in an arts college and an IT firm in Chennai, India. The study involved a structured and validated drop off questionnaire, completed anonymously by 127 individuals (62 college professors and 65 software professionals). Various aspects of occupational stress like role overload, role ambiguity, peer pressure, low status and strenuous working conditions were graded using a Likert scale and then analyzed using Occupational Stress Index Score system devised by Rizzo et al. Data was analyzed using SPSS Version 15. Student's t - test was performed to compare occupational stress among teachers and software professionals. **Results:** IT professionals experienced significantly higher level of stress due to group and peer pressure ($p < 0.01$). Teachers experienced significantly higher level of stress due to role overload and strenuous working conditions ($p < 0.05$). **Conclusion:** Stress at work needs careful monitoring and remediable stressors should be eliminated with the help of an organizational change and effective stress management.

Key words: Role overload, software professionals, Stress, Stressors, Teachers.

Introduction

The National Institute for Occupational Safety and Health (NIOSH) defines occupational stress as "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker"⁽¹⁾. Schuler also identifies seven categories of work stressors in organizations: job qualities, relationships, organizational structure, physical qualities, career development, change and role in the organization⁽²⁾. The detrimental effects of occupational stress range from sleep disturbances, poor concentration, irritability, low morale, poor peer relations to major problems like cardiovascular diseases, musculoskeletal disorders and psychological disorders.

High levels of stress-related illness are causing concern across the country amongst various occupations, mainly in software professionals with the upsurge in the field of Information Technology (IT) in the recent past⁽³⁾. The software professional's work tends to be regarded as inherently stressful because of the risk of odd working hours and the pressure of meeting deadlines. Meanwhile, teachers are also reported to experience a high risk of stress and occupational "burnout" in the process of moulding the younger generation⁽⁴⁾. In fact, work related stress is found to be a major cause of occupational ill health in the education sector in various countries⁽⁵⁾.

*Corresponding Author

Prathibha K, Assistant Professor, Department of Physiology, Saveetha Medical College and Research Institute, Chennai, India.
E mail : muthuprathi@gmail.com

Quick access Code



Against this background of impending occupation stress related illnesses, as an effort to improve this situation, there is a need to evaluate the extent of stress and identify the key work-related stressors. Despite this heavy tax laid on human constitution and capacities by stress, little current research into stress among teachers and IT professionals is available. While early researches sought to focus exclusively on burn out among teachers, this study juxtaposes stress among teachers and IT professionals whose role becomes increasingly important as our nation looks towards globalization. Furthermore, the findings of the few existing studies have also been outdated by the growing complexities in both the IT and teaching fields. The objectives of our study were to analyze the different aspects of occupational stress and compare the levels of stress among college professors and IT professionals in today's modern context.

Materials and methods

This cross sectional analytical study was conducted in August 2007 in an arts college and a private IT firm in Chennai, India. The participation in the study was anonymous and voluntary, though only staff members with a minimum work experience of 2 years in their present occupation were included. A total of 62 college professors working in an Arts and Science college and 65 software professionals employed in an IT firm in the same locality were included in the study. The survey involved a structured and validated drop off questionnaire which was handed over to the supervisors at the IT firm and principal of the college to be distributed among the staff. On the first page of the questionnaire booklet, an informed consent was obtained from the staff prior to commencing the survey. The questionnaire consisted of 35 structured questions, both open ended and closed. The aspects of occupational stress covered by the questionnaire were role overload, role ambiguity, group and peer pressure, powerlessness, low status and strenuous working conditions. In addition to the structured part of the questionnaire, individuals were invited to give further comments on the last page. Five point Likert scales were then used to rate the various dimensions of job stress.

Occupational stress index score system was used to calculate the level of each stressor among teachers and software professionals ⁽⁶⁾. Based on the stress level for each stressor, the teachers and software professionals were categorized as having low, moderate and high levels of stress. Each stressor, in teachers and software professionals was then individually compared and statistically analyzed using Student t test. $p < 0.05$ was considered to be statistically significant.

Results

The results of our study showed that both the groups recognized different stressors to different extents in their work environment. (Table.1) Teachers experienced significantly higher stress due to role overload in comparison to software professionals ($p < 0.05$). Though strenuous working conditions and unprofitability caused moderate stress in both groups, they were significantly higher amongst teachers ($p < 0.01$ and $p < 0.001$ respectively). Poor group and peer pressure, powerlessness and low status were almost equally prevalent among teachers and software professionals. Further, both the categories experienced low levels of stress due to role conflict.

Stressor evaluated	Level of stress and comparison		
	Software Professionals	Teachers	p value
Role overload	Low	Moderate	<0.01*
Role conflict	Low	Low	NSS
Peer pressure	Moderate	Moderate	NSS
Strenuous working conditions	Moderate	Moderate	<0.01*
Un profitability	Moderate	Moderate	<0.001*
Powerlessness	Low	Low	NSS
Low status	Low	Low	NSS

* $p < 0.05$ = statistically significant; NSS – Not Statistically Significant

Table :1 – Level of stress for work related stressors in teachers and software professionals and comparison of stress levels between the two groups.

Discussion

In our study, we observed that the teachers experienced significantly higher stress due to role overload when compared to software professionals ($p < 0.05$). In fact, the score of role overload was higher than that of police officers who are subject to greater physical constraints and this can be attributed to changes in the education sector which is placing more pressure on the teachers ⁽⁷⁾. Teachers themselves report a high risk of stress and occupational "burnout" (i.e., syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do "people-work") ⁽⁸⁾. The idea that teachers suffer from an excessively high risk of stress and occupational "burnout" is widely accepted among not only the general public, but among teachers themselves ^(4, 9). Many studies have described a very high level of mental fatigue among teachers pertaining to certain specific aspects of their profession. The survey done by Eaton et al revealed that the overall prevalence of depression ranged from 3% to 5% ⁽¹⁰⁾.

In fact the study by Finlay Jones reported a 17% rate of acute psychological distress among teachers, which was much higher when compared to the general population (9%) in the Canberra study ^(11,12).

The recent past has seen a proliferation of software companies and computer professionals as in the country with a simultaneous increase in the prevalence of occupational stress. Previous studies have predominantly attributed the stress to workload and few organizational factors related to project management ⁽¹³⁾. Lo classified the work environment stressors of computer professionals as micro stressors (job level factors like work load) and macro stressors (organizational factors like career development, team and supervisor support etc). He further stated that the interaction between micro and macro stressors diminished the organizational effectiveness ^(14,15). The comparatively lesser stress in software professionals in this regard in our study may be due to the workshops and training programs conducted by the organizations to enable workers to be both mentally fit and technically updated. Yet a moderate amount of quantitative and qualitative job overload persists due to the poor support from supervisors ⁽¹⁶⁾.

Role conflict contributed to only low levels of stress in both the teachers and software professionals. Role conflict imposed stress can be attributed as an extension of work overload and unclear instructions from supervisors ⁽¹⁷⁾. Specialization in different areas of the software and teaching industry by individuals can help eliminate this issue.

Poor group relations and peer pressure were almost equally prevalent as stressors among teachers and software professionals. Wu et al in their study have attributed poor group relations amongst teachers to uneven distribution of workload and inability to handle relationships with others ⁽¹⁸⁾. In software professionals, where team based works are more common, lack of guidance from higher authorities, inefficient team leaders and lack of team spirit can lead to poor group relations ⁽¹⁷⁾. Result based pay system of IT firms also results in peer pressure and poor human relationships at work. Poor working conditions can enhance stress at work and this proved to be a moderate stressor to both the teachers and software professionals ⁽¹⁹⁾. But strenuous working conditions were more significantly prevalent amongst teachers ($p < 0.01$). In general, software professionals have a better work environment due to the ergonomically designed infrastructure and the employee oriented attitude of employers. In a study by Sveinsdottir H et al, cabin crew, nurses and teachers reported worse

symptoms of stress, with the cabin crew members being the most affected by strenuous working conditions ⁽²⁰⁾. Four main factors were identified as sources of stress in the school environment namely student misbehavior, poor working conditions, time pressure and poor school ethos. A low level of supervision and colleague support contributing to a less congenial work atmosphere also appeared to be related to work stress and burnout.

Unprofitability is reported as a major stressor by teachers than by software professionals since the scale of pay for teachers is usually based on the duration of service (experience in years) and not on the work load or contribution from an individual. Superficially, this seems to be taken care of in the IT industry scenario. There is usually a result based pay system, where the decisions regarding payments/incentives are based on 6 monthly or yearly appraisals from the team. Yet, unprofitability seems to be perceived by the IT professionals, where they blame an insufficient evaluation system in which work ability is not "reflected by pay and position" ⁽¹⁶⁾. Finally, powerlessness and low status was almost equally prevalent among teachers and software professionals. This factor was hardly perceived as a stressor and was given the lowest score by both the professions. Increase in the company profit enhanced the value of its workers and made them feel worthy while the respect from the students amongst teachers gave them a sense of high position.

Stress can definitely be observed as an inevitable component in the job atmosphere and the work experience amongst both the professions studied. However, an effort to eliminate or alleviate stress amongst these workers is definitely the need of the hour. Organizational change that includes management of workload (workload that matches workers capabilities and resources), clear definition of roles and responsibilities and improved communication can definitely be of help. Education in terms of causes, costs and control measures of stress can be of great benefit and provide a better understanding to the employees. Setting up a committee to evaluate and manage the occupational health of the staff members, ensuring employee input for those activities which involves their time and effort and conducting regular training programs on occupational health can be few measures to combat stress in the work environment.

Conclusion

Stress at work needs careful monitoring and wherever possible, the remediable stressors that this survey

survey points at should be eliminated to develop a more friendly and productive work environment. This could be a step forward to improve on prevention of some of the occupational related diseases in teachers, especially if easy to implement measures could be recommended to modify potential at-risk conditions or habits at work.

References

1. Cover of NIOSH. Exposure to stress: Occupational hazardous to stress .<http://www.cdc.gov/niosh/docs/2008-136/default.html>. 2008-136.
2. Schuler RS. Integrative transactional process model of coping with stress in organizations. *Human Stress and Cognition in Organizations: An Integrated Perspective*. 1985:347-74.
3. Ivancevich JM, Albert Napier H, Wetherbe JC. An empirical study of occupational stress, attitudes and health among information systems personnel. *Information & Management* 1985;9(2):77-85.
4. Jaoul G, Kovess V, editors. *Le burnout dans la profession enseignante*. 2004: Elsevier.
5. Phillips S, McNamee R. Prevalence and causes of self-reported work-related stress in head teachers. *Occupational medicine* 2007;57(5):367-76.
6. House RJ, Rizzo JR. Role conflict and ambiguity as critical variables in a model of organizational behavior. *Organizational Behavior and Human Performance* 1972;7(3):467-05.
7. Yang, X., et al., Compare the occupational stress and work ability among the police-officers, doctors and teachers. *Sichuan da xue xue bao. Yi xue ban*. Journal of Sichuan University. Medical science edition 2004. 35(2): 251.
8. Maslach C, Jackson SE. The measurement of experienced burnout. *Journal of Organizational Behavior* 1981;2(2):99-13.
9. Pithers R, Soden R. Scottish and Australian teacher stress and strain: a comparative study. *British Journal of Educational Psychology* 1998;68(2):269-79.
10. Eaton WW, Anthony JC, Mandel W, Garrison R. Occupations and the prevalence of major depressive disorder. *Journal of occupational medicine: official publication of the Industrial Medical Association* 1990;32(11):1079.
11. Finlay-Jones R. Factors in the teaching environment associated with severe psychological distress among school teachers. *Australian and New Zealand Journal of Psychiatry* 1986;20(3):304-13.
12. Wing JK, Cooper JE, Sartorius N. Measurement and classification of psychiatric symptoms; An instruction manual for the PSE and Catego program: Cambridge U Press; 1974.
13. Fujigaki Y, Asakura T, Haratani T. Work stress and depressive symptoms among Japanese information systems managers. *Industrial health* 1994;32(4):231.
14. Lo MW. Occupational stress in the information systems profession. *ACM SIGCHI Bulletin*. 1987;18(3):25-29.
15. Saleh SD, Desai K. Occupational stressors for engineers. *IEEE Trans Eng Manage* 1986;33(1):6-11.
16. Tominaga M, Asakura T, Akiyama T. The effect of micro and macro stressors in the work environment on computer professionals' subjective health status and productive behavior in Japan. *Industrial health* 2007;45(3):474-86.
17. Lee PCB. Turnover of information technology professionals: a contextual model. *Accounting, Management and Information Technologies* 2000;10(2):101-24.
18. Wu, S., et al., Intervention on occupational stress among teachers in the middle schools in China. *Stress and health* 2006. 22(5): 329-36.
19. Davidson, M.J. and C.L. Cooper, A model of occupational stress. *Journal of Occupational and Environmental Medicine*, 1981. 23(8): p. 564-74.
20. Sveinsdottir, H., H.I.A.u. Gunnarsd Attir, and H. Fri Arikisd Attir, Selfa assessed occupational health and working environment of female nurses, cabin crew and teachers. *Scandinavian journal of caring sciences* 2007. 21(2): 262-73.