

Article

Application of Mixed Sampling to Real Life Data: A Case Study on Socio-Economic Determinants by Using SEM and CFA Techniques

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Abstract: The objective of this study is to highlight the stress factors influencing primary school female teachers in southern Punjab, Pakistan. A causation model is developed to determine the effect of the three main domains of stress. Data were collected through a questionnaire using a convenient sampling technique. Cronbach's alpha is computed to determine the internal consistency of the items of the questionnaire. The factors involved in the causation model are confirmed through confirmatory factor analysis. The perceived stress scale is used to check the stress level in primary school female teachers. A structural pathway of social, health and environmental factors is designed to determine the influence of different variables on stress. The examined problems included the four following major areas: social factors, economic factors, health factors and environment factors. Among our results, it is shown that the marital status has an effect on the stress level of both public and private female school teachers.

Keywords: mixed sampling; convenient sampling; teacher stress; occupational stress; level of teachers

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1. Introduction

Stress is a common term referring to numerous psychological and physiological reactions to some singular events of life. Thus, it is our body's manner of reacting to any type of situation. It could be a

result of both, specific and unpleasant, events. Occupational stress arises from many causes related to the working conditions or the environment of a workspace. In particular, it can occur when the individual's ability cannot satisfy the demands of the environment. It is now well-known that one of the most stressful occupations is teaching. The related stress, commonly termed 'teacher stress' is defined as a negative teacher's experience, with negative emotions (anxiety, tension, anger...). The full development in this regard can be found in [1]. In addition, the stress manifestations of Pakistani female teachers could be physical, psychological, or emotional in nature [2].

1.1. Literature Review

Stress is the state that results from an individual's atmospheric events, between the demands of a state of affairs and the assets of the individual's biological, mental and social system. There are several scales used to quantify stress. Some procedures depend on individual to report their own stress levels, such as self-report methods, questionnaires, etc. Other methods adopt a more subjective approach, including some physiological measures.

A psychological instrument, known as Perceived Stress Scale (PSS), can be utilized for computing stress. It is a measurement tool in which one's lifestyle is assessed in terms of stressfulness. The PSS scale also consists of some direct events approximating modern experiences about levels of stress. In addition, the queries are widespread in nature and subsequently are culture-fair. The PSS was developed in 1983. It has been employed in studies evaluating the stressfulness of conditions and the magnitude to which there are connections between psychological stress and psychiatric and physical disorders. The PSS has the feature to predict the stress of both objective biological markers and the amplified risk of disease in individuals with greater levels of perceived stress.

A short survey of the recent literature on this subject is presented below:

The Reference [3] studied stress sources and manifestation among the pre-primary, primary and secondary educators in Greece. The Reference [4] studied the level of job satisfaction and stress among Iranian EFL teachers using a localized self-reported questionnaire. On the other side, Reference [5] studied three dimensions of stress and burnout at school level. The Reference [6] concluded that the main causes of stress in Nigeria were dissatisfaction with the job and insufficient resources for teaching. The teachers of private school were under stress as compared to their government sector counterparts [7]. In addition, the Reference [8] studied occupational stress among (male and female) elementary school teachers of district Pulwama. The Reference [9] studied the nature and effect of teacher stress in the private school of Gilgit-Baltistan, Pakistan. The Reference [10] studied the variables that affect the performance and stress level of school teachers, and also evaluated the relationship between job performance and source of stress. The Reference [11] concluded that the value of supportive and stress-free environment is correlated with student engagement and students' misbehavior and is the main predictor of dissatisfaction. The Reference [12] conducted a study on 'mindfulness-based stress reduction (MBSR)' for primary school teachers. The Reference [13] conducted a study based on the literature from 1983 to 2009 and concluded that teaching is a form of emotional labour and changed with culture and context. The Reference [14] used structural equation modelling (SEM) to analyse the educational data of school teachers in Hong Kong. In addition, the Reference [15] conducted a study on the individual contributory factors in teachers stress. The Reference [16] studied the psychological and physical health and job satisfaction as stress factors and compared these factors between 26 different occupations. The Reference [17] concluded that stress was related to the experience, inclusion and participation in formal training in Queensland. In addition, the Reference [18] conducted a study on occupational stress and wellness among Italian secondary school teachers.

1.2. Research Objectives

Stress is usually a result of social and economic anomalies. Studies conducted in various parts of the world have investigated social and economic problems that cause stress. They include dimensions

of stress and burnout, such as Emotional Exhaustion (EE), Depersonalization (DP) and inadequate Personal Accomplishment (PA) at school level [5].

The present study is designed to explore the social and economic problems existing in the target population, considering public and private primary school female teachers in Bahawalpur, a city of southern Punjab, Pakistan. The social factors include the family setup, parent's participation in the child's education, satisfaction level, and distance from school. Health factors include health facilities and effect of work on health. Economic factors include the allowances of primary school teachers (PST). School environment factors include basic school facilities, mutual relationships with colleague, supervisory support, extra-administrative workload, inspection of high authority, and literacy numeracy drive (LND) assessment. There is paucity of such studies in the literature.

Objectives of the Study

The objectives of the present study are listed below:

- (1) Identifying levels of stress among private and public primary school female teachers using the PSS.
- (2) Exploring the relationship between factors of stress among public and private primary school female teachers.
- (3) Examining the relationship between socio-economic factors (Social, Economic, Health and Environment) and stress.

2. Data Collection and Statistical Methodology

This study focuses on social, health, economic, environmental and psychological determinants of stress among female teachers in public and private primary schools in Bahawalpur city, Pakistan. The cultural values and mode of living are almost the same in the area of Bahawalpur city. The total the number of public and private school female teachers in Bahawalpur city is 1020.

For the purposes of this study, we consider the two following strata: the population of government primary school female teachers ($N_1 = 405$), and private registered and Punjab education foundation (PEF) primary school female teachers ($N_2 = 615$). The information about total number of primary female teachers in the government school was taken from the Deputy Education Office Bahawalpur Punjab, Pakistan.

In this study, $N = N_1 + N_2$ is the total number of public and private primary school female teachers.

A stratified random sampling with proportional allocation of sample size was used to allocate the total sample sizes between the two strata. According to the size of each stratum, the following relationship is considered to determine the sample sizes from private and public-school female teachers:

$$n_i = n \times \frac{N_i}{N}, \quad i = 1, 2, 3 \dots k,$$

where k is the total number of strata, N is the total number of units in the population, N_i is the total number of units in the i^{th} stratum, and n_i is the total number of units selected from the i^{th} stratum. We take sample size of 400, i.e., $n = 400$. Thus, we have

$$n_1 = 400 \times \frac{405}{1020} = 159,$$

$$n_2 = 400 \times \frac{615}{1020} = 241.$$

Figure 1 shows the sample size for each stratum. The sample sizes for the first stratum containing 159 public school female teachers are further stratified as follows: female teachers from government girls primary school ($n_{11} = 96$), female teachers from government elementary school ($n_{12} = 32$), female teachers from government model school ($n_{13} = 29$), and female teachers from community model school ($n_{14} = 2$). The sample sizes for the stratum containing 241 private schools female teachers are further

stratified as follows: female teachers from private registered girls school ($n_{21} = 76$) and female teachers from PEF school ($n_{22} = 165$).

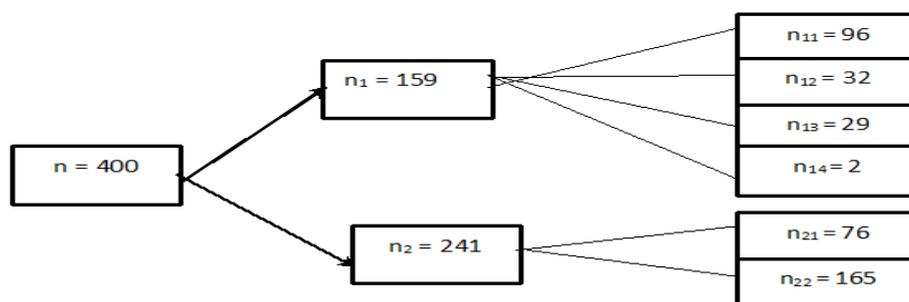


Figure 1. Sample size for each stratum.

Source of Data

After evaluating the sample size for each stratum, convenient sampling was used to conduct the survey in private and public primary schools of Bahawalpur city. The survey was conducted from 10 October 2017 to 10 January 2018. A close-ended questionnaire was used to collect information from respondents. The questionnaire contains questions about the symptoms of stress using the 14-item PSS demographic attributes, and social, health, economic, environmental, and psychological factors. It was distributed among female teachers in their respective schools. The objective and significance of answering the questionnaire were explained to the teachers. Respondents filled the questionnaire anonymously. The analyses are performed using the software SPSS version 22, SPSS AMOS (Analysis of a moment structures) version 22, and Microsoft Excel 2010.

3. Causal Modeling

3.1. Conceptual Framework of the Causation Model

Camp and Heath-camp (1990) established the Teacher Proximity Continuum as a suitable structure for the organization of teacher-related phenomena. The existing literature on teachers’ stress revealed that most of the stressors can be classified in the following eight domains on the Teacher Proximity Continuum, namely: Pedagogy, Internal, Curriculum, Program, Students, Peer, System, and Community. The present study is analogous to the conclusions derived by Camp and Heath-camp (1990). It can be estimated from previous studies conducted in various parts of the world that teacher stress can be accounted for by the following three domains: System, Internal, and Student.

The new proposed causal model of public and private primary school female teachers can be formulated as follows:

$$\text{Stress} = f(\text{System} + \text{Internal} + \text{Student}).$$

The theoretical causal model is presented in Figure 2. The causal model consists of three latent exogenous variables, School system (SYSTEM), Teacher internal characteristic (INTERNAL), Students (STUDENT), and stress as a dependent variable. The dependent variable stress is directly affected by the latent exogenous variables. SYSTEM is symbolized by F1 and is measured by six variables: Q2, Q6, Q15, Q23, Q25, and Q26. INTERNAL is symbolized by F2 and is measured by five variables: Q16, Q18, Q20, Q22, and Q40. STUDENT is symbolized by three indicator variables: Q11, Q12, and Q13. Stress is symbolized by four variables: Q31, Q32, Q33, and Q43. These variables are presented in Table 1 and included in the causation model after performing the Confirmatory Factor Analysis (CFA), where “1” indicates a standardized value of a theoretical causation model and “0” indicates the residual of the theoretical causation model.

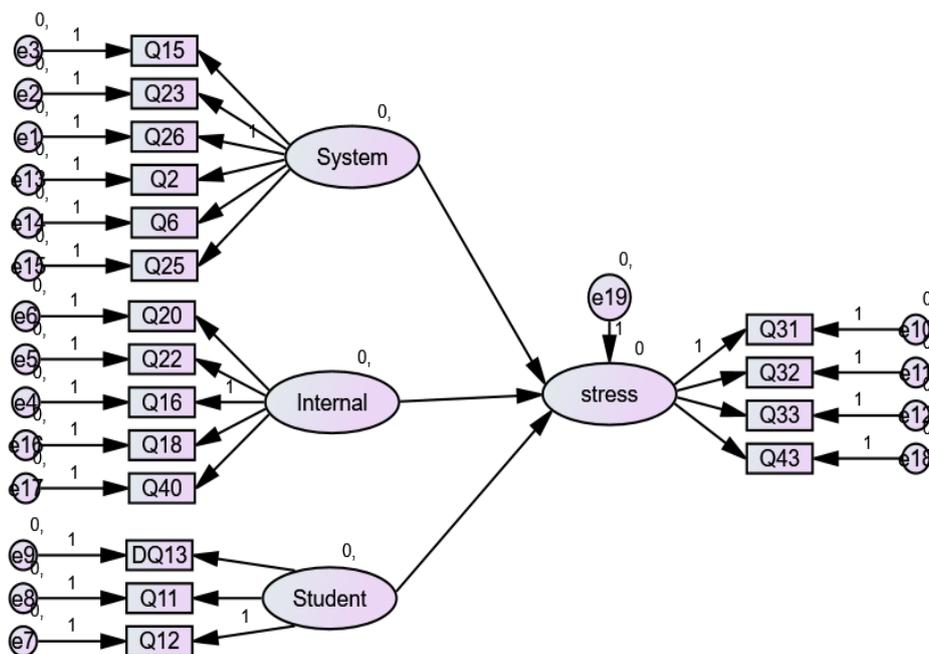


Figure 2. Theoretical causal model.

Table 1. Variable specification in a causal model.

| Variable Name | Variable Descriptions | Variable Description in Elaine (2001) |
|---------------|---|--|
| Q2 | I have enough resource to accomplish my job responsibility. | Competency to perform a given role [19] |
| Q6 | Classrooms have the sufficient teaching material. | Lack of sufficient resources to perform one’s role adequately [19] |
| Q15 | I feel that my health is being affected by my work. | Self-reported presence of stress-related psychosomatic symptoms. |
| Q23 | I feel motivated when my principal/headmaster appreciates me. | Support obtained from performing supervisory personnel [19] |
| Q25 | My job is secured. | Global measure of one’s own well-being at work [19] |
| Q26 | My physical health is mostly affected by my school work. | Amount of perceived stress experienced within school environment [19] |
| Q18 | I am satisfied with the retirement benefits. | Amount of perceived stress experienced within school environment [19] |
| Q20 | Paid for extra assignments/additional duties. | Amount of perceived stress experienced within school environment [19] |
| Q22 | How often have you felt confident about your ability to handle your personal problem. | Individual’s evaluation of his or her behavior’ abilities self-worth successes and failures [20] |
| Q40 | In the last month, how often have you felt that you were on top of things. | Perceptions of amount of control teachers have over their life events [20] |
| Q13 | Class size | Teacher’s perception of the sizes of their classes |
| Q11 | Students misbehaviour sometimes stressful for me. | Teacher’s perception of students’ classroom behavior [21] |
| Q12 | Sometimes I play the role of parents for my students. | Teacher’s perception of students’ learning [21] |

3.2. Structural Equation Modelling

Cronbach’s Alpha: To find out the internal consistency and reliability of questionnaire, the Cronbach’s alpha for the entire questionnaire is calculated as follows.

Table 2 shows that the value of Cronbach’s alpha for 42 items is 0.723. It is obvious that the internal consistency of the available data is acceptable. CFA of the system, internal, student and PSS, are shown in Figures 3–6.

Table 2. Cronbach’s Alpha for the overall questionnaire.

| Cronbach’s Alpha | No. of Items |
|------------------|--------------|
| 0.723 | 42 |

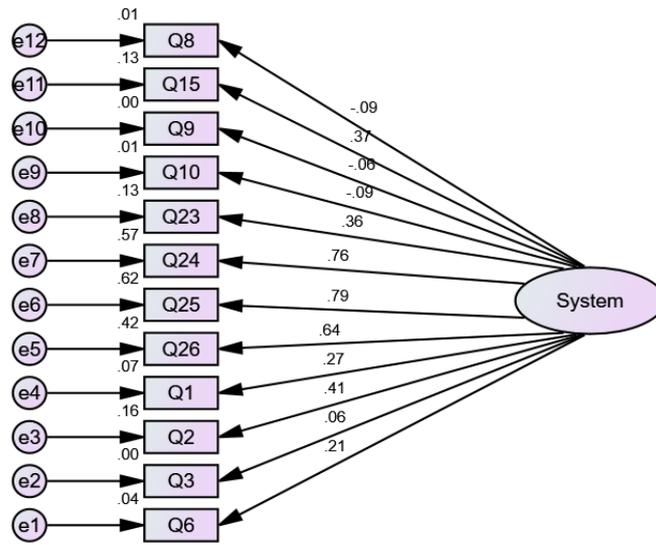


Figure 3. CFA of SYSTEM.

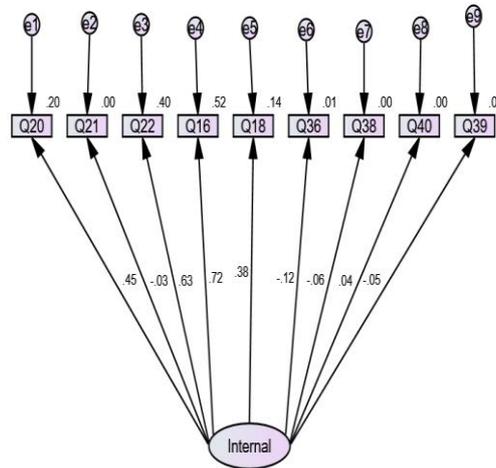


Figure 4. CFA of INTERNAL.

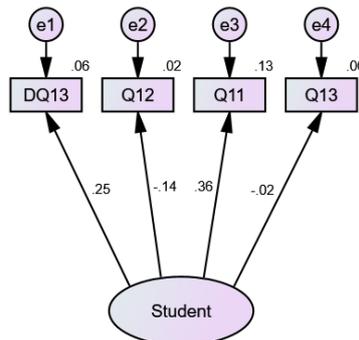


Figure 5. CFA of STUDENT.

Table 3 presents the standardized direct effects of SYSTEM. Table 4 shows the model estimation and significance of confirmatory factor analysis for SYSTEM. The null hypotheses in confirmatory factor analysis all the variables are not confirmed for the latent factor “SYSTEM”. Since some p -values in the table are greater than $\alpha = 0.05$ (fixed level of significance), only the variables Q3, Q8, Q9, and Q10 do not confirm the latent factor “INTERNAL” and the other variables Q2, Q6, Q15, Q23, Q24, Q25, and Q26 are statistically significant.

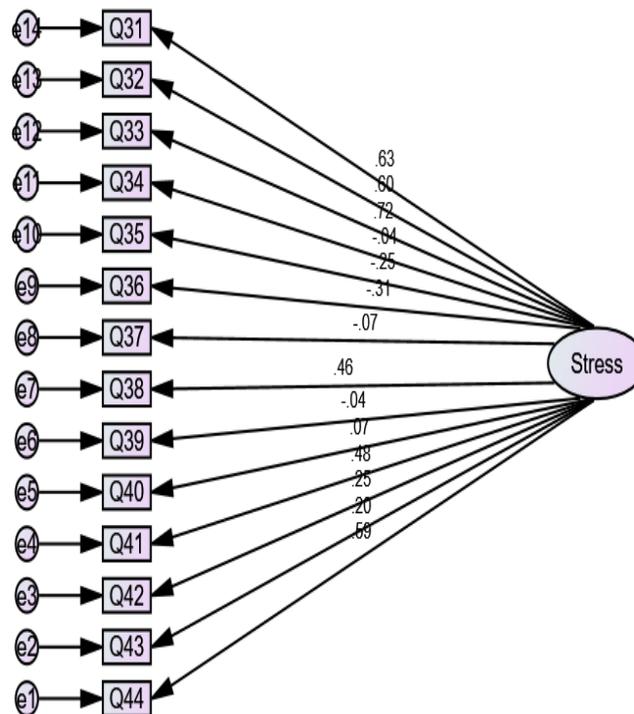


Figure 6. CFA of PSS.

Table 3. Standardized direct effects of SYSTEM.

| Variables | Description of Variables | Factor Loading |
|-----------|--|----------------|
| Q6 | I am satisfied with the availability of drinking water and sanitary condition. | 0.207 |
| Q3 | I am satisfied with the furniture of classrooms. | 0.006 |
| Q2 | I have enough resource to accomplish my job responsibility. | 0.406 |
| Q1 | The school has sufficient number of classrooms. | 0.269 |
| Q26 | I am satisfied from the annual holidays with pay. | 0.645 |
| Q25 | My job is secured. | 0.789 |
| Q24 | Overall coordination with colleagues is good. | 0.756 |
| Q23 | I feel motivated when my principal/headmaster appreciates me. | 0.359 |
| Q10 | Student’s misbehaviour disturbs me. | −0.089 |
| Q9 | High emphasis on literacy numeracy drive (LND). | −0.060 |
| Q15 | I feel that my health is being affected by my work. | 0.367 |
| Q8 | I feel high degree of association with LND classes. | −0.094 |

Table 4. Confirmatory factor analysis of SYSTEM.

| Variable | Paths of Coefficient | Latent Variable SYSTEM | Estimates | Standard Errors | Critical Region | p-Value |
|----------|----------------------|------------------------|-----------|-----------------|-----------------|---------|
| Q6 | ← | F1 | 1.000 | *** | *** | *** |
| Q3 | ← | F1 | 0.275 | 0.214 | 1.287 | 0.198 |
| Q2 | ← | F1 | 1.538 | 0.458 | 3.363 | 0.000 |
| Q1 | ← | F1 | 1.044 | 0.344 | 3.031 | 0.002 |
| Q26 | ← | F1 | 2.846 | 0.797 | 3.571 | 0.000 |
| Q25 | ← | F1 | 3.448 | 0.954 | 3.614 | 0.000 |
| Q24 | ← | F1 | 3.663 | 1.017 | 3.601 | 0.000 |
| Q23 | ← | F1 | 1.482 | 0.448 | 3.311 | 0.000 |
| Q10 | ← | F1 | −0.212 | 0.181 | −1.173 | 0.241 |
| Q9 | ← | F1 | −0.153 | 0.210 | −.730 | 0.465 |
| Q15 | ← | F1 | 1.341 | 0.399 | 3.362 | 0.000 |
| Q8 | ← | F1 | −0.464 | 0.308 | −1.509 | 0.131 |

*** Indicates highly significant.

Table 5 presents the standardized direct effects of INTERNAL. Table 6 shows the model estimation and significance of CFA for INTERNAL. The null hypotheses in CFA is all the variables are not confirmed for the latent factor “INTERNAL”. Since some of p-values in the table are less than $\alpha = 0.05$

(fixed level of significance), only the variables Q20, Q22, Q16, Q18, and Q40 confirm the latent factor “INTERNAL”.

Table 5. Standardized direct effects of INTERNAL.

| Variables | Description of Variables | Factor Loading |
|-----------|--|----------------|
| Q39 | How often have you been angered because of things that happened that were outside of your control? | −0.055 |
| Q40 | How often have you found yourself thinking about things that are under your control? | 0.037 |
| Q38 | In the last month, how often have you felt that you were on top of things? | −0.055 |
| Q36 | How often have you found that you could not cope with all the things that you had to do? | −0.122 |
| Q18 | I am satisfied with the retirement benefits. | 0.375 |
| Q16 | My physical health is mostly affected by my work. | 0.723 |
| Q22 | I am satisfied from the support of my principal/headmaster. | 0.632 |
| Q21 | My principal/headmaster is unbiased to all employees. | −0.030 |
| Q20 | Paid for extra assignments/additional duties. | 0.447 |

Table 6. Confirmatory factor analysis of INTERNAL.

| Variables | Paths of Coefficients | Latent Variable Internal | Parameter Estimate | Standard Error | C.R. | p-Value |
|-----------|-----------------------|--------------------------|--------------------|----------------|--------|---------|
| Q20 | ← | F1 | 1.000 | *** | *** | *** |
| Q21 | ← | F1 | −0.078 | 0.155 | −0.502 | 0.615 |
| Q22 | ← | F1 | 1.473 | 0.228 | 6.450 | 0.000 |
| Q16 | ← | F1 | 1.458 | 0.231 | 6.323 | 0.000 |
| Q18 | ← | F1 | 0.732 | 0.145 | 5.039 | 0.000 |
| Q36 | ← | F1 | −0.277 | 0.140 | −1.975 | 0.048 |
| Q38 | ← | F1 | −0.147 | 0.162 | −0.910 | 0.363 |
| Q40 | ← | F1 | 0.093 | 0.153 | 6.09 | 0.031 |
| Q39 | ← | F1 | −0.158 | 0.174 | −0.903 | 0.366 |

Table 6 shows the model estimation and significance of CFA for INTERNAL. The null hypotheses in CFA are all the variables are not confirmed for the latent factor “INTERNAL”. Since some *p*-values in the table are less than $\alpha = 0.05$ (fixed level of significance), only the variables Q20, Q22, Q16, Q18, and Q40 confirm the latent factor “INTERNAL”. Table 7 shows the standardized direct effects of STUDENT.

Table 7. Standardized direct effects of STUDENT.

| Variables | Description of Variables | Factor Loading |
|-----------|---|----------------|
| DQ13 | Class size | 0.247 |
| Q12 | Sometimes I play the role of parents for my students. | −0.140 |
| Q11 | Students’ diversity sometimes stressful for me. | 0.357 |
| Q13 | Students misbehavior disturb me. | −0.021 |

The model estimation and significance of CFA for STUDENT are given in Table 8. The null hypotheses in CFA are all the variables are not confirmed for the latent factor “STUDENT”. Since some *p*-values in the Table 8 are less than $\alpha = 0.05$ (fixed level of significance), only the variable Q30 does not confirm the latent factor “STUDENT”.

Table 8. Confirmatory factor analysis of STUDENT.

| Variables | Paths of Coefficients | Latent Variable STUDENT | Parameter Estimate | Standard Error | C.R. | p-Value |
|-----------|-----------------------|-------------------------|--------------------|----------------|--------|---------|
| DQ13 | ← | F1 | 1.000 | *** | *** | *** |
| Q12 | ← | F1 | −0.045 | 0.051 | 3.884 | 0.037 |
| Q11 | ← | F1 | 0.231 | 0.384 | 4.601 | 0.000 |
| Q13 | ← | F1 | −0.006 | 0.035 | −0.183 | 0.855 |

Standardized direct effects of STRESS are presented in Table 9. The model estimation and significance of confirmatory factor analysis for STRESS is given in Table 10. The null hypotheses in CFA are all the variables are not confirmed for the latent factor “STRESS”. Since some of the *p*-values in the above table are greater than $\alpha = 0.05$ (fixed level of significance), the variables Q34, Q37, Q39,

and Q40 do not confirm the latent factor “STRESS” and the other variables Q31, Q32, Q33, Q35, Q36, Q38, Q42, Q43, and Q44 are a statistically significant level at 0.05.

Table 9. Standardized direct effects of STRESS.

| Variables | Description of Variables | Factor Loading |
|-----------|---|----------------|
| Q31 | How often have you been upset because of something that happened unexpectedly? | 0.63 |
| Q32 | How often have you felt that you were unable to control the important things in your life? | 0.60 |
| Q33 | How often have you felt “stressed”? | 0.72 |
| Q34 | How often have you dealt successfully with day to day problems and annoyances? | -0.04 |
| Q35 | How often have you felt that you were effectively coping with important changes that were occurring in your life? | -0.25 |
| Q36 | How often have you felt confident about your ability to handle your personal problems? | -0.31 |
| Q37 | How often have you felt that things were going your way? | -0.07 |
| Q38 | How often have you found that you could not cope with all the things that you had to do? | 0.46 |
| Q39 | How often have you been able to control irritations in your life? | -0.04 |
| Q40 | How often have you felt that you were on top of things? | 0.07 |
| Q41 | How often have you been angered because of things that happened that were outside of your control? | 0.48 |
| Q42 | How often have you found yourself thinking about things that you have to accomplish? | 0.25 |
| Q43 | How often have you been able to control the way you spend your time? | -0.20 |
| Q44 | How often have you felt difficulties were piling up so high that you could not overcome them? | 0.59 |

Table 10. Confirmatory factor analysis of STRESS.

| Variables | Paths of Coefficients | Latent Variable Internal | Parameter Estimate | SE | CR | p-Value |
|-----------|-----------------------|--------------------------|--------------------|-------|--------|---------|
| Q44 | ← | F1 | 1.000 | *** | *** | *** |
| Q43 | ← | F1 | -0.307 | 0.090 | -3.392 | 0.000 |
| Q42 | ← | F1 | 0.366 | 0.085 | 4.284 | 0.000 |
| Q41 | ← | F1 | 0.810 | 0.107 | 7.566 | 0.000 |
| Q40 | ← | F1 | 0.106 | 0.092 | 1.152 | 0.249 |
| Q39 | ← | F1 | -0.067 | 0.104 | -0.642 | 0.521 |
| Q38 | ← | F1 | 0.792 | 0.108 | 7.343 | 0.000 |
| Q37 | ← | F1 | -0.120 | 0.104 | -1.152 | 0.249 |
| Q36 | ← | F1 | -0.452 | 0.086 | -5.229 | 0.000 |
| Q35 | ← | F1 | -0.465 | 0.108 | -4.321 | 0.000 |
| Q34 | ← | F1 | -0.066 | 0.102 | -0.645 | 0.519 |
| Q33 | ← | F1 | 1.391 | 0.140 | 9.911 | 0.000 |
| Q32 | ← | F1 | 1.175 | 0.132 | 8.918 | 0.000 |
| Q31 | ← | F1 | 1.043 | 0.114 | 9.144 | 0.000 |

The causal model of stress is presented in Figure 7. Furthermore, Table 11 shows the testing of causal model of STRESS.

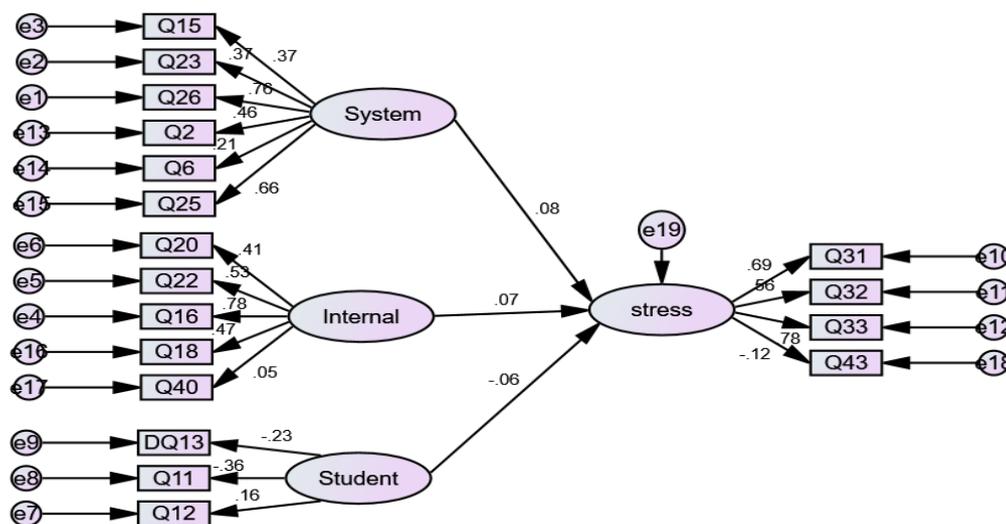


Figure 7. Causal model of stress.

Table 11. Testing of the causal model of STRESS.

| | Path of Coefficient | | Estimate | SE | CR | p-Value | Variables | Squared Multiple Correlations |
|--------|---------------------|----------|----------|--------|--------|---------|-----------|-------------------------------|
| Stress | ← | Internal | 0.074 | 0.075 | 0.984 | 0.325 | STRESS | 0.614 |
| Stress | ← | Student | -0.330 | 0.802 | -0.412 | 0.681 | Q43 | 0.140 |
| Stress | ← | System | 0.080 | 0.068 | 1.177 | 0.239 | Q40 | 0.223 |
| Q26 | ← | System | 1.000 | | | | Q18 | 0.223 |
| Q23 | ← | System | 0.432 | 0.073 | 5.945 | *** | Q25 | 0.438 |
| Q15 | ← | System | 0.420 | 0.070 | 6.041 | *** | Q6 | 0.543 |
| Q16 | ← | Internal | 1.000 | | | | Q2 | 0.211 |
| Q22 | ← | Internal | 0.748 | 0.114 | 6.570 | *** | Q33 | 0.605 |
| Q20 | ← | Internal | 0.566 | 0.098 | 5.749 | *** | Q32 | 0.314 |
| Q12 | ← | Student | 1.000 | | | | Q31 | 0.474 |
| Q11 | ← | Student | -4.596 | 6.551 | -0.702 | 0.483 | DQ13 | 0.052 |
| DQ13 | ← | Student | -17.956 | 18.516 | -0.970 | 0.332 | Q11 | 0.132 |
| Q31 | ← | Stress | 1.000 | | | | Q12 | 0.025 |
| Q32 | ← | Stress | 0.952 | 0.111 | 8.587 | *** | Q20 | 0.365 |
| Q33 | ← | Stress | 1.305 | 0.152 | 8.570 | *** | Q22 | 0.278 |
| Q2 | ← | System | 0.511 | 0.071 | 7.195 | *** | Q16 | 0.604 |
| Q6 | ← | System | 0.315 | 0.091 | 3.470 | *** | Q15 | 0.140 |
| Q25 | ← | System | 0.880 | 0.100 | 8.807 | *** | Q23 | 0.335 |
| Q18 | ← | Internal | 0.596 | 0.095 | 6.280 | *** | Q26 | 0.575 |
| Q40 | ← | Internal | 0.072 | 0.092 | 0.785 | 0.433 | | |
| Q43 | ← | Stress | -0.160 | 0.080 | -2.001 | 0.045 | | |

Figure 7 presents the proposed causal model of STRESS of primary school female teachers in AMOS path estimates for indicator variables, standardized path coefficients to STRESS and corresponding “t” values. The “***” denotes highly significant paths in Table 11. The measurement causal model is established through causation modelling. AMOS is utilized to estimate the parameter and model fit using a sample covariance matrix as input and the maximum likelihood function. At a 5% level of significance, our model exhibits good fit and concludes that SYSTEM, INTERNAL, and STUDENT factors of stress are having an influence on stress level of public and private primary school female teachers. Table 11 also presents the squared multiple correlations for the indicator variables. The total coefficient of determination of variable STRESS is 0.614, indicating that the measurement model is good.

Table 12 shows that the measurement model of the causal structure is established through causation modelling. At the 5% level of significance, our model exhibits good fit and concluded that SYSTEM, INTERNAL, and STUDENT factors of stress have an influence on the stress level of public and private primary school female teachers. We use other common fit indices to evaluate the goodness of fit of the model. The absolute fit indices, such as chi-square, RMSEA, RMR, GFI, and AGFI outcomes, show a reasonable fit of the causal model of stress. The outcome of incremental indices NFI and CFI are close to their suggested values.

Table 12. Fit indices and their acceptable thresholds in causation modelling.

| Fit Indices | Suggested | Obtained |
|------------------------------|----------------------------|----------|
| Chi square | - | 424.605 |
| Degrees of freedom | - | 132 |
| Chi-square significance | $p\text{-value} \leq 0.05$ | 0.000 |
| Chi-square/Degree of freedom | <3 | 3.217 |
| GFI | >0.90 | 0.901 |
| AGFI | >0.90 | 0.872 |
| NFI | >0.90 | 0.625 |
| CFI | >0.90 | 0.701 |
| RMSEA | <0.05 | 0.075 |
| RMR | <0.1 | 0.180 |

3.3. Perceived Stress Scale

The PSS is a psychological stress evaluation instrument. This instrument helps us to evaluate how unique circumstances influence our emotions and our perceived stress.

Table 13 shows the descriptive statistics of PSS. The mean of PSS is 40.29, standard deviation is 6.460 and the total number of public and private female teachers is 400.

Table 13. Descriptive statistic of PSS.

| | |
|---------------------------|-------|
| Mean of PSS | 40.29 |
| Standard deviation of PSS | 6.460 |
| Number of observations | 400 |

Table 14 shows the PSS scoring. There are 28% public and private primary school female teachers who have scored between 19 and 37, and showed moderate stress. Similarly, 72% of female primary school teachers depict high perceived stress. Hypothesized structural pathway between social, environmental and health factors of stress at significant level (p -value < 0.05). The model can be formulated as

$$\text{Stress} = F(\text{social factors, economic factors, health factors, environmental factors})$$

and can be defined as

$$Y = \alpha + \gamma_1x_1 + \gamma_2x_2 + \gamma_3x_3 + \gamma_4x_4.$$

Table 14. PSS scoring.

| PSS Range | Frequency | Percentage of Teachers | Results |
|-----------|-----------|------------------------|-----------------------|
| 0–18 | 0 | 0% | Low stress |
| 19–37 | 112 | 28% | Moderate stress |
| 38–56 | 288 | 72% | High perceived stress |

The main hypothetical model of stress is presented in Figure 8.

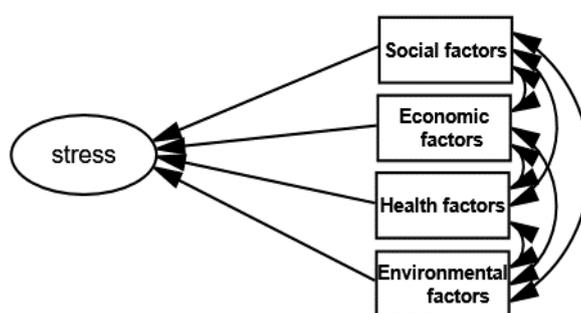


Figure 8. Main hypothetical model of STRESS.

The hypothetical models for social factors and health factors are presented in Figures 9 and 10, respectively. Model I in Figure 9 presents the social causes of stress in primary school female teachers. Model II in Figure 10 shows the health causes of stress in primary school female teachers. Model III in Figure 11 presents the economic causes of stress in primary school female teachers.

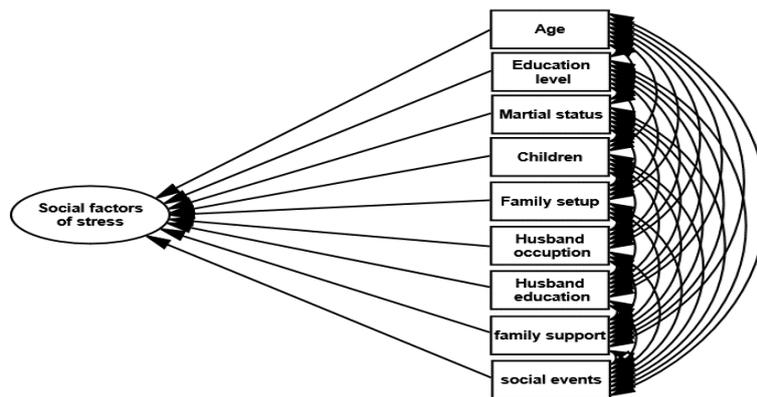


Figure 9. Hypothetical model of social factors.

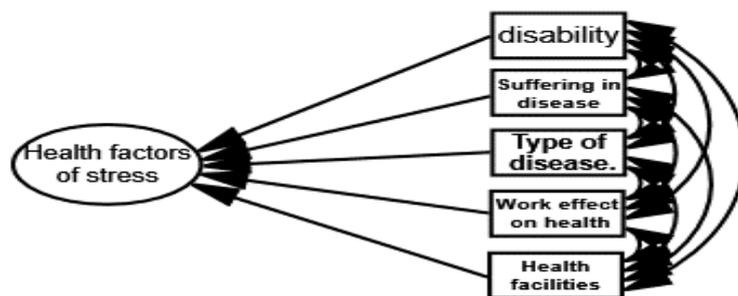


Figure 10. Hypothetical model of health factors.

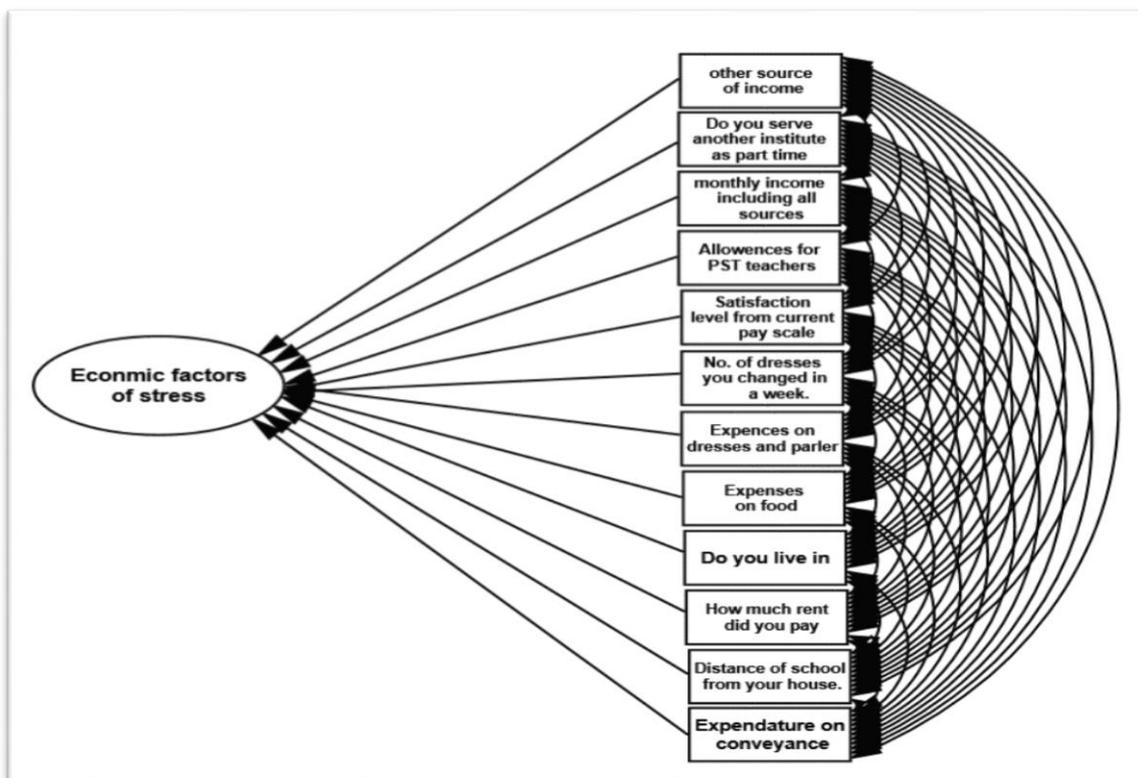


Figure 11. Hypothetical model of economic factors.

Model IV (i) shows the hypothetical model of the environment of schools in Figure 12.

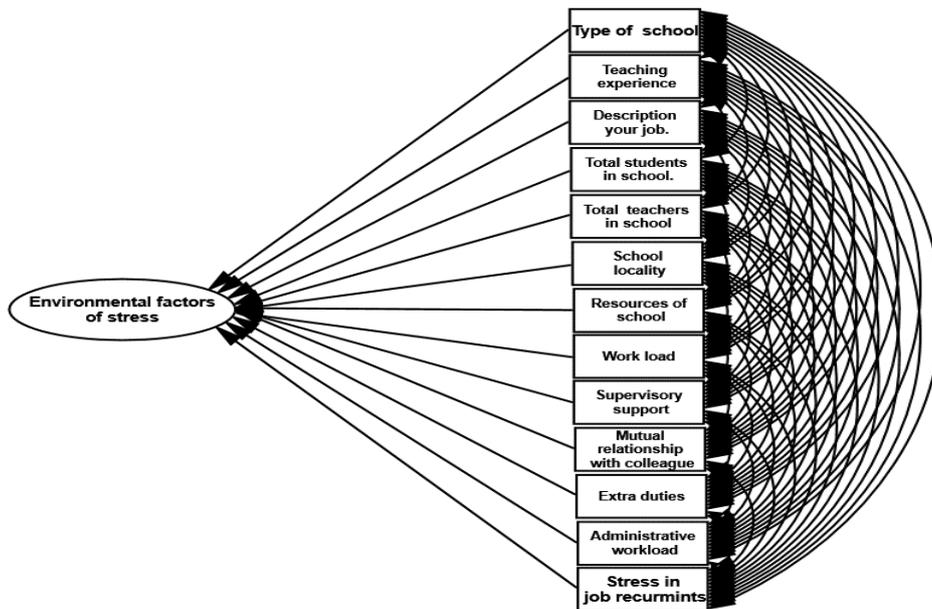


Figure 12. Hypothetical model of environment factors.

Model IV (ii) presents hypothetical model of the influence of government policies on the school environment in Figure 13.

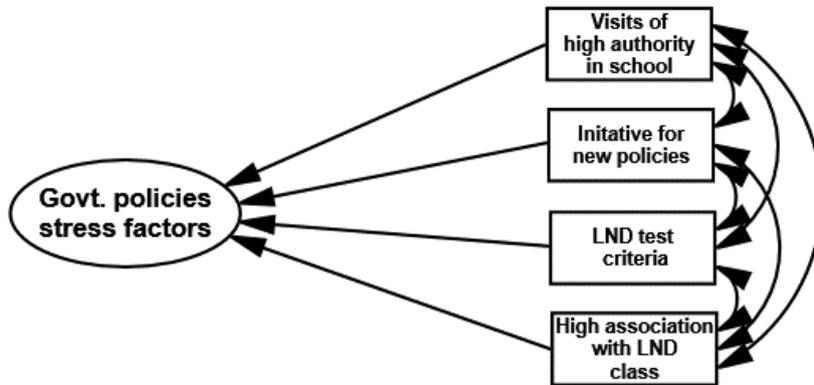


Figure 13. Hypothetical model of government policies.

Standardized estimates of social factor of stress in Model I are presented in Figure 14.

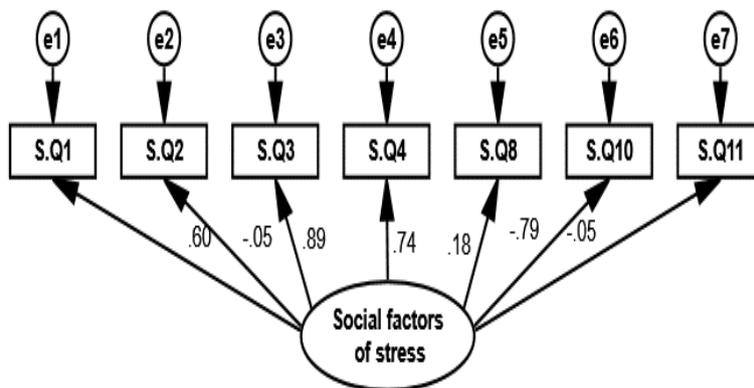


Figure 14. Standardized estimates of social factors of STRESS.

Table 15 shows the incremental and absolute fit indices for the “model I: social factors of stress” at 5% level of significance “model I” exhibited a good fit and support the hypothesis, so we accept the null hypotheses. We conclude that social factors of stress are inter correlated and have an influence on the stress level of primary school female teachers. The absolute fit indices such as chi square, RMSEA, RMR, GFI, and AGFI outcomes show a reasonable fit of “model I”. The outcome of incremental indices NFI and CFI is close to its suggested values. It is concluded that the social factors of stress have association with a stress level of primary school female teachers.

Table 15. Items of the construct of social factors of stress.

| Items of the Construct of Social Factors of Stress | Questionnaire Item | Correlation Coefficients |
|--|-----------------------------------|--------------------------|
| S.Q1 | What is your age? | 0.60 |
| S.Q2 | What is your qualification level? | −0.50 |
| S.Q3 | What is your marital status? | 0.89 |
| S.Q4 | If married number of children? | 0.74 |
| S.Q8 | Family setup | 0.18 |
| S.Q10 | Husband occupation | −0.79 |
| S.Q11 | Do you have family support? | −0.05 |

In the first measurement model (i.e., social factors of stress), the latent structure in Figure 14 was established through SEM. AMOS was utilized to estimate the parameters and model fit, using a sample covariance matrix as input and the maximum likelihood function. Standardized estimates of social factors of stress show that marital status, age, and number of children have a strong correlation with stress. These factors cause stress in primary school female teachers. Table 15 shows that the husband’s occupation and family support have negative correlations.

Table 16 shows the incremental and absolute fit indices for the first model (i.e., social factors of stress). At the 5% level of significance, this model exhibits a good fit and supports the hypothesis. Therefore, we accept the null hypothesis and conclude that social factors of stress are inter-correlated and influence the stress levels of primary school female teachers. The absolute fit indices such as chi square, RMSEA, RMR, GFI, and AGFI outcomes show a reasonable fit for this model. The outcomes of incremental indices NFI and CFI are close to their respective suggested values. We conclude that the social factors of stress have an association with the stress level of primary school female teachers. Health and social factors of stress in Model II are given in Figure 15.

Table 16. Fit indices and their acceptable thresholds in SEM.

| Fit Indices | Suggested | Obtained |
|------------------------------|----------------------------|----------|
| Chi square | - | 25.921 |
| Degree of Freedom | - | 14 |
| Chi-square significance | $p\text{-value} \leq 0.05$ | 0.026 |
| Chi-square/Degree of Freedom | <3 | 1.825 |
| GFI | >0.90 | 0.981 |
| RMSEA | <0.05 | 0.046 |
| RMR | <0.1 | 0.023 |
| AGFI | >0.90 | 0.963 |
| NFI | >0.90 | 0.855 |
| CFI | >0.90 | 0.925 |

In the second measurement model (i.e., health and social factors of stress), the latent structure in Figure 16 was established through SEM. AMOS is utilized to estimate the parameter the model fit is obtained by using a sample covariance matrix as input and maximum likelihood function. The standardized estimates of health and social factors of stress show that the marital status, age, suffering from disease, and disease type have strong correlations with stress; these factors cause stress of primary

school female teachers. Table 17 shows that the husband’s education level, teaching performance, and health facilities for teachers have negative correlations in the model of health and social factors of stress.

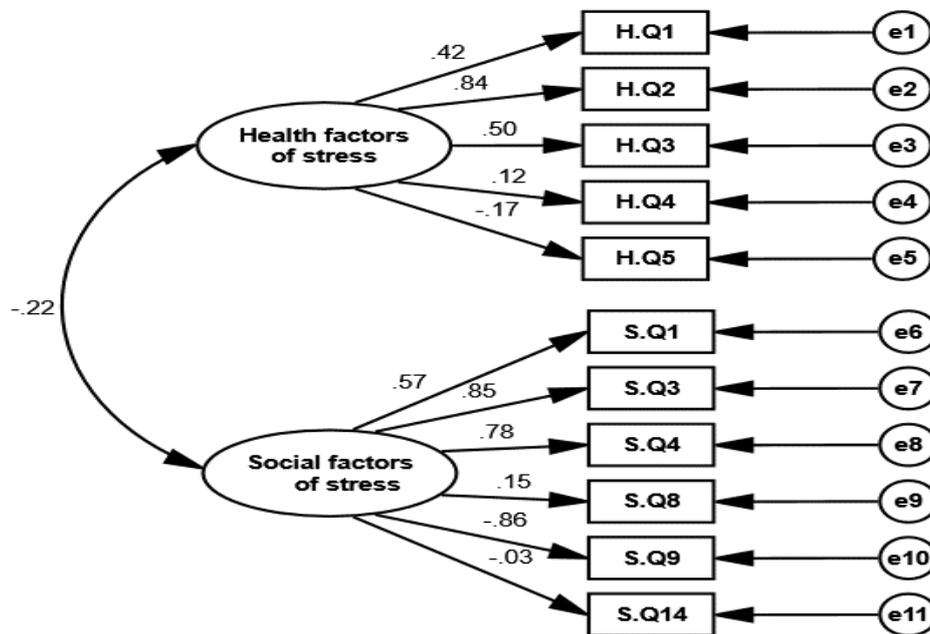


Figure 15. Standardized estimates of health and social factors.

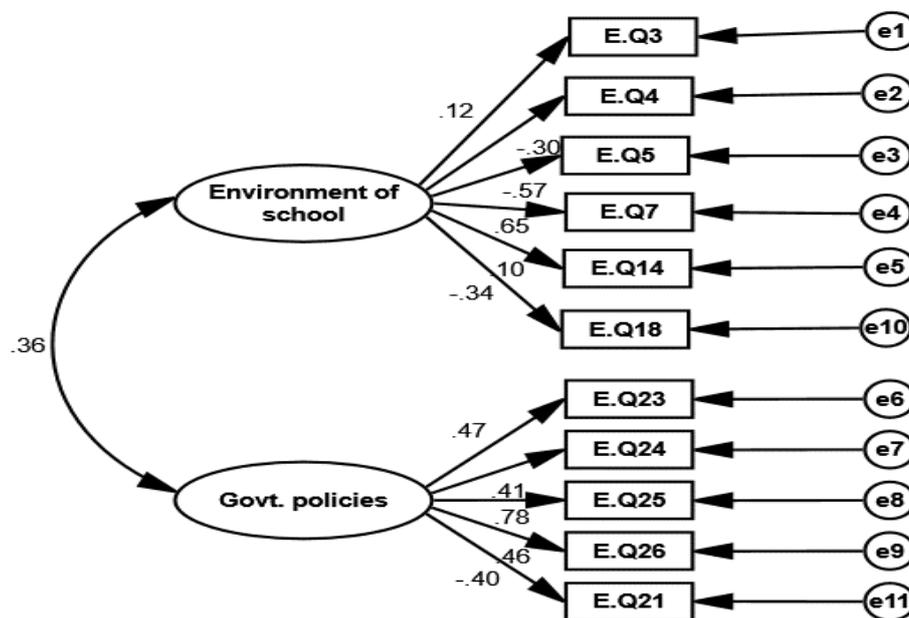


Figure 16. Standardized estimates of the school environment.

Table 18 shows the incremental and absolute fit indices for the second model demonstrating the health and social factors of stress. At the 5% level of significance, this model exhibits a poor fit and does not support the hypothesis. Therefore, the null hypothesis is rejected and we thus conclude that health and social factors of stress are not inter-correlated and have no influence on stress levels of primary school female teachers. The absolute fit indices, such as chi square, RMSEA, RMR, GFI, and AGFI outcomes, do not show a reasonable fit for this model. The values of absolute fit indices are far from their respective suggested values listed in Table 18. The outcome of incremental indices NFI and

CFI are not close to their respective suggested values. It is concluded that the health and social factors of stress have no association with the stress level of primary school female teachers.

Table 17. Items of the construct of social and health factors of stress.

| Items of the Construct of Social and Health Factors of Stress | Questionnaire Item | Correlation Coefficients |
|---|---|--------------------------|
| H.Q1 | Do you have any disability? | 0.42 |
| H.Q2 | Do you suffer from any disease? | 0.84 |
| H.Q3 | What type of disease? | 0.50 |
| H.Q4 | Do you feel that your health is being affected by your work? | 0.12 |
| H.Q5 | Health facility provided to teacher. | -0.17 |
| S.Q1 | What is your age? | 0.57 |
| S.Q3 | What is your marital status? | 0.85 |
| S.Q4 | If married No. of children? | 0.18 |
| S.Q8 | Family setup | 0.15 |
| S.Q9 | Husband education | -0.86 |
| S.Q14 | Do you think that your teaching performance affected by the events that happen at home or in social life? | -0.03 |

Table 18. Fit indices and their acceptable thresholds in SEM.

| Fit Indices | Suggested | Obtained |
|------------------------------|----------------------------|----------|
| Chi square | - | 152.952 |
| Degree of Freedom | - | 43 |
| Chi-square significance | $p\text{-value} \leq 0.05$ | 0.000 |
| Chi-square/Degree of Freedom | <3 | 3.557 |
| GFI | >0.90 | 0.930 |
| AGFI | >0.90 | 0.893 |
| NFI | >0.90 | 0.590 |
| CFI | >0.90 | 0.654 |
| RMSEA | <0.05 | 0.080 |
| RMR | <0.1 | 0.104 |

Table 19 shows the relationship between marital status and the stress level of primary school female teachers. There are 37.5% single female teachers who feel stress due to their job requirements. This table shows that 46.25% married female teachers who feel to be stressed due to their job requirements. It is confirmed that married female teachers are more affected by stress than single female teachers.

Table 19. Tabulation for marital status and stress level of teachers.

| | | Do You Feel Stress Due to Your Job Requirement? | | | | Total |
|----------------|---------|---|-------------|--------------|--------------|---------------|
| | | Very Often | Some Times | Some How | Never | |
| Marital status | Single | 52 13% | 54 13.5% | 44 11.0% | 30 7.5% | 180 45% |
| | Married | 72 18.0% | 66 16.5% | 47 11.75% | 35 8.75% | 220 55% |
| Total | | 124 31% | 120 30% | 91 22.75% | 65 16.25% | 400 100.0% |

Government policies and environmental factors of stress for Model III are presented in Figure 16.

In the third measurement model demonstrating government policies and environmental factors of stress, the latent structure in Figure 16 was established through structural equation modelling. AMOS is employed to estimate the parameter and model fit using a sample covariance matrix as input and the maximum likelihood function. The standardized estimates of government policies and environmental factors of stress show that the school locality, additional administrative duties, new emphasis on

literacy and numeracy drive (LND), and high degree of association with LND classes have correlations with environmental stress. These factors cause stress in primary school female teachers. Table 20 shows that the number of students and teachers in school, the school head’s behavior, and student’s misbehavior in class has negative relationships in the model of government policies and environmental factors of stress.

Table 20. Items of the construct of environmental factors of stress.

| Items of the Construct of Environmental Factors of Stress | Questionnaire Item | Correlation Coefficients |
|---|---|--------------------------|
| E.Q3 | Which title best describe your job? | 0.12 |
| E.Q4 | Total number of students in your school | -0.30 |
| E.Q5 | Total number of teachers in your school | -0.57 |
| E.Q7 | Your school in (urban area, rural area) | 0.65 |
| E.Q14 | Total number of subjects which you teach | 0.10 |
| E.Q18 | Your head behavior with you | -0.34 |
| E.Q21 | Do you perform additional administrative duties or work? | 0.47 |
| E.Q23 | Pressure to engage in CPD (continuing professional development) relevant to initiative required for documentation | 0.41 |
| E.Q24 | New emphasis on literacy and numeracy drive (LND) | 0.78 |
| E.Q25 | High degree of association with LND classes | 0.46 |
| E.Q26 | Student’s misbehavior in classroom causes a stress. | -0.40 |

Table 21 shows the incremental and absolute fit indices for the third model, detailing government policies and environmental factors of stress. At the 5% level of significance, this model does not exhibit a reasonable fit and does not support the hypothesis. We conclude that the government policies and environmental factors have an influence on the stress levels of public and private primary school female teachers. The absolute fit indices, such as chi-square, RMSEA, RMR, GFI, and AGFI outcomes, do not show a reasonable fit of this model.

Table 21. Fit indices and their acceptable thresholds in SEM.

| Fit Indices | Suggested | Obtained |
|------------------------------|----------------------------|----------|
| Chi square | - | 187.323 |
| Degree of freedom | - | 43 |
| Chi-square significance | $p\text{-value} \leq 0.05$ | 0.000 |
| Chi-square/Degree of freedom | <3 | 4.356 |
| GFI | >0.90 | 0.915 |
| AGFI | >0.90 | 0.869 |
| NFI | >0.90 | 0.420 |
| CFI | >0.90 | 0.461 |
| RMSEA | <0.05 | 0.092 |
| RMR | <0.1 | 0.096 |

3.4. The Findings of PSS Are Discussed Below

The age range of female teachers found to be stressed is between 28 to 40 years. Urban primary school female teachers (43.3%) are found to be more stressed than rural primary school female teachers (23.8%). The minimum stress score of female teachers on the 14-item perceived stress scale (PSS) is 23 and the maximum score was 55. An overall 72% of public and private primary school female teachers scored from 38 to 55 on the 14-item PSS, indicating a high perceived stress. The proportion of female teachers who score from 19 to 37 is 28%, implying moderate stress.

The following are the outcomes of structural pathway measurements:

Model I: The social factors of stress have an influence on stress levels. The goodness-of-fit index (GFI) is 0.981, the adjusted good-of-fitness index (AGFI) is 0.963, the normed fit index (NFI) is 0.855, and the comparative fit index (CFI) is 0.925, which is greater than its suggested value of 0.90. This means that the association among the observed variables in this model is good. The value of root

means square error of approximation (RMSEA) is 0.046, which is less than its suggested value of 0.05. The value of root means square residual (RMR) is 0.023, which is less than its suggested value 0.1.

Model II: The health and social variables of stress are not subsidized in stress. The estimated goodness-of-fit index (GFI) is 0.930, which is higher than the recommended estimate of 0.90. This implies that the model offers a good fit. The adjusted good-of-fitness index (AGFI) is 0.893, which was supposed to be higher than its recommended estimate of 0.90. The estimation of normed fit index (NFI) is 0.590, which was supposed to be greater than its suggested value of 0.90. The comparative fit index (CFI) is 0.654, which was supposed to be more than 0.90. The value of root means square error of approximation (RMSEA) is 0.080, which is not as much as its recommended estimate of 0.05. The value of root means square residual (RMR) is 0.104.

Model III: The government policies and environmental factors of stress have an influence on the stress levels of female primary school teachers. The goodness-of-fit index (GFI) is 0.915, which is greater than the prescribed value of 0.90. This means that the model has a good fit. The adjusted good-of-fitness index (AGFI) is 0.869, which is supposed to be higher than 0.90. The value of normed fit index (NFI) is 0.420, which is supposed to be greater than its suggested value of 0.90. The value of comparative fit index (CFI) is 0.461, which is supposed to be greater than 0.90. The value of the root means square error of approximation (RMSEA) is 0.092, which is supposed to be less than its suggested value of 0.05. The value of the root means square residual (RMR) is 0.096.

In the structural pathway measurements, three models are defined. The first model is social factors of stress, the second is health and social factors of stress, and the third is government policies and environmental factors of stress. The incremental and absolute fit indices of the first model show the best model fit. Therefore, the first model is suitable for estimating the stress of public and private primary school female teachers.

4. Advantages and Disadvantages of the Study

4.1. Advantages

The present study is design to understand how the public and private primary schools age female teachers are stressed. Our results are opened for verification by future researchers. A research study on level of stress and management techniques among teaching and non-teaching staff. As a perspective, the studied of the stress measures among female teachers in comparison with other female's professions is of interest.

4.2. Disadvantages

This study has some limitations. Indeed, the study is designed to investigate the stress level of public and private primary school female teachers. In addition, it can be conducted on a district level or all-inclusive country, but, due to the specific time period, it was constrained to the Bahawalpur city only. The cultural restraints are also liable for this study because people are reluctant to provide factual information about their personal and social life.

5. Conclusions

PSS, cross-tabulation, Cronbach's alpha, confirmatory factor analysis, causal modelling, and structural pathway analysis are applied in this research study. We establish how these methodologies are useful in estimating the association, internal consistency, and effectiveness of socio-economic factors on female teachers' stress. This study also determines the influence of different variables on stress.

The outcomes of this study highlight the social, economic, health, and environmental factors of stress in private and public primary school female teachers of Bahawalpur city, aged 20 to 60 years. The exploration is based on the primary data collected through questionnaires, completed by teachers of government girls' primary schools, government elementary schools, government model schools, government community model schools, private registered schools, and Punjab education foundation

schools of Bahawalpur city. Cronbach's alpha shows the reliability of the test, designed for measuring the variable of interest. The results of Cronbach's alpha show that the overall internal consistency of the questionnaire is 0.723, which indicates a good internal consistency. The results of the causal model of stress are summarized below.

The latent variable SYSTEMS have six indicator variables. The coefficients associated with these six paths are found to be significant. This indicates that these variables are appropriate to define the latent independent variable SYSTEMS. This finding suggests that, when explaining public and private primary school female teachers' stress, it is important to evaluate system-related stressors.

The latent variable INTERNAL has five indicator variables. The coefficients associated with four of these five paths are found to be significant. Thus, these variables define with success the latent independent variable INTERNAL. This indicates that it is essential to evaluate teachers internal characteristics when studying public and private primary school female teachers' stress. The latent variable STUDENT has three indicator variables. None of the related coefficients paths are found to be significant; these indicators do not define with success the latent independent variable STUDENTS. The instrument utilized to define these student-related indicators might have been inappropriate. On the basis of the results of the above study, it is found that the latent variable STUDENTS does not significantly affect public and private primary school female teachers' stress.

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References

1. Kyriacou, C. Teacher Stress: Directions for future research. *Educ. Res.* **2001**, *53*, 27–35. [[CrossRef](#)]
2. Pervez, S.; Hanif, R. Levels and Sources of Work Stress among Women School Teachers. *Pak. J. Psychol. Res.* **2003**, *18*, 97–108.
3. Kourmousi, N.; Alexopoulos, E.C. Stress Sources and Manifestations in a Nationwide Sample of Pre-Primary, Primary and Secondary Educators in Greece. *J. Front. Public Health* **2016**, *4*, 1–9. [[CrossRef](#)] [[PubMed](#)]
4. Sadeghi, K.; Adatpourvahid, M.S. EFL teachers' stress and job satisfaction: What contribution can teacher education make? *Iran. J. Lang. Teach. Res.* **2016**, *4*, 75–96.
5. Faiza, S.; Nasir, M. Exploring the Level of Emotional Burnout among Public School Teachers. *Sindh Univ. J. Educ.* **2015**, *44*, 116–135.
6. Yusuf, F.A.; Olufunke, Y.R.; Valentine, M.D. Causes and impact of Stress on Teacher's Productivity as Expressed by Primary School Teachers in Nigeria. *J. Sci. Res.* **2015**, *6*, 1937–1942.
7. Hassan, D.A. A Study of Occupational Stress of Primary School Teachers. *Educ. Confab* **2014**, *3*, 11–19.
8. Kumar, I.A.; Wani, Z.A.; Parrey, A.A. Occupational Stress among Male and Female Elementary School Teachers of District Pulwama. *Int. J. Sci. Eng. Res.* **2013**, *4*, 934–941.
9. Sultana, B.; Bano, Y.; Bano, F.; Shafa, M.D. The Nature and Impact of Teacher Stress in the Private Schools of Gilgit-Baltistan, Pakistan. *Int. J. Acad. Res. Progress. Educ. Dev.* **2012**, *1*, 64–84.
10. Hanif, R.; Tariq, S.; Nadeem, M. Personal and Job-Related Predictors of Teacher Stress and Job Performance among School Teachers. *Pak. J. Commer. Soc. Sci.* **2011**, *5*, 319–329.
11. Sass, D.A.; Seal, A.K.; Martin, N.K. Predicting teacher retention using stress and support variables. *J. Educ. Adm.* **2011**, *49*, 200–215. [[CrossRef](#)]
12. Gold, E.; Smith, A.; Hopper, I.; Herne, D.; Tansey, G.; Hulland, C. Mindfulness-Based Stress Reduction (MBSR) for Primary School Teachers. *J. Child Fam. Stud.* **2010**, *19*, 184–189. [[CrossRef](#)]

13. Chang, M.L. An Appraisal Perspective of Teacher Burnout: Examining the Emotional Work of Teachers. *J. Educ. Resour. Inf. Cent.* **2009**, *21*, 193–218. [[CrossRef](#)]
14. Tsai, E.; Fung, L.; Chow, L. Sources and manifestations of stress in female Kindergarten teachers. *Int. Educ. J.* **2006**, *7*, 364–370.
15. Jepson, E.; Forrest, S. Individual contributory factors in teacher stress: The role of achievement striving and occupational commitment. *Br. J. Educ. Psychol.* **2006**, *76*, 183–197. [[CrossRef](#)] [[PubMed](#)]
16. Johnson, S.; Cooper, C.; Cartwright, S.; Donald, I.; Taylor, P.; Millet, C. The experience of work-related stress across occupations. *J. Manag. Psychol.* **2005**, *20*, 178–187. [[CrossRef](#)]
17. Forlin, C. Inclusion: Identifying potential stressors for regular class teachers. *Educ. Res.* **2001**, *43*, 235–245. [[CrossRef](#)]
18. Mario, P.G.; Gagliardi, M.; Razzino, S. Occupational stress and wellness among Italian secondary school teachers. *Psychol. Health* **2003**, *18*, 523–536. [[CrossRef](#)]
19. Pettegrew, L.S.; Wolf, G.E. Validating Measures of Teacher Stress. *Am. Educ. Res. J.* **1982**, *19*, 373–396. [[CrossRef](#)]
20. Hellriegel, D.; Slocum, J.W.; Woodman, R.W. *Organizational Behaviour*; West Publishing: St Paul, MN, USA, 1986.
21. Bacharach, S.B.; Bauer, S.C.; Conley, S. Organizational Analysis of Stress: The case of elementary and secondary schools. *Work Occup. Int. Sociol. J.* **1986**, *13*, 7–32. [[CrossRef](#)]



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