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Occupational stress and its associated factors among school teachers in Rural Karnataka: A cross sectional study

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Abstract

Teachers play a vital role in the society by helping students acquire knowledge and moral values. The objectives of our study were to measure the occupational stress and factors associated with them among school teachers. A cross sectional study was conducted among 102 teachers using eight item, pretested, semi-structured, face-validated questionnaire to assess the factors contributing to occupational stress and scored on a scale of 8-16 with a higher score depicting lower stress. In this study, 35(34.3%) teachers were in the age group of 22-31 years, 72(70.6%) were males, 73(59.8%) were working for more than 5 years, 68(66.7%) were permanent employees, little less than half 42(41.2%) had completed Post-Graduation. The mean occupational stress was 10.8 + 0.96. Factors like male gender, number of classes per day, work distribution, work pressure, strength of the class, duration of travel to work place and job satisfaction had significant impact on work related stress.

Keywords: School teachers, occupational stress, job satisfaction, musculoskeletal disorders

Introduction

Work related stress was first identified by Smith and Milstein in 1930 ^[1]. World Health Organization (WHO) defines stress as, "a pattern of reactions that occurs when the workers are presented with work demands not matched to their knowledge, skills or abilities and which challenge their ability to cope" ^[2]. World Labour Report of 1993 identified occupational stress as one of the most serious health issues of the twentieth century although few years later WHO termed it as "World Wide Epidemic" ^[3]. A teacher is a person who helps students acquire knowledge and moral values and thus play a vital role in every person's life.

Teachers had 1.6 times the higher risk of work ability impairment when compared to office workers ^[4, 5]. Teachers were more exposed to high workload, which probably increased their chance of early retirements due to illness. There are various problems faced by teachers both because of the profession and their workplace ^[6, 7]. As professionals, teachers are expected to speak at a loud voice because of which they are prone for voice fatigue. Standing for a long duration of time leads to higher risk of musculoskeletal disorders like pain in their lower back, lower limbs and knee joint and varicose veins. Using chalk and writing on the board may lead to contact dermatitis, increased frequency of respiratory tract infections, shoulder and neck pain. The presence of unhygienic and fewer washrooms at workplaces may results in higher incidence of urinary tract infections ^[8, 12]. Studies have also found that other-factors contributing for the stress among teachers were age, workload, interpersonal relationship at workplace, family stress, years of experience, number of students per class, number of subjects taught, distance and location of the school, working hours, salary, comorbid conditions like hypertension and diabetes mellitus ^[14, 17]

According to the National Foundation for Educational Research (NFER) report, teachers are imposed to a greater job-related stress in comparison to other professionals ^[17].

There are few studies about the prevalence of occupational stress and its associated factors among teachers working in rural schools in India. The objectives of this study were

- To measure the prevalence of occupational stress and its associated factors among the school teachers
- To study the association between the occupational stress, musculoskeletal pain and job satisfaction.

Methodology

A cross sectional study was done among three schools located in Baramasagara, Chitradurga district of Karnataka. Among these three schools, two were government aided and the other one was private school. Ethical approval was obtained from the Institutional Ethical Committee, St. John's Medical College, Bangalore. Permissions were obtained from the Headmaster and written informed consent was obtained from the teachers after explaining the objectives of the study. The data was collected during the month of February 2019. All the teachers were approached and teachers working for more than a year were included in the study. There were a total of 135 teachers among them 12 teachers were absent on the day of interview, 16 were part time workers and 5 were physical education teachers. A total 102 teachers who satisfied the study inclusion criteria and gave consent were included in this study.

The first part of the questionnaire collected data on socio-demographic details and working environment like number of classes taken every day, time spent on preparation for the classes, number of sick leaves availed, working environment like library, toilets, drinking water facilities. The second part of the questionnaire collected data on factors contributing to occupational stress like number of classes taken every day,

distribution of work, interpersonal relationship, strength of class, salary, duration of travel, comorbid conditions (hypertension, diabetes, others). Data was collected using a pretested, semi structured, face validated questionnaire. If the answers were yes, a score of two was given and if the answer were no, score of one was given, hence the scores varied from a highest of 16 and the lowest score of 8. The third part of the questionnaire collected data on Musculoskeletal disorder (MSD) in last 12 months and in the last one week using Nordic questionnaire [18] and the last part was on job satisfaction using Job Satisfaction scale [19]. The data was entered on Microsoft (MS) Excel and analysed using *Statistical Package for the Social Sciences (SPSS)* version 16. Descriptive statistics was done using mean, median and standard deviation and inferential statistics using Independent t test

Results

The socio-demographic details of the study participants is depicted in Table 1, majority 72 (70.6%) were females, 35 (34.3%) were in the age group of 22-31 years, 78 (76.5%) were married. Most of them 60 (41.2%) had completed Post-Graduation, 73 (59.8%) teachers were working for more than 5 years and 68 (66.7%) were permanent employees.

Table 1: Socio demographic details of the teachers

| Characteristics | Number | % |
|---|--------|------|
| Gender | | |
| Male | 30 | 29.4 |
| Female | 72 | 70.6 |
| Age | | |
| 22-31 | 35 | 34.3 |
| 32-41 | 27 | 26.5 |
| 42-51 | 26 | 25.5 |
| 52-61 | 12 | 11.8 |
| >62 | 2 | 2.0 |
| Education | | |
| B. Ed | 60 | 58.8 |
| Bachelor of Education + Master of Education | 38 | 37.3 |
| Doctor of Philosophy | 4 | 3.9 |
| Marital status | | |
| Single | 24 | 23.5 |
| Married | 78 | 76.5 |
| Years of experience | | |
| 1 – 3 years | 16 | 15.7 |
| 3 – 5 years | 13 | 12.7 |
| More than 5 years | 73 | 71.6 |
| Highest education | | |
| Higher secondary completed | 1 | 0.9 |
| Senior Teaching Certificate completed | 5 | 4.9 |
| B. Ed / B. PEd completed | 44 | 43.1 |
| M.Ed / M. PEd completed | 19 | 18.6 |
| Graduation (other than B. Ed / M. Ed) | 16 | 15.7 |
| Post-Graduation (other than M. Ed / M. PEd) | 16 | 15.7 |
| Other | 1 | 1 |
| Nature of employment | | |
| Temporary | 34 | 33.3 |
| Permanent | 68 | 66.7 |

The mean occupational stress was analysed using self-administered face validated questionnaire and the mean occupational stress was 10.8 + 0.96.

Most of the teachers 84 (82.4%) took 1- 3 hours for preparation of classes, 11 (10.8%) took less than one hour and 7 (6.9%) took more than 3 hours for preparing for

classes. In past 6 months 30 (29.4%) teachers did not avail any sick leave, 37 (36.3%) availed 1- 2 days, 28 (27.5%) availed 3- 4 days and 7 (6.9%) availed sick leave for more than 5 days. Fever was the most common reason among 36 (35.3%) of teachers to avail sick leave, 7 (6.9%) due to cough, 3 (2.9%) due to cold and 54 (54.9%) availed sick

leave for multiple health related issues. About 33 (32.4%) teachers had voice fatigue. The most common infection reported was respiratory tract infection by 27 (26.5%) teachers, at least one episode in the last six months which they attributed to the dust created by use of chalk, 15(14.7%) teachers had at least one episode of urinary tract infection in last six months, 19 (18.6%) teachers had varicose veins and among them 12 (11.7%) were females and 7 (6.8%) were males.

Almost all the teachers 99 (97.1%) informed that there was adequate lighting in the class rooms and the available audio-visual aids were satisfied, 102 (100%) reported ventilation to be adequate, 98 (96.1%) informed that portable water facility was available in their school, 87 (85.3%) of the teachers were satisfied with the cleanliness of toilet complex, 90 (88.2%) were satisfied with the other facilities like the library, computer laboratory and recreational facilities.

Out of 102 teachers, 11 (10.8%) were hypertensive and 6 (5.9%) were diabetic and were on regular medication. About 88 (86.2%) teachers reported the current job as great job, 12 (11.7%) as good job and 2 (1.9%) as okay job.

The prevalence of Musculoskeletal disorder was as follows, pain in the knee joint, lower back, neck and ankle was found to be 31.4%, 26.5% and 18.6% respectively in last 12 months.

Majority 88 (86.2%) teachers reported the current job as great job, 12 (11.7%) as good job and 2 (1.9%) as okay job. The association between socio-demographic factors and MSD with occupational stress is depicted in Table 2. Gender was significantly associated with stress but marital status, education, years of experience, nature of employment and MSD were not associated with stress.

Table 2: Association between Socio-demographic details and MSD with Stress

| Factors | Variables | Mean + SD | p value* |
|-----------------------|-----------|------------|----------|
| Gender | Males | 11.1 + 1.0 | 0.04 |
| | Females | 10.6 + 0.9 | |
| Marital status | Single | 10.7 + 0.9 | 0.58 |
| | Married | 10.8 + 0.9 | |
| Education | B. Ed | 10.9 + 1.0 | 0.08 |
| | M.Ed | 10.5 + 0.8 | |
| Work experience | < 5 years | 10.7 + 1.0 | 0.94 |
| | > 5 years | 10.8 + 0.9 | |
| Nature of employment | Temporary | 11.0 + 0.9 | 0.58 |
| | Permanent | 10.7 + 0.9 | |
| MSD in last 12 months | Yes | 10.9 + 0.9 | 0.386 |
| | No | 10.7 + 0.9 | |
| MSD in last 7 days | Yes | 11.0 + 0.8 | 0.197 |
| | No | 10.7 + 1.0 | |

*Independent t test

Table 3, shows the association between job satisfaction and occupational stress. Teachers reporting good job had increased occupational stress.

Table 3: Association between Job Satisfaction and Stress

| | Occupational Stress Scores + SD | 95% Confidence Interval | p value* |
|-----------|---------------------------------|-------------------------|----------|
| Great Job | 10.8 + 0.9 | 10.6 - 11.0 | 0.02 |
| Good Job | 10.6 + 0.9 | 10.0 - 11.1 | |
| Okay Job | 12.5 + 0.7 | 6.1 - 18.8 | |

*One-way ANOVA test

The factors contributing to stress are depicted in table 4. More than or equal to five classes per day, unequal work distribution, work pressure, strength of the class more than or equal to 30 students, duration of travel to work place more than or equal to 30 minutes were statistically significant, whereas interpersonal relationship, remuneration and co-morbidities did not significantly contribute to occupational stress.

Table 4: Associated factors for stress

| Factors | Variables | Mean + SD | p value* |
|----------------------------|---------------------|------------|----------|
| Classes per day | < 5 classes per day | 10.5 + 0.9 | < 0.01 |
| | > 5 classes per day | 11.2 + 0.7 | |
| Work distribution | Unequal | 11.5 + 0.9 | 0.02 |
| | Equal | 10.7 + 0.9 | |
| Interpersonal relationship | Good | 10.8 + 0.9 | 0.24 |
| | Bad | 10.5 + 0.7 | |
| Work pressure | Absent | 10.4 + 0.7 | < 0.01 |
| | Present | 11.6 + 0.9 | |
| Strength of class | < 30 students | 10.5 + 0.8 | < 0.01 |
| | >30 students | 11.8 + 0.7 | |
| Duration of travel | < 30 minutes | 10.6 + 0.9 | 0.02 |
| | >30 minutes | 11.4 + 0.9 | |
| Remuneration | Satisfied | 10.6 + 0.9 | 0.14 |
| | Unsatisfied | 10.9 + 0.9 | |
| Comorbidities | Absent | 10.9 + 0.9 | 0.15 |
| | Present | 11.4 + 1.1 | |

*Independent t test

Discussion

Among the 102 teachers who participated in this study, 72 (70.6%) were females, 35 (34.3%) were in the age group of 22-31 years, 78 (76.5%) were married, 42 (41.2%) had completed Post-Graduation, 73 (59.8%) had work experience for more than 5 years and 68 (66.7%) were employed permanently. A study done at Tamil Nadu by Usha rani *et al.* reported 92% of the respondents were married and 30% had 10 - 20 years of experience [20]. In a study done by Nigama *et al.* 20% of the teachers were married [21] According to NFER report retention rates of early career teachers i.e. between two and five years have dropped significantly between 2012 and 2018 [17].

In past 6 months 30 (29.4%) teachers did not avail any sick leave, 37 (36.3%) availed 1- 2 days, 28 (27.5%) availed 3- 4 days and 7 (6.9%) availed sick leave for more than 5 days. Fever was the most common reason among 36 (35.3%) of teachers to avail sick leave, 7 (6.9%) due to cough, 3 (2.9%) due to cold and 54 (54.9%) availed sick leave for multiple health related issues. According to the study done by Vercambre-Jacquot *et al.* more than one in three teachers (36%) reported they had at least one day of sick leave since the beginning of the school year. Respiratory/ENT diseases were the leading cause for sick leave (37%) [22] According to NFER report two out of five teachers (41%) are dissatisfied with their amount of leisure time [17] Almost all the teachers had one or the other infection like eye, throat, nose, skin or, urinary tract in last six months.

In our study about 33 (32.4%) teachers had voice fatigue which was similar to the studies by Williams *et al.* and Roy *et al.* which was done in United States of America and United Kingdom were 11% and 15% respectively [8, 12]. A study done by Roy *et al.* reported women had a higher lifetime prevalence of voice disorders of 46.3% and males had 36.9%, women also had a higher prevalence (20.9%) of

chronic voice disorders (>4 weeks in duration), compared with acute voice disorders of 13.3% [8].

Our study found that 15(14.7%) teachers had at least one episode of urinary tract infection in last six months which is almost similar to the pilot study done by Nygaard *et al.* done at United States of America where the prevalence of urinary tract infection was 15.8% and 26.5% voided four or more times during the work day [11]. We noticed that all the three schools had hygienic toilets separate for male and female teachers and were cleaner when compared to the one used by the students.

In our study 19 (18.6%) teachers had varicose veins and among them 12 (11.7%) were females and 7 (6.8%) were males which is similar to study done by Abirami *et al.* which reported the prevalence of varicose veins was more among females when compared to male teachers which may be due to prolonged standing [23]. Also it is found that the estimated relative risk of arterial hypertension for female teachers was 1.5 higher times compared with other female employees (designers, researchers) [23]. The reason is women are also standing for long time to do household chores which also contribute for varicose veins.

According to the study done by Usha Rani *et al.* in Tamil Nadu 52% of the teachers recognized teaching as a good job [20]. In this study the mean occupational stress score was 10.8 + 0.96 and the prevalence of occupational stress was more among males 11.1 + 1(24). The factors contributing to stress were male gender, more than or equal to five classes per day, unequal work distribution, work pressure, strength of the class more than or equal to 30 students, duration of travel to workplace more than or equal to 30 minutes and job satisfaction. There was no association between occupational stress and MSD either in the last 12 months or last 7 days.

According to the study done by Rajinder in Punjab, the three commonly experienced pains by teachers were pain in the neck, lower back and shoulder with their prevalence to be 58.6%, 48.4%, and 40.7% respectively [25]. Whereas our study in last 12 months, the prevalence of knee pain was 31.4%, lower back pain 26.5% and neck and ankle pain was 18.6%. According to the study by Solis-Soto *et al.*, MSD was most common in the neck which was 47% and least common in the wrist/hands which was 26% [9] whereas our study found MSD more common in knee 32 (31.4%) and least common in hip/thigh 8 (7.8%).

Our study found significant association between job satisfaction and stress which was dissimilar to the study done by Sarah which reveals a strong negative correlation between the occupational stress and job satisfaction of secondary school teachers ($r = -0.8146$, $p < 0.01$) [26]. The concern of occupational stress does not affect individual teachers but has the impact on the efficient management of school systems. Job related stress results ineffectiveness in job performance characterized by, higher rates of absenteeism and resignation of teaching positions, unsatisfactory relationships with students [27]. This study is purely based on a questionnaire so whatever participants felt and understood according to those results was concluded, so there is a chance of social desirability bias. All risk factors assumed as being important was predictive. Associations were explored but we need a prospective study to prove causations.

Conclusion

Mean occupational stress was 10.8 + 0.96 and the factors contributing to stress were male gender, more than or equal to five classes per day, unequal work distribution, work pressure, strength of the class more than or equal to 30 students, duration of travel to work place more than or equal to 30 minutes and job satisfaction which were statistically significant.

Recommendations

Identifying stressful situations and discussing solutions or seeking professionals help and/or involving themselves in recreational activities, hobby, yoga and meditation may help in decreasing stress. Equal distribution of classes among teachers and if possible to have lesser number of children per class room should be encouraged.

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