

Reliability, validity and factorial structure of the occupational stress scale for physical education teachers

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Abstract. Occupational stress is a debatable topic for many demanding professions in extensively reviews the working capability of the employees working in different fields. In Physical Education this issue has a series of various traits depends on working nature of the Physical Education Teachers (P.E.T.'s). To know the exact level of Indian PET's occupational stress investigators were constructed an Occupational Stress Scale with 53 questions of 14 antecedents of occupational stress. 369 PET's were randomly selected from Delhi and National Capital Region. After implication of factor analysis, this scale suggested 06 factors which work as common antecedents of occupational stress. This scale established high Cronbach's Alpha Reliability i.e., 0.899 and Content/Face validity determined by the approval of illustrious Indian personalities of the physical education profession.

Key words: *Physical Education Teachers, occupational stress, work load, Cronbach's Alpha Reliability.*

Introduction

Physical Education is a noble profession which has a very wide scope and all potentials to build the wholesome personality of the students and national building. A sound program of Physical Education in the school has a long lasting effect on the students and on their academic achievements as well. Physical Education has a major role to play in the development of young people. It is an integral part of the total education of any child and is closely linked to other creative and learning experiences and skill acquisition. Somehow, the profession of Physical Education is struggling very hard to make its appropriate place in the academic system in India which is definitely unfortunate. There are problems with Physical Education Teachers (P.E.T.'s) having too many classes to teach in a week/day and teaching overcrowded and very large classes is difficult especially at the secondary level with 50-60 students in the same class. Sometimes there is a lack of respect from others about the profession of Physical Education. P.E.T.'s constantly have to educate others about the 'New' concept of Physical Education which is developmentally and instructionally appropriate. Now this profession is not confided to teach games and sports on the playfields alone but is very strongly academic as well.

Physical Education is seen to have been pushed into a defensive position. It is suffering from decreasing curriculum time allocation, budgetary controls with inadequate financial, material and personnel resources, it was low subject status and esteem and is being ever more marginalized and undervalued by authorities. School Physical Education appeared to be under threat in all regions of the world.

It is sometimes suggested by school authorities to reduce or even eliminate Physical Education classes in order to realize cost savings or to focus on other subjects considered to be more "Academic". In many countries, physical education teachers are afforded low status within society. Furthermore, there is an often a lack of sports equipment and facilities. The awareness of the significance of Physical Education for the physical, emotional, social and cognitive development of children and teenagers is very low, not only in India, but also worldwide. However since last few years efforts have being made to improve the situation at school level.

A Physical Education Teacher (P.E.T.) is a fully qualified teacher who has specialized in health, fitness and sport. These teachers work at all levels of school, from Kindergarten through 12th grade.

The basic P.E.T.'s requirements are a bachelor's and Master's degrees i.e. B.A. in Physical Education, B.Sc. in Physical Education, Health Education & Sports, Bachelor in Physical Education (BPE-3 years) or

Bachelor in Physical Education (B.P.Ed. {1 year}/Integrated B.P.Ed.{4 years}), Diploma in Physical Education {D.P.Ed.}, Certificate in Physical Education (C.P.Ed.) and Master's in Physical Education (M.P.Ed. or M.P.E.). These backgrounds provide the skills required to teach courses, coach sports and lead exercises.

P.E.T.'s play a big role in childhood, all the way from Kindergarten through 12th grade. P.E.T.'s accomplish these both in and out of the classroom duties by a number of different approaches within the school. P.E.T.'s are trained professionals that provide instruction to students to help them exercise properly and expected to teach and lead a wide range of sports and athletic activities. P.E.T.'s instruct school-age students on healthy living, exercise and physical fitness. They organize and supervise athletic activities during class and instruct students on proper exercise routines and technique. In Indian scenarios sometimes P.E.T.'s also referred to as Gym Teacher, Health Education Teacher, Games/Sports Teacher and Physical Training Instructor (P.T.I.) which are totally wrong nomenclature because as all other subjects' teachers, P.E.T.'s are also responsible to teach Physical Education subject in a school system. Physical Education has been largely adopted as essential subject by almost all State school boards of India as well as Central Board of Secondary Education (C.B.S.E.), Indian Certificate of Secondary Education (I.C.S.E.) and many International Boards (I.B./I.G.C.S.E.) in their curriculum. A P.E.T. along with all their colleagues in the school will be working towards similar educational aims for their pupils, such as numeracy and literacy, with the additional demands of developing the physical skills of the children. This additional feature of the PET's role is very important and may help to further differentiate between Physical Education and sport, and perhaps many other subject teachers in the school setting.

The Physical Education Teachers (P.E.T.'s) role is to design a school environment and schedule that promotes play. P.E.T.'s instruct students in sports, recreational activities and healthy lifestyle issues, in order to motivate, develop and enhance level of physical fitness and skills, self-esteem and interpersonal skills.

In current scenario, Physical Education Teachers (P.E.T.'s) are playing a very vital role and their work can be divided into six different categories of duties namely planning, teaching, evaluative, administrative, counseling and various unclassified ones. A P.E.T. requires a greater variety of talents than the teacher of other discipline. His/her responsibilities are diverse and the society looks up to him as a leader who can create and maintain general fitness of the sedentary people in the machine age. P.E.T.'s feel their workload heavier, strenuous and difficult too. They face a lot of problems due to longer working hours, inadequate facilities/materials, clerical work and non congenial working conditions.

Occupational stress can be defined as the "Harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or need of the worker" (6). Occupational stress can result in psychological, physical and behavioral consequences for individuals. These outcomes, in their various forms, can prove quite costly to individuals and organizations to which they belong. For schools, these costs are not just monetary. Student learning can be disrupted or otherwise affected. For these reasons, the reduction of occupational stress should be of great importance to schools and other organizations.

In a study in Bahrain by Al-Khalefa, 1999 (2) observed work conditions, salaries, bonuses and allowances, status of Physical Education, supervision, school facilities, work load and career development to be the major causes of stress for Physical Education Teachers.

Antecedents of occupational stress are also referred to as sources of stress or stressors. Stressors that have been identified among samples of teachers include- role overload (being overwhelmed by the amount or complexity of work), role ambiguity (uncertainty about job description), conflicting job roles, lack of influence over the work environment, inadequate work environment, demands made by external agencies, poor relations with colleagues, poor relations with students, lack of support from the principal, school climate and culture. Teacher attrition is a serious issue facing school administrators today. In order to implement effective educational programs, schools need experienced teachers who are equipped to deal with such challenges In response to increased job work load, job work ambiguity, job work conflict, job work pressure, under Job work participation, powerlessness, work job peer relations, intrinsic impoverishment, job work support, strenuous job work conditions, on job recognition, infrastructure and equipment, prevailing misconceptions regarding physical education, on job development opportunities and the challenge of educating a diverse student population, many Physical Education Teachers (P.E.T.'s) are leaving the field of Physical Education, citing factors which cause stress such as inadequate salaries, work overload, curriculum concerns stemming from federal, state and local mandates, lack of experience and training, combined with

stressors that are inherent in the teaching profession may cause teachers to perceive significant feelings of stress, which in turn may render them less effective in the classroom, or cause them to leave the teaching profession. The objective of study was to develop and standardized occupational stress scale for Physical Education Teachers.

Material and Method

The subjects for the present study were three hundred and sixty nine (369) well qualified Physical Education Teachers (P.E.T.'s) who had a minimum of two years job experience in the same school. They were selected by simple random sampling from 126 public schools of Delhi (61 Schools) and National Capital Region (65 Schools from 04 states i.e. Haryana, Uttrakhand, Uttar Pradesh and Rajasthan) affiliated to Central Board of Secondary Education (C.B.S.E.), Indian Certificate of Secondary Education (ICSE), International General Certificate of Secondary Education (I.G.C.S.E.) and other International board (I.B.). The age of subjects ranged from 25 to 54 years. Study Subjects included head of the department and Post Graduate Teachers (P.G.T.'s), Trained Graduate Teachers (T.G.T.'s) and Primary Teachers (P.R.T.'s).

Item development of the occupational stress scale started with a review of the literature and existing scales extensively used in the measure of occupational stress (24, 26-27). To maximize content validity, A sufficient number of items were prepared in consultation with the various experts and most experienced Physical Education Teachers from Delhi and National Capital Region in the 14 antecedents of occupational stress i.e., Job work load, job work ambiguity, job work conflict, job work pressure, under job work participation, powerlessness, work job peer relations, intrinsic impoverishment, job work support, strenuous job work conditions, on job recognition, infrastructure and equipments, on job development opportunities and prevailing misconceptions regarding physical education. 53 Likert type items finalized among them 29 were true items and 24 were false items were finalized. The occupational stress scale was pre tested on 75 Physical Education Teachers on the basis of their past or current teaching and coaching experiences.

Table I. Scoring Key of Occupational Stress Scale

| Categories of Response | Scores | |
|------------------------|------------------|-------------------|
| | True-Keyed Items | False-Keyed Items |
| Strongly Disagree | 1 | 5 |
| Disagree | 2 | 4 |
| Undecided | 3 | 3 |
| Agree | 4 | 2 |
| Strongly Agree | 5 | 1 |

Data Collection. 126 schools were randomly selected from the Delhi (61 Schools) and National Capital Region (65 Schools). Permission was obtained from the school management to administer the scale on selected Physical Education Teachers from their school. The investigators personally delivered the covering letter and scale to the respondents. Each subject and school management was assured confidentiality at the outset of the study. Subjects were allowed to write any fictitious name to hide their identity. The investigators also used E-mail, Speed post and Courier to participants describing the purposes and procedures of the study along with copies of the scale. Almost all the Physical Education Teachers and schools management agreed to co-operate in the study. A brief description of scale along with the objectives and importance of the study were explained to the subjects to ensure their honest, genuine and sincere responses. They were asked to give true responses after reading each item carefully. This scale had no time limit but on an average it required about 20 minutes time for responding.

Data Analysis. Data analyses were performed using the Statistical Package for Social Sciences Program Version 18. Principle Component Analysis (Factor Analysis) with Varimax rotation was conducted to evaluate the initial factor structure of the Occupational Stress Scale. All 53 questions were included in the PCA. Varimax with Kaiser Normalization Measure of Sampling Adequacy yielded a score of 0.90. Scree test and eigenvalue < 1.00 were used to determine the number of factors. Both the initial scree test and eigenvalues < 1.00 suggested 06 factors i.e., Work dilemma, professional growth, professional misconceptions, working conditions, on job relations and personal status. Evaluation of internal

consistency of the overall Occupational Stress Scale obtained a Cronbach's Alpha value of 0.899 it appeared that the scale had high internal Consistency. Cronbach's Alpha coefficients for subscales ranged from 0.837 to 0.738. A panel of 07 experts examined the scale for determining face and content validity. All experts were well-versed in the field of Physical Education at University and College level. For face validity, experts were asked if all items were clearly worded and would not be misinterpreted. For content validity, the experts evaluated the relevance of 53 items in the case of Physical Education Teachers. The approval of the final version of the scale was assured regarding its content and clarity.

Results

It is evident from table II that all fifty three items were reduced to six factors and their cumulative percentage is 45.546%. Factor 1 percentage of variance is 9.340 where is factor 6 percentage of variance is 4.555. Table III consist of 11 items and the highest factor loading is 0.681 where is lowest is 0.451. Table IV consist of 12 items and the highest factor loading is 0 .682 where is lowest is 0.328.

Table II. Factor analysis, mean and standard deviation (SD), and Cronbach's alpha reliability of the Occupational Stress Scale

| Factor Label & Number of Items | Eigen values | % of variance Explained | Mean | S.D. | Cronbach's Alpha Reliability |
|--|--------------|-------------------------|--------|--------|------------------------------|
| Work Dilemma (11 Items) | 4.950 | 9.340 | 34.293 | 7.687 | 0.837 |
| Professional Growth (12 Items) | 4.906 | 9.257 | 43.672 | 7.271 | 0.827 |
| Professional Misconceptions (09 Items) | 4.525 | 8.537 | 28.002 | 6.646 | 0.826 |
| Working Conditions (11 items) | 4.307 | 8.127 | 36.691 | 7.452 | 0.821 |
| On Job Relations (07 Items) | 3.036 | 5.728 | 27.468 | 3.866 | 0.767 |
| Personal Status (03 Items) | 2.414 | 4.555 | 10.092 | 2.3118 | 0.738 |

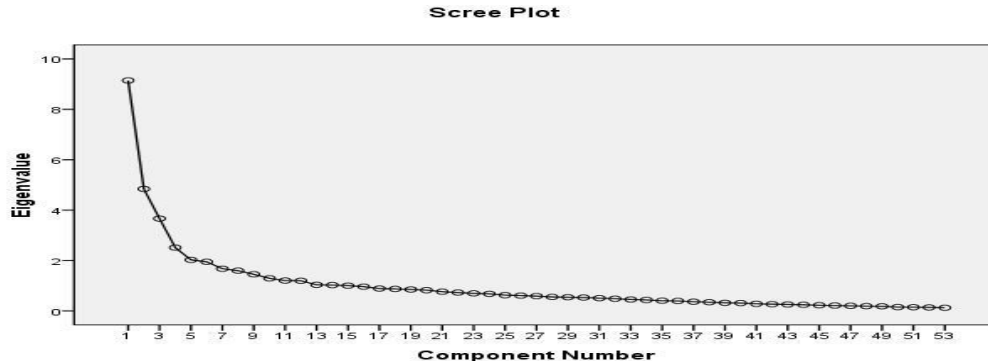


Figure 1. Occupational Stress Factors Scree Plot

Table III. Work dilemma items and their factor loading

| Item No. | Items | Factor Loading |
|----------|---|----------------|
| 01 | My suggestions and cooperation are not sought in solving even those school problems for which I am quite competent. | 0.681 |
| 02 | My role as a PET is neither clear nor well-defined. | 0.670 |
| 03 | Quite often I have violated professional ethics and personal values due to external pulls and pressures. | 0.665 |
| 04 | For odd job, I am often tagged with other staff members. | 0.653 |
| 05 | Less skilled professional colleagues create pressure on me. | 0.647 |
| 06 | My school does not consider games and sports essentials for students. | 0.615 |
| 07 | Instructions about my work from the higher ups are often contradictory. | 0.478 |
| 08 | I find boredom in my job | 0.466 |
| 09 | I am not able to do things which I want to do. | 0.465 |
| 10 | Unable to solve work problem, I often carry the workplace stress at home. | 0.451 |
| 11 | Some of my colleagues and subordinates often criticize about me and Physical Education. | 0.451 |

Table IV. Professional growth items and their factor loading

| Item No. | Items | Factor Loading |
|----------|---|----------------|
| 01 | Opportunity for promotions are very high in my school | 0.682 |
| 02 | I always get chance to utilize my abilities and skills. | 0.649 |
| 03 | I have sufficient resources to carry out my day to day school work. | 0.585 |
| 04 | I am given free hand to take decision concerning my work. | 0.583 |
| 05 | My school offer Physical Education classes as an important part of the curriculum. | 0.557 |
| 06 | I have enough time at school to attend assigned work. | 0.556 |
| 07 | Subject teachers do not interfere with my scheduled Physical Education classes. | 0.548 |
| 08 | I am always rewarded for my hard work and my student's achievements by the school authorities. | 0.546 |
| 09 | I am compensated well for the extra time put in at work. | 0.527 |
| 10 | I am obliged to maintain fitness & health records of the students. | 0.501 |
| 11 | I get enough opportunity to attend refresher course workshops and seminars/congress/symposia etc. | 0.499 |
| 12 | My job fits in well with my academic qualifications. | 0.328 |

Table V consist of 09 items and the highest factor loading is 0.786 where is lowest is 0.375. Table VI consist of 11 items and the highest factor loading is 0.730 where is lowest is 0.386. Table VII consist of 07 items and the highest factor loading is 0.651 where is lowest is 0.423, and Table VIII consist of 03 items and the highest factor loading is 0.725 where is lowest is 0.366.

Table V. Professional misconceptions items and their factor loading

| Item no. | Items | Factor Loading |
|----------|--|----------------|
| 01 | For me pressures from high-ups and colleagues are difficult to resist and make adjustment accordingly. | 0.786 |
| 02 | Not being able to complete assigned work is simply disappointing. | 0.722 |
| 03 | I do my work under tense conditions. | 0.695 |
| 04 | My assignments are of not to my interest. | 0.638 |
| 05 | I get less salary commensurate with the quantum of work and qualifications. | 0.635 |
| 06 | The equipment purchase procedure is very tedious. | 0.484 |
| 07 | No extra facilities and equipments are provided even during competition season. | 0.442 |
| 08 | Sometimes I am assigned to take classes not actually belonging to me. | 0.404 |
| 09 | I feel helpless to justify a better deal for physical education in academia. | 0.375 |

Table VI. Working conditions items and their factor loading

| Item No. | Items | Factor Loading |
|----------|--|----------------|
| 01 | My decisions and instructions concerning distribution of Theory and Practical classes are properly followed. | 0.730 |
| 02 | General development of the school is listed under my responsibilities. | 0.700 |
| 03 | My opinion is sought in constructing, purchasing or modifying the grounds and equipments. | 0.680 |
| 04 | I get maximum satisfaction from my work. | 0.664 |
| 05 | Usually day to day working atmosphere in my school is normal. | 0.638 |
| 06 | I often miss my scheduled theory and practical classes in order to carry out other unproductive assignments. | 0.546 |
| 07 | I often feel that other jobs assigned to me have made my life stressful. | 0.494 |
| 08 | Some of my duties are quite odd as well as complex for which I am not trained. | 0.455 |
| 09 | The sports infrastructure and equipments are in a standard ratio in my school. | 0.439 |
| 10 | At this job physical health and mental health are always under strain. | 0.427 |
| 11 | I am given leave and medical facilities, bonus, P.F. and other service benefits such as free education for children's and residence at campus as per the existing norms. | 0.386 |

Table VII. On Job relations items and their factor loading

| Item No. | Items | Factor Loading |
|----------|---|----------------|
| 01 | My views and suggestions are duly considered in making school sports teams. | 0.651 |
| 02 | I get enough respect from all at school-teachers, students and supporting staff etc. | 0.624 |
| 03 | My colleagues always cooperate with me in solving problems at school especially those pertaining to students. | 0.536 |
| 04 | My job has provided me enough social recognition. | 0.507 |
| 05 | The infrastructure, its maintenance and cleanliness in my school are as per principles of management. | 0.460 |
| 06 | I am generally held responsible for student's performance in sports and their result in my subject. | 0.459 |
| 07 | The role of the supporting staff of the department is effective. | 0.423 |

Table VIII. Personal status items and their factor loading

| Item No. | Items | Factor Loading |
|----------|--|----------------|
| 01 | I have job security in school. | 0.725 |
| 02 | At school, people consider me jack of all trade. | 0.504 |
| 03 | My judgments and opinion are given due weightage in making appointments for the key posts in department. | 0.366 |

Discussion

The Occupational Stress Scale was devised in order to assess the extent of occupational stress in heterogeneous study samples i.e. PET's. The results of the present study provide evidence that the Occupational Stress Scale has sufficient reliability and validity. After applied factor analysis (PCA) all the suggested 6 factors play significant role to determine the level of occupational stress of the Physical Education Teachers (P.E.T.'s). Factors and their relations to P.E.T.'s occupational stress are discussed as follows:

Work dilemma: Most of the P.E.T.'s are not able to understand their role at school environment. It is very common to find that school management involves their P.E.T.'s in various others unprofessional tasks like transport, discipline and other like school works.

Professional growth: Every P.E.T. wants continue professional growth for the next best opportunity but at school level it is most commonly found that P.E.T.'s involves in various unprofessional tasks which do not help them for their professional growth.

Professional misconceptions: Since the origin of Physical Education as a subject/discipline this subject has been misunderstood and wrongly interpreted due to its wrong misleading interpretations due to which P.E.T.'s encounter many problems. Sometimes P.E.T.'s want to do many productive works for the betterment of the school but school management and higher authorities of the schools prevent them as they believe that P.E.T.'s are only capable of offering games and sports.

Working conditions: Working conditions plays significant role to determine the level of occupational stress. Many schools provide strenuous working conditions for the P.E.T.'s. Their nature of job and work related to profession are not common for the whole week, sometime they are involved in other assignments.

On job relations: Due to P.E.T.'s nature of job diversification other subjects teachers and other school staffs are not giving them a proper recognition as they deserve.

Personal status: Due to work dilemma, salary, strenuous working conditions etc. sometime it is very difficult for P.E.T.'s to maintain their personal status.

Conclusion

It is well established fact that "A sport savvy nation owes its success to its Physical Education Teachers" but it is being unfortunate that actual status of Physical Education Teachers (P.E.T.'s) are not up to the mark in various Indian schools. Job stress or occupational stress and low frustration tolerance among Physical Education teachers has become quite inevitable these days due to manifold increase in job complexities and challenges. Recently, Physical Education Teachers occupational stress and level of frustration tolerance have become an area of interest among researchers and physical educationist in our country (23) In proportion to the expectations of the society the P.E.T.'s are not given due place and recognition. This leads to stress and

dissatisfaction. In India, there were no studies conceived to assess the stress of Physical Education Teachers (P.E.T.'s) on large scale with specified tool/scale standardized on PET's. It is generally presumed being P.E.T.'s are not stressful because teaching Physical Education usually considered easier than teaching other subjects. As opposed to, wrong Physical Education causes unsafe and ineffective learning and irreparable defects on people. At this time, investigators claim that Occupational Stress scale is the only Scale available to measure Physical Education Teachers occupational stress in various heterogeneous settings. Findings from this study are considered to be at the preliminary stages of scale development. Refinement of the Occupational Stress Scale should continue in future studies in Physical Education professionals with additional validation studies. New items must continue to be added and tested to increase psychometric properties of the scale. Based on the psychometric testing presented here, the occupational stress scale has potential as a reliable and valid scale for assessing PET'S occupational stress.

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