# DEVELOPMENT OF UNIVERSITY TEACHERS' STRESS INVENTORY

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## *ABSTRACT*

*The main objective of this study was to develop an indigenous inventory, for the measurement of occupational role stress among the university teachers as at present no appropriate test is available which measures role stress among university teachers in the Pakistani cultural context. University teachers stress inventory (UTSI) was developed in this research in four interrelated stages including: items generation, items evaluations for determining the qualitative properties of items, tryout of the first draft to determine the quantitative properties of the items, and final tryout to determine the psychometric properties of the scale. Data was collected from twenty private and public sector universities of Rawalpindi and Islamabad. Finalized UTSI consisted of 54 items with five point rating scale pertaining to six subscales, such as, Work strain Scale (WSS), Student Related Stress Scale (SRSS), Colleagues Related Stress Scale (CRSS), Administration Related Stress Scale (ARSS), Personal Factor Leads to Stress Scale (PFSS) and Manifestations of Stress Scale (MSS). The scores assigned to these categories ranged from one to five. The cutoff score was determined on the basis of percentiles rank. Score of 125 was considered as mild stress and above 162 was considered as high stress. The scores between 144 and 162 were considered as indicating moderate stress. The higher score on UTSI indicates higher occupational role stress in the respondents. The psychometric properties yielded that it is a reliable and valid tool to measures occupational role stress, among the university teachers.*

**Keywords:** University teachers stress inventory, Work strain Scale, Student Related Stress Scale, Colleagues Related Stress Scale, Administration Related Stress Scale, Personal Factor Leads to Stress Scale, Manifestations of Stress Scale (MSS).

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## Introduction

Occupational stress is "a condition of mental and physical exertion brought about as a result of harassing events or dissatisfying elements or general features of the working environment." It is a feeling experience, when we lose confidence in our capability to cope with a situation. (Okebukola and Jegede, as cited in Luthans, 1995). Levi (1996) believed that "Stress is caused by a multitude of demands (Stressors) such as inadequate fit between what we need and what we are capable of.

National Institute of Occupational Safety and Health (NIOSH, 2000) described occupational stress as harmful physical and emotional responses that occur when the requirements of the job do not match capabilities, resources, or needs of the worker. The concept of occupational stress is often confused with challenge, but these concepts are not the same. Challenge energizes us psychologically and physically, and it motivates us to learn new skills and master our occupations. When a challenge is met, the employee feels relaxed and satisfied. On the contrary, the inability to meet the challenge leads to increased stress and lower job satisfaction and commitment. Thus, occupational stressors may hinder employee's work performance and organizational development. Occupational stress is a well-known feature of low motivation and self-respect, lessening in performance, high turnover and sick leave, low job satisfaction, low organizational commitment, low quality products, poor internal communication and conflicts etc. (Schabracq and Cooper, 2000).

Teachers are considered the builder of nation as they play a significant role in capacity building of nation in facing challenges and tough environment. They are the ones who translate educational theories and policies into practice by implementing them in practical situations. The role of teachers in any society is vital and no other profession has earned as much respect as teaching profession (Mohanty, 2000).

According to Keirsey, (2005) teachers are abstract in their thought and speech, cooperative in their style of achieving goals, directive and extravert in their interpersonal relations. Teachers are especially capable of bringing out the hidden talent or potential of each learner. Teachers expect the very best of those around them, and this expectation, usually expressed as enthusiasm and encouragement, motivates action in others and desire to live up to their expectations. They bear a powerful influence on the situation and person around them. In order to impress a healthy far-reaching effect, teachers need to be healthy, understanding

and having good habits along with need to be careful about their personality, language, reading, writing, speaking competence, professional dignity and attitude towards students. Society has delegated great responsibility to teachers in the formation of socially acceptable patterns of behavior in youth from an early age. Teachers have become increasingly aware of the importance of emotional growth and development of their pupils. Teachers effectively deal with each learner. In fact, teachers occupy a special place in pupil's life. The example set by them has long-term effects on their personalities (Wadhera, 2000).

University faculty plays a vital role in the improvement and development of knowledge and innovation, in addition to education and training. Fast changing educational process in present century affecting educational process and teacher has to respond to both the demands of knowledge as well as the needs of the society meaningfully, understanding and coping with the new trends in the educational system. Moreover, the increase in the body of knowledge in each discipline poses an important challenge on how to encapsulate such enhanced knowledge in a meaningful manner. A teacher has to find the right type of knowledge mix to cater the needs of the students. The pressures related to human life are cropping up day by day, society is changing abruptly the life styles, modes, ways, relationship, and other psychological variables that have increasing effects on teaching profession at university level consequently teaching becomes a profession with complex work environment that leads to occupational role stress (Verma, 1998). A teacher has to live the same society in which people belonging to other profession are living. Like other, he/she too lives in modern age, facing pressures, stress, strain, anxiety, burnouts and low commitment because of the working environment and individual difference. In fact, due to advancements in the field of science and technology and ever-increasing pressure to perform different roles in different situations, the present day teacher finds himself or herself more worried and tense. Facets of performance, such as creativity, classroom management and implementation of educational techniques may suffer when teachers experience high level of stress (Parsad, 1990).

Trendall (as cited in Verma, 1998) defines teachers stress as a multi-factorial concept composed of factors within the individual, the organization nature of work place and society that leads to the lowering of feelings of personal self worth, achievement, effectiveness and coping within one's professional role.

In the past university, teaching was regarded as a low stress occupation. Although not highly paid in comparison to other professionals in the commercial sector. People in the other professions have envied them for their tenure, light workloads, flexibility, benefits such as overseas trips for study or for the conference purposes and freedom to pursue their own research interests etc. However, during recent years workload on teachers has increased. Unproductive level of stress might be harmful to teachers and can affect their teaching, personal lives and most importantly their students (Fisher, as cited in Verma 1998).

As human beings are complex and diverse in nature and awareness of human resource is very useful for perfect management, best place to start it is by knowing employee's needs, working conditions, and the factors causing stress to employee. The knowledge of human resource gives a vision upon which a plan for professional or personal development can be created. In order to become more aware of human resource, an understanding is required in many psychological areas.

At present, no appropriate test is available which can measures the phenomena of occupational role stress among university teachers in socio cultural context of Pakistan. In the area of occupational role stress, most of the researches were carried out in the western context, where work environment, facilities, interpersonal relationships, teaching methodologies, academic issues, curricula, budget and socio cultural environment are different from our context. Therefore, the purpose of the present study was to develop an indigenous research instrument relevant to cultural context of Pakistan.

## Method

The main objective of the study was to develop an indigenous university teacher's stress inventory and establish its psychometric properties. This goal was attained in four interrelated stages namely; items generation, items evaluations for determining the qualitative properties of items, tryout of the first draft to determine the quantitative properties of the items, and final tryout to determine the psychometric properties of the scale.

## Items Generation

For the purpose of item generation, a sample of 20 teachers was collected from International Islamic University, Fast National University,

Iqra University and Air University. An open–ended questionnaire was given to the respondents with a request to state all dimensions, which are causing stress to the university teachers. During this phase, 178 items were generated which were presented to a group of three judges for careful analysis. For this purpose, all items were arranged in a frequency distribution. Items with high frequency were selected for the item pool. During the analysis, it was found that some items were repeating and some were not related to the concept of stress. Therefore, least satisfactory items were deleted from the list, after that remaining items were converted into statements. Finally, a pool of 86 statements was selected. All these statements were related to different aspects of stress in university teaching.

## Items Evaluation

The process of items evaluation was completed in two phases.

## Phase I

In this phase, 86 statements were presented to a group of five judges for the systematic examination of items content. They were asked to comment on each statement for clarity and likelihood of eliciting responses relevant to study purpose. The judges were asked to evaluate the relevancy of each item with the purpose of the research and evaluate the face validity of each item. It was found that some items were not related with the concept of stress. Out of 86 statements, only 62 items were selected for the final scale. These statements were written with five point rating scale strongly-agree, agree undecided, disagree and strongly-disagree.

## Phase II

In this phase, the scale was given to 10 educationists, they were asked to check the wording of the statements. After necessary correction in the wording of some statements, the scale consisted of 62 items and was submitted for the empirical evaluation.

## Tryout of the First Draft

In order to determine the quantitative properties of the items, UTSI was administered on a sample of 200 respondents. The details are as under.

### Sample

For empirical evaluation of the 62 statements, a sample of 200 university teachers was randomly selected from the following universities of Rawalpindi and Islamabad: Quaid-e-Azam University, National University of Modern Languages, Bahria University, International Islamic University, Riphah International University and Mohammad Ali Jinnah University. In the sample, 102 were male and 98 were female teachers with age ranging from 25 to 70 years and job experience ranging from 1 year to 40 years. Teachers were approached at their work place. Scale consisting of 62 statements was given to them, and they were asked to rate each statement on five-point rating scale.

## Validation of UTSI through Factor Analysis

Validity of the scale was determined through principal component analysis, factors were rotated and factor loading less than .35 was considered as non-significant. During this process eight items were not significant so, they are excluded from the scale and rest of the 54 items were retained for final try out.

## Final Try out

The main objective of the final try out was to determine the psychometric properties and Norms of UTSI.

### Sample

A random sample of 500 teachers was collected from twenty private public sector universities of Rawalpindi and Islamabad. Among them 282 were men and 218 were women, the teachers age ranged from 25 to 75 years and their job experience ranged from 1 year to 40 years. Their qualifications ranged from Master and M. Phil to Ph.D. level and income level ranged from Rs.10, 000 to Rs.1, 50,000. The respondents were contacted at their respective workplace. The respondents were briefed about the purpose of the study before giving them the UTSI. They were instructed to complete the scale in one sitting.

## Analysis of Data

The data were analyzed with the help of SPSS using following statistical techniques.

1. Factor Analysis
2. Alpha Reliability Coefficients of UTSI
3. Inter-Correlation of the Subscales of UTSI
4. Item Total Correlations of UTSI
5. Percentile Rank of UTSI

## Factor Analysis

Factor analysis was performed on 54 items, as a result, it was found that all items had factor loadings of more than .30 value. Based upon the principal component analysis these 54 items were selected for final version of UTSI. To determine the number of factors, varimax rotation of the principal factors was done. Consequent upon this only six factors were extracted. Based on their content these factors were named as Work strain Scale (WSS), Student Related Stress Scale (SRSS), Colleagues Related Stress Scale (CRSS), Administration Related Stress Scale (ARSS), Personal Factors Lead to Stress Scale (PFSS) and Manifestations of Stress Scale (MSS).

## Eigen values and Percentages of Variance

The Eigen values and percentages of variance explained by the extracted factors were calculated.

**Table 1**
**Eigen values and Percentages of Variance Explained by the Extracted Factors of UTSI**

| Factors | Eigen values | PCT of Variance | Cum Percentages |
|---|---|---|---|
| FI | 4.191 | 29.873 | 29.873 |
| F2 | 1.849 | 9.128 | 39.001 |
| F3 | 1.75 | 6.853 | 45.854 |
| F4 | 1.56 | 4.992 | 50.846 |
| F5 | 1.27 | 3.827 | 54.673 |
| F6 | 1.07 | 2.300 | 56.973 |

Table 1 shows the eigenvalues and percentages of variance explained by six factors. The result shows that F1 has an eigenvalue of 4.191 and explain 29.873 percent of the total variance. This is the highest value among six factors. Rest of all factors have eigenvalues of 1.07 or more. Total variance explained by all factors is 56.973 percent.

## Alpha Reliability Coefficients of UTSI

Alpha reliability coefficient of UTSI and its subscales were determined on a sample of 500 university teachers.

**Table 2**
**Alpha Reliability Coefficients of UTSI (*N=500*)**

| Subscales | n | Alpha coefficient |
|---|---|---|
| WLSS | 9 | .43** |
| SRSS | 9 | .56** |
| CRSS | 9 | .65** |
| ARSS | 9 | .75** |
| PFLSS | 9 | .65** |
| MSS | 9 | .69** |
| Total | 54 | .81** |

*$P$ <.05 **$p$ <.01

Table 2 portrays the Alpha reliability coefficients of UTSI. It ranges from .43 to .81.

## Inter-Correlations of Subscales of UTSI

Inter-correlations of the subscales of UTSI were calculated.

**Table 3**
**Inter-Correlations of the Subscales of UTSI (*N=500*)**

| Subscales | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| WLSS | | | | | | |
| SRSS | .64** | | | | | |
| CRSS | .65** | .53** | | | | |
| ARSS | .37* | .69** | .83** | | | |
| PFLSS | .43* | .59** | .80** | .56** | | |
| MSS | | .65** | .65** | .83** | .61** | .70** |
| Total | .65* | .80** | .83** | .83** | .77** | .89** |

**p < .o1

Table 3 portrays inter-correlation of the subscales and total scale of UTSI. Result shows that all subscales have positive correlation with each other and with total scale of UTSI. The highest correlation exists between MSS and total scale of UTSI (r = .89**).

## Item Total Correlations of UTSI

The item total correlations of UTSI were computed in order to dtermine internal consistency. The result reveals that all 54 items have positive correlation with the total scale of UTSI. The correlations ranged from .25 to .68.

## Split Half Reliability

For the calculation of split half reliability, UTSI was divided into two parts 27 items in the first part and 27 items were in the second part. The correlation coefficient between two parts was .89.

## Establishing Norms through Percentile Ranks

Percentile ranks of UTSI were determined for three levels of stress, mild stress, moderate stress and high stress.

**Table 4**
**Percentiles Ranks of UTSI based on 54 Items (*N=500*)**

| Percentiles | Scores |
|---|---|
| 1 | 79 |
| 5 | 95 |
| 10 | 109 |
| 15 | 112 |
| 20 | 118 |
| **25** | **122** |
| 35 | 133 |
| 40 | 138 |
| 45 | 140 |
| **50** | **143** |
| 55 | 145 |
| 60 | 148 |
| 65 | 151 |
| 70 | 156 |
| **75** | **161** |
| 80 | 166 |
| 85 | 170 |
| 90 | 175 |
| 95 | 198 |
| 99 | 235 |

Table 4 shows the percentile ranks of teachers' score on UTSI. The score of 122 falls on 25th percentile illustrates as mild stress. Score of 143 falls on 50th percentile characterized as moderate stress, whereas score of 161 falls on 75th percentile and characterized as high stress.

## Discussion

Present study was conducted to develop an inventory, for the measurement of occupational role stress among the university teachers and to determine its psychometric properties. UTSI was developed in four stages such as, items generation, items evaluations, tryout of the first draft and final tryout. For items generation, data was collected from 20 educationalists from various universities of Rawalpindi and Islamabad. At this stage, 178 items were generated but after analysis only 86 items were selected for further analysis. Five judges evaluated the relevancy of each items and only 62 were selected for tryout of the first draft. For the tryout of the first draft data were collected from 200 university teachers, for the determination of psychometric properties Factor analysis was performed, and item total correlation were computed. Result of the factor analysis revealed that eight items were not significant because they did not reach the selection criteria. In the final try out the data was collected from 500 university teachers working in the private and public sectors. The results of the final try out indicate that all 54 items have adequate reliability and validity. Finalized scale consisted of 54 items with five point rating scale, pertaining to six subscales. The labels of the factors were assigned on the basis of the face validity of the items within each factor. The norms were computed through percentiles analysis. These factors called subscales are as follows:

### Factor 1: Work Strain Scale (9 items)

Items comprising factor 1 are related to workload at work place.

For Example:

1. I wish that I had more time to spend with my family.
2. I feel that I need time to myself to work out my personal problems.

### Factor 2: Students Related Stress Scale (9 items)

This factor describes the stress experienced due to students.

For Example:

1. I feel uncomfortable when I am unable to answer questions of students.
2. I feel anxiety due to my loose grip on the subject.

### Factor 3: Colleagues Related Stress Scale (9 items)

This factor related to the stress experience due to the colleague's behavior

For Example:

1. Many of my colleagues are not reliable.
2. There is no person with whom I can discuss my professional concerns.

### Factor 4: Administration Related Stress Scale (nine items)

This factor related to the stress experienced by the administration's attitude.

For Example:

1. I feel strain when I compare myself with the teachers of some other universities.
2. I have opportunities for promotion.

### Factor 5: Personal Factors Lead to Stress Scale (9 items)

This factor measures stress experienced by personal weaknesses.

For Example:

1. Lack of knowledge in "Information Technology" affects me a lot.
2. I am not abreast of new trends in my discipline.

### Factor 6: Manifestations of Stress Scale (9 items)

Factor 6 relates to the manifestations of stress.

For Example:

1. I am feeling frustrated.
2. I have trouble in falling asleep.

Both qualitative and quantitative analysis demonstrate that UTSI is a reliable and valid tool for the measurement of occupational role stress among the university teachers and higher score on UTSI indicates higher occupational role stress in the respondents, moreover this scale is applicable for the male and female teachers working in the universities of Pakistan.

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