# Evaluation of occupational stress among software professionals and school teachers in Trivandrum

**Chaly PE[1], Anand SPJ[2], Reddy VCS[3], Nijesh JE[4], Srinidhi S[5]**

**[1]Dr Preetha E Chaly**
MDS, Professor and Head
drpchaly@gmail.com

**[2]Dr Swathy Anand PJ**
BDS, Post Graduate Student
swathyanand@yahoo.in

**[3]Dr V Chandra Sekhara Reddy**
MDS, Professor
 dr.chandu@gmail.com

**[4]Dr Nijesh JE**
MDS, Senior lecturer
dr.j.e.nijesh@gmail.com

**[5]Dr S Srinidhi**
MDS, Senior lecturer,
sapjkoyikkal@gmail.com
[1,2,3,4,5]Department of Public Health Dentistry
Meenakshi Ammal Dental College, Chennai, India

Correspondence to:
**Dr Preetha E Chaly**
*9840330834*
*drpchaly@gmail.com*

## ABSTRACT

*Background:* Occupational stress has become a major and costlier problem in modern life. Software profession and teaching profession are two most discussing professions of the time.

*Objectives:* The study was conducted to evaluate the professional life stress level among software professionals and school teachers in Trivandrum district of Kerala, India and to compare their stress levels.

*Material and Methods:* A cross sectional survey was carried out among 504 software professionals and 504 school teachers using a closed ended Professional Life Stress questionnaire which consists of 24 questions. Mann- Whitney test and Chi-square test were used for the comparison.

*Results:* Out of 504 software professionals and 504 school teachers, for 23% of software professionals and 85% of school teachers, stress was Not a Problem in their life. 71% of software professionals and 15% of school teachers were in Moderate Stress level. For 6% of software professionals Stress was a Problem in their life.

*Conclusion:* Both software professionals and school teachers were experiencing stress due to their occupation. The software professionals were suffering higher stress than school teachers.

*Key Words:* Occupation, School teachers, Software profession, Stress

## Introduction

Today, in the life of majority of people 'Stress' has become a part of everyday conversation. Factors like lack of adjustment with life partner, disobedient children, burden of financial commitments and also boisterous environment at work place are a few which lead to stress. Most of us recognise the symptoms of stress as feeling anxious, worrying more than usual, not being able to concentrate, and not sleeping well. But most of the people don't always take the feelings of stress that seriously, assuming either that its part and parcel of life or that it would pass.

[1] Stress is a prevalent and costly problem in today's workplace. About one-third of workers report high levels of stress. [2] The field of occupational stress is the study of those aspects of work that either have or threaten to have bad effects. [3] Studies report that there has been almost a 70 percent increase in work stress in organizations in the past few decades. The stress on work has now become a common manifestation of life. [4] Occupational stress can occur when there is a discrepancy between the demands of the environment/workplace and an

individual's ability to carry out and complete these demands. A variety of factors contribute to workplace stress such as negative workload, isolation, extensive hours worked, toxic work environments, lack of autonomy, difficult relationships among co-workers and management, management bullying, harassment and lack of opportunities or motivation to advancement in one's skill level. [2]

Physical symptoms that may occur because of occupational stress include fatigue, headache, stomach upset, muscular aches and pains, chronic mild illness, sleep disturbances, and eating disorders. Psychological and behavioural problems that may develop include anxiety, irritability, alcohol and drug use, feeling powerless and low morale. The spectrum of effects caused by occupational stress includes absenteeism, poor decision making, lack of creativity, accidents, organizational breakdown or even sabotage. If exposure to stressors in the workplace is prolonged, then chronic health problems can occur including stroke. Studies among the Japanese population specifically showed a more than 2-fold increase in the risk of total stroke among men with job strain (combination of high job demand and low job control). Along with the risk of stroke comes high blood pressure and immune system dysfunction. Prolonged occupational stress can lead to occupational burnout. [2]

Software industry is one sector, which is affected profoundly by this (stress) challenge, and professionals serving these organizations are often observed under huge stress. Software professional's nature of job is highly time-bound, client-oriented and technology intensive. The trends in turn, coupled with many factors, contribute towards stress. These factors are extremely diverse, including change of technology, client interaction, fear of obsolescence, family support, long working hours, and work overload etc. [5]

Teaching is a process dealing with human minds. It is vital therefore that the teachers must possess sound mental health. Now a day's, creativity, class room management and implementation of newer teaching techniques are giving a lot of stress to school teachers. The entire system of education becomes unstable if the teachers are not confident and dissatisfied. Many studies had found that job satisfaction and occupational stress have negative relationship with each other. [6]

So the present study was undertaken to evaluate the professional life stress level among software professionals and school teachers in Trivandrum district of Kerala, India and to compare their stress levels.

## Materials and Methods

A cross-sectional survey was carried out to evaluate the professional life stress among the Software professionals working in Information Technology field and Teachers working in high school in Trivandrum district, Kerala, India and to compare them. The study was approved by the Ethical Committee of Meenakshi Academy

of Higher Education and Research. The study was conducted in the July- August 2012.

For pilot study, 100 software professionals were surveyed to know the feasibility of the study, check for the reliability and validity of the questionnaire and also to check for inter-examiner reliability. Following the pilot study, using the 'N' master software, keeping the power of the study at 90% and alpha error at 5%, a sample size of 504 was obtained. Same number of school teachers was also taken.

A specially designed closed ended questionnaire developed by Professor David Fontana(1934 – 2010) a psychologist, which he had adapted from 'Managing Stress', published by the British Psychological Society and Routledge Ltd., 1989 was used. [7] The questionnaire consisted of 24 questions; each response was having a score. As the samples were well educated, English version of the questionnaire was used for the study.

A convenience sampling technique was used for selecting the sample. The software professionals and school teachers were approached personally in their work place by a single interviewer and the purpose of the study has explained to them. The questionnaire was given to them 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. The stress level of an individual was obtained by summing up the scores for the responses given. The overall score of an individual can range from 0 to 60. The interpretation of score was given in table 1.

The resulting data was coded and statistical analysis was done using SPSS (Statistical Package for Social Sciences) version 17 software. Mann- Whitney test was applied to evaluate the questionnaire for comparing the stress scores between the software professionals and school teachers. Chi-square test was used to compare the stress level between the software professionals and school teachers. The level of significance was set at 0.05.

**Table 1 Interpretation of Scores**

| Score | Level |
|---|---|
| 0-15 | Stress is not a problem |
| 16-30 | Moderate stress |
| 31-45 | Stress as a problem |
| 46-60 | Stress as a major problem |

## Results

The final sample consisted of 504 software professionals [76% of males and 24% of females] and 504 school teachers [48% of males and 52% of females] who were working in Trivandrum district, Kerala.

Total mean score obtained by software professional (18.63) was higher than school teachers (11.92) and was statistically highly significant. The mean scores obtained by software professionals and school teachers under each question were given in table 2.

**Table 2: Comparing the Mean Values of Professional Stress Scale Scores among Software professionals and School Teachers**

| No | QUESTION | MEAN Score (Software Professionals) | MEAN Score (Teachers) | P value |
|---|---|---|---|---|
| 1 | Two people who know you well are discussing you. Which of the following statements would they be most likely to use? | 0.696 | 0.855 | .001 |
| 2 | Are any of the following common features of your life? Feeling you can seldom do anything right | 0.014 | 0.137 | .001 |
| | Feelings of being hounded, trapped, or cornered | 0.145 | 0.069 | .001 |
| | Indigestion | 0.349 | 0.091 | .001 |
| | Poor appetite | 0.161 | 0.099 | .004 |
| | Difficulty in getting to sleep at night | 0.252 | 0.099 | .001 |
| | Dizzy spells or palpitations | 0.331 | 0.062 | .001 |
| | Sweating without exertion or high air temperature | 0.062 | 0.042 | .155 |
| | Panic feelings when in crowds or in confined spaces | 0.038 | 0.123 | .001 |
| | Tiredness and lack of energy | 0.587 | 0.143 | .001 |
| | Feelings of hopelessness | 0.032 | 0.024 | .444 |
| | Faintness or nausea sensations without any physical cause | 0.008 | 0.026 | .028 |
| | Extreme irritation over small things | 0.268 | 0.131 | .001 |
| | Inability to unwind in the evenings | 0.232 | 0.103 | .001 |
| | Waking regularly at night or early in the mornings | 0.161 | 0.087 | .001 |
| | Difficulty in making decisions | 0.341 | 0.212 | .001 |
| | Inability to stop thinking about problems or the day's events | 0.191 | 0.044 | .001 |
| | Tearfulness | 0.083 | 0.046 | .015 |
| | Convictions that you just can't cope | 0.02 | 0.042 | .045 |
| | Lack of enthusiasm even for cherished interests | 0.099 | 0.046 | .001 |
| | Reluctance to meet new people and attempt new experiences | 0.147 | 0.018 | .001 |
| | Inability to say 'no' when asked to do something | 0.569 | 0.403 | .001 |
| | Having more responsibility than you can handle | 0.744 | 0.157 | .001 |
| 3 | Are you more or less optimistic than you used to be (or about the same)? | 1.206 | 0.79 | .001 |

| 4 | Do you enjoy watching sports? | 0.169 | 0.19 | .367 |
|---|---|---|---|---|
| 5 | Can you get up late on weekends if you want to without feeling guilty? | 0.173 | 0.399 | .001 |
| 6 | Within reasonable professional and personal limits, can you speak your mind to your boss? | 0.248 | 0.196 | .049 |
| 7 | Can you speak your mind to your colleagues? | 0.202 | 0.151 | .032 |
| 8 | Can you speak your mind to members of your family? | 0.087 | 0.054 | .036 |
| 9 | Who usually seems to be responsible for making the important decisions in your life? | 0.363 | 0.427 | .039 |
| 10 | When criticized by superiors at work, are you usually: | 1.359 | 1.018 | .001 |
| 11 | Do you finish the working day feeling satisfied with what you have achieved? | 1.028 | 0.437 | .001 |
| 12 | Do you feel most of the time that you have unsettled conflicts with colleagues? | 0.321 | 0.137 | .001 |
| 13 | Does the amount of work you have to do exceed the amount of time available? | 1.149 | 0.792 | .001 |
| 14 | Do you have a clear picture of what is expected of you professionally? | 0.595 | 0.659 | .197 |
| 15 | Would you say that generally you have enough time to spend on yourself? | 0.472 | 0.508 | .257 |
| 16 | If you want to discuss your problems with someone, can you usually find a sympathetic ear? | 0.103 | 0.179 | .001 |
| 17 | Are you reasonably on course towards achieving your major objectives in life? | 0.135 | 0.331 | .001 |
| 18 | Are you bored at work? | 1.131 | 0.341 | .001 |
| 19 | Do you look forward to going into work? | 0.524 | 0.429 | .005 |
| 20 | Do you feel adequately valued for your abilities and commitment at work? | 0.72 | 0.095 | .001 |
| 21 | Do you feel adequately rewarded in terms of status and promotion for your abilities and commitment at work? | 0.788 | 0.009 | .001 |
| 22 | Do you feel your superiors actively hinder you in your work? Or do they actively help you in your work? | 0.187 | 0.026 | .001 |
| 23 | If ten years ago you had been able to see yourself professionally as you are now, how would you have seen yourself? | 1.119 | 0.877 | .001 |
| 24 | If you had to rate how much you like yourself on a scale from 1 to 5 what would your rating be? | 1.286 | 1.226 | .001 |
| | TOTAL SUM OF SCORES | 18.625 | 11.917 | .001 |

Out of 504 software professionals and 504 school teachers, for 23% (116) of software professionals and 85% (428) of school teachers, stress was Not a Problem in their life. 71% (360) of software professionals and 15% (76) of school teachers were in Moderate Stress level. For 6% (28) of software professionals Stress was a Problem in their life. Among school teachers, none of them have Stress as a Problem in their life. All the differences shown above between the software professionals and school teachers were found to be statistically very highly significant ($p \leq 0.001$) (Table 3).

**Table 3 Distribution of Software Professionals based and School teachers on the Stress Level**

| Level | Scores | Percentage of Software Professionals | Percentage of Teachers | P value |
|---|---|---|---|---|
| Stress is not a Problem | 0-15 | 23 | 85 | .001 |
| Moderate Stress | 16-30 | 71 | 15 | .001 |
| Stress as a Problem | 31-45 | 6 | 0 | .001 |
| Stress as a Major Problem | 46-60 | 0 | 0 | |

**Discussion**

The WHO estimates that at any one time, as many as one person in four in the world's population suffers from stress in any form. [4] Stress is difficult for scientists to define because it is a highly subjective phenomenon that differs for each individual. Some people blush, some eat more while others grow pale or eat less. [8]

The present investigation was conducted in Trivandrum, the Capital of Kerala, India because, Trivandrum is hosting one of the largest IT park in India. [9] In this study, the researcher adopted the convenient sampling technique for selecting the sample. There will not be bias in the responses in using the convenient sampling since the respondents voluntarily participate in the survey. As the respondents show interest to fill up the questionnaires, the error will also be minimal.

The result of the study shows that 70% of software professionals and 15% of school teachers were at moderate level of stress. The difference is statistically very highly significant. For 22% of software professionals and 85% of school teachers, stress was not a problem in their life. This difference is also statistically very highly significant. It was good to know that none of them had stress as a Major Problem in their life. This point that the software professionals are experiencing higher stress from their occupation

than school teachers and the difference is statistically very highly significant.

But for certain questions school teachers got more score than software professionals which were statistically very highly significant. While considering the first question which is about the self judgement of the subjects school teacher got higher score than software professionals. This might be due to the fact that, software professionals are undergoing many personality development courses which are part of their job. This may help them to think positively. But school teachers rarely participate in these types of courses. Most of the subjects among school teachers were with age more than 40 years and 52% were females. They would have more responsibilities in their life and have to take care of their domestic front while compared with software professionals in which most of the subjects were below 30 years of age and 76% were males. This might be the reason of school teachers for get higher score in questions about getting up late on weekends without guilt feelings, taking decisions in their life and objectives in life while comparing with software professionals.

Most of the software professionals in the study had a feeling that they are not adequately rewarded in terms of status and promotion for your abilities and commitment at work. But most of the school teachers were satisfied by their status and the promotions they are getting.

This may be because the study was conducted in government and government aided schools, and that schools should follow the rules and regulations given by the Department of Education in giving salary and promotions.

About 96% of software professionals answered that they were often or sometimes get bored at work, but about 73% of school teachers answered that they were not at all bored at work. This may be due to the fact that the software professionals has to deal with same type of work every day but the school teachers are getting chances to deal with different group of children as they have to teach different classes and get to see new faces every year which can be entertaining and challenging too.

The occupational stress is one of the major problems facing by the software professionals all over the world. The studies done by K Mangaiyarkarasi and GK Sellakumar in Chennai, [10] Surendra Kumar in Lucknow, [5] Rajib Lochan Dhar and Manju Bhagat in Delhi, [11] MM Khan in Pakistan, [12] Norman B Anderson et al. United States, [13] Andrew J Noblet and Sandra M Gifford in Cananda [14] and Natasha Caulfield in Austrilia [15] are supporting this. In all above mentioned studies the software professionals were facing a moderate to high level of stress. This is because the nature of work of software professionals will be almost same in all the software companies.

The studies done by N Mohan and J Ashok, [16] C Madhavi

and B Vimala [17] and L Ranjit and L Mahespriya [18] were stating that women were suffering more stress than men. But the study done by Surendra Kumar is stating that men were having more stress than women. [5] In the present study there is no comparison between men and women software professionals. It is because this study followed convenient sampling technique and the female participation is only 24%.

The stress among software professionals may be due to fear of obsolescence (change of technology and quick learning of new technology), client interactions (interaction during business analysis and system analysis with the client to understand their requirement), workload (excessive and diverse work), interaction (interaction of analyst, developer and project manager), work-family interface (taking work home or working for late hours), role conflict (assuming different roles in a different or same project), work culture (travelling abroad and facing different cultures), technical constraints (lack of technical expertise), family support towards career (attitude and relation of the family towards work), technical risk propensity (risk due to using innovative technology or process) and so.

Teaching profession was considered as a less stressful profession. The present study showed that school teachers were in a medium level of stress. The present result is in line with the literatures by Rubina [19] et al in

Pakistan, Satvinderpal et al in India, [6] Su Oi Ling et al in China, [20] Azizi et al in Malaysia. [21] The factors contributing stress in school teachers includes; student's discipline, heavy work load due to shortage of staffs and by doing clerical jobs, time pressure for completing syllabus, need for creativity, implementation of newer teaching techniques, delayed salary, lack of recognition, poor working environment and infrastructure and so.

The study did not find out the gender wise and age wise stress variation among the study subjects. That can be a limitation of the study.

**Recommendations**
**For Software professionals**
1. The management of the organization must focus on implementing intervention programs to manage stress
2. Organizations should find out the impediments in executing the effective function of employees as well as the management
3. Bringing organizational climate change
4. Conducting staff development programs,
5. Implementing psychological intervention to handle stressors will drastically alleviate the level of stress and improve general health
6. Family get together in the organization can be conducted periodically so that the family members can understand the nature of the job.

7. Create a friendly environment at work place by maintaining good employee- employer relationship and also good relation with colleagues.

**For school teachers**

1. Teachers working conditions should be improved by providing some necessary facilities such as computers with Internet connections

2. Teachers should create time for themselves to relax in some designated recreation centres

3. Teachers should cultivate the habit of playing sports as a means to cope with stress

4. Employing sufficient number of staffs

5. Providing appropriate pay and on time

6. Conducting seminars on stress management

**7.** Conducting workshops of on adopting newer teaching strategies.

Present study shows that both software professionals and school teachers were experiencing stress due to their occupation. The software professionals were suffering higher level stress than school teachers. The result of the study indicates that the management of the organizations (both software profession and teaching profession) must focus on implementing intervention programs to manage stress and enhance the general wellbeing of the employees. Understanding the mechanism of the job and its complexities is vital to optimize the performance and retention of any employee. Living in a society we should be supportive to each other by not making ourselves a source of stress to others. Each one of us should be positive in facing challenges which will help us to be productive both economically and socially.

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