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ORIGINAL ARTICLE:

DEVELOPMENT AND VALIDATION OF SELF-AWARENESS OF STRESS SCALE (SSS) FOR TEACHERS

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ABSTRACT

OBJECTIVE

To create a reliable and valid self-report measure of teachers on self-awareness of stress.

STUDY DESIGN

Mixed method research design

PLACE & DURATION OF STUDY

Private and semi-government sector higher education institutions in Pakistan (Lahore and Multan), in the duration of 02 years.

METHOD

In order to assist in determining the psychometric properties of the scale, Self-Awareness of Stress Scale (SSS), was administered along with demographic Performa to the 250 sample.

RESULTS

Factor analysis, internal consistency, inter-factor correlation, and validation of the scale were calculated. The Alpha Reliability of the scale with factors ranged from .89 to .97. The inter-factor correlations of all scales and the concurrent validities were statistically significant at p < .01. Three factors were generated: Interpersonal challenges, Personal Malfunctioning, and Work Inefficacy.

CONCLUSION

Three factors were identified: Factor 1 as Interpersonal difficulties, Factor 2 as Personal dysfunction, and Factor 3 Work ineffectuality.

KEYWORDS

Teachers Stress Awareness Internersonal Challenges Functioning Work Efficacy Distress

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INTRODUCTION

Occupation has a significant and durable effect on life. Professional work may create different types of stress. This stress may disturb the organism at all levels, including professional environment too. The acute stress continues to affect the employee and transforms to debilitating chronic stress, affecting physical, psychological, and social health. The relationship to health also impacts job performance as it causes difficulties in decision-making, concentration, communication, and interpersonal relations. There is a direct relationship to job performance as inversely related to stress. The level of stress for university faculty also increases among varying teaching positions.¹

Based on one definition, stress is the response or difficulty to any risk, stimulus, or change in everyday situations that is essentially a part of each human being's existence. Occupational stress is an individual's reaction to expectations at work and demands from their employer regarding their requirements, skills, and obligations. Stress is delineated into three types based on duration and level of impact; acute, episodic acute, and chronic stress.²

Acute stress is the type of stress that occurs due to the recent past and the effects of pressures and demands or challenges in the near future. Eustress refers to the positive stress response, characterized by optimal levels of stimulation - the stress that is produced from demanding but achievable, enjoyable or worth-while tasks (for example competing as an athlete, or giving a speech).³ Distress is the negative stress response, often involving negative affect and physiological reactivity - the type of stress involves that occurs when someone feels overwhelmed by demands, losses or threats. Episodic acute stress is stress that is acute in nature and occurs in episodes, and these recurrences can be caused by an overload of work in employees, where employees cannot complete multiple tasks simultaneously, which can lead to negative consequences in the workplace. Chronic stress is stress that lasts over an extended time duration and is the most damaging and challenging kind of stress.³

Individual awareness or perception of stress differs, and its impact on mental health differs for individuals. Besides the physical reactions of stress as fight-or-flight response, the psychological reactions include changes in emotions, thoughts, feelings and behaviours. Stress does not only affect the content of our thoughts, feelings, attitudes and behaviours but it also affects our performance and decision making.

The job of teaching has been analysed as a challenging and unwanted occupation both physically and mentally. As teachers, specifically at the university level, exert a lot of energy in their roles professionally and personally, both in front of and away from students.⁵ In fact, teaching is included among the most stressful occupations. Occupational stress among teachers is a significant stressor, related to several factors like planning lessons, planning activities, curriculum development, and establishing co-curricular and extra-curricular activities. Additionally, in the academic part of teaching, teachers are also heavily engaged in maintaining discipline, keeping records, performing administrative tasks as assigned, and coaching the disciples. Situations like this can lead to stress in teachers, which can impact teachers' performance.⁶

The teaching profession is often characterised by stress, which has a direct impact on the organisational culture in the schools in which teachers work. Organisational culture refers to the culture of educational institutions and the workplace, which incorporates job ambiguity, excessive workload, and overmonitoring. Stressors in teachers can come from the general living and working environment faculties as

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well as individual attributes or characteristics; however, the majority of stressors come from factors related to the working environment such as cumbersome work load, the institution's overall organizational environment, limited access to appropriate resources that could have a positive impact, absence of professional autonomy, and support from parents and/or administration.⁷

Environmental factors can also include stressors such as ambient noise, classroom size, risk of violence at school, and administrative demands. This adds to the already perceived stress due to individual factors. Individual stressors can be related to one's career aspirations, such as opportunities for promotion, success or failure on work projects, competition among coworkers, multiple roles (especially for female teachers), and being perfectionistic.

Individuals exhibit differences in stress reactivity and in responding to stress. Stress response is dependent on stressors, personal traits, and vulnerability to stress. ⁸ Cross-cultural studies show the similarities and variations of stress and its impact in different cultures. ⁹ The current literature does not, however, appear to demonstrate self-awareness of stress in university teachers.

This study focuses on awareness of stress among teachers who work at university level in Pakistan. The aim is to develop an indigenous scale of self-awareness of stress for phenomenological knowledge, understanding, prevalence, indication and manifestation, and report degree of stress. In addition, this opens up further areas of research, and highlights the importance of a self-awareness of stress in teachers.

METHOD

Phase 1: Item Generation

In this stage the SSS is developed via exploration of phenomenology. The phenomenological open-ended interview took place with individuals in the main population. The prompt questions is was, "How do you believe, what is the effect of stress in your daily life." Individuals provided different responses and were recorded.

In this phase items were developed for the Self-Awareness of Stress Scale (SSS). The verbatim accounts of the interviewees became statements later. 30 total individuals were used in the phenomenology process for the SSS they included female and male teachers.

Phase II: Expert validation

In this phase we sought to obtain validation for the statements previously obtained and have experts with more than 5 years experience raters validate the statements. The raters were posed the operational definition of the topic variable, and the question of phenomenology of the research variable. Raters provided responses to every statement, numerically rating each statement, on a Likert scale from 0-3, based on their relation to the phenomenology under investigation. After the analysis, the researchers rejected any statements where the rating was below a specific percentage.

In this phase, the statements evaluated by the researcher and raters were used for the expert validation. In order to evaluate the statements experts of both genders, including lecturers, and assistant professors were selected to engage in a pilot study.

Phase III: Pilot study

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A pilot study was carried out to evaluate the user-friendliness of both scales. In this stage of the process, expert validation was completed along with possible final statements. For this purpose, a group consisting of a male, a female, a lecturer, and an assistant professor from university of semi-government and private sector were the group for the pilot study. 10% of the main population was selected as representatives of main sample. After the pilot study, it was analyzed that no subsequent changes were required as the pilot participants were able to conveniently report their responses and the statements were clear and comprehensible.

Phase IV: Main Study

The study was conducted for assessment and validation of the psychometric properties of the SSS.

Measures

Depression anxiety stress scale (DASS-21): It has 21 items in total, each 7 items make a sub scale to give scores on depression, anxiety and stress. All three sub scales have high alpha coefficient. The Cronbach's alpha for the anxiety, stress, and depression sub-scales of DASS scale is 0.94, 0.85 and 0.87, respectively. ¹⁰

Self-Awareness of Stress Scale (SSS): It is a self-administered scale comprised of 37 items. Each item has a 3-point rating scale. SSS measures three aspects of stress awareness; Interpersonal challenges, Personal Malfunctioning and Work Inefficacy containing 20, 10 and 7 items respectively.

Procedure

Departmental permission was sought. The teachers were accessed in their respective departments after seeking permission from their respective authorities. Participants were briefed about the study, its process, right to participate and withdraw and adverse effects which were none before the written informed consent was obtained. Booklets containing research tools was handed over to the participants along with demographic sheet. The data was shifted to SPSS for analysis.

Ethical consideration

The ethical considerations that were observed were the following: Confidentiality and privacy of participants were respected by the investigator. The researcher monitored participants' comfort level and the participants had the choice to be part of the research, without having to feel pressure to be involved. They were also told (although it was indicated in the study), if they felt uncomfortable or stressed they may withdraw their participation at any instance. After the completion of the questionnaire, the respondents were debriefed about what if any emotional arousal or stress they might have felt when responding to the questionnaire.

RESULTS

Exploratory Factor Analysis

This section includes the results of the Factor Analysis for the developed indigenous scale known as the 'Stress Scale'. The Eigen Values for the three factors finalized, inter factor correlation and internal consistency are also included.

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Table 1
Factor Structure and Eigen Values of 37 Items of Self-Awareness of of Stress Scale (SSS) with Varimax Rotation (N=250)

Sr. No	Item No.	Factor I	Factor II	Factor III
1	41	.80	.04	.30
2	31	.80	.14	.34
3	32	.80	.19	.26
1	30	.78	.26	.26
5	29	.74	.30	.28
5	38	.72	.02	.45
7	26	.72	.06	.45
3	37	.71	.23	.28
)	33	.71	.45	.00
LO	39	.69	.25	.26
11	25	.68	.25	.31
12	27	.67	.35	.27
13	34	.66	.32	.05
14	36	.65	.32	.25
L5	22	.62	.29	.29
16	28	.61	.42	.25
17	24	.61	.54	.04
18	40	.56	.27	.19
19	23	.55	.24	.33
20	10	.51	.28	.51
21	15	.13	.81	.06
22	4	.15	.78	.19
23	14	.28	.78	.09
24	1	.03	.66	.26
25	5	.18	.66	.36
26	2	.25	.64	.19
27	3	.33	.63	.16
28	16	.29	.59	.27
29	13	.29	.53	.29
30	12	.37	.53	.40
31	7	.39	.30	.71
32	8	.21	.28	.70
33	6	.30	.43	.64
34	17	.51	.27	.55
35	18	.51	.19	.54
36	20	.38	.24	.53
37	11	.43	.24	.51
E	Eigen Values	18.62	2.90	1.40
	% Variance	50.33	7.84	3.77
	umulative %	50.33	58.17	61.94

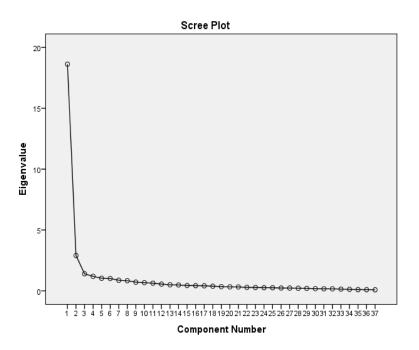
Note. Items with .50 or above loading are boldfaced.

As indicated in Table 1, the criterion for the final structure of the scale was .50 or above (Hair et al., 1998); items less than .50 were rejected. Consequently, model 6, 5, 4 and 3 factor solutions were attempted in order to achieve the best fit structure, however only 3 factor model produced the best fit with a clear factor structure and slightly less fit. 61.94% variance was explained, and every factor had a

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minimum of 7 items and a maximum of 20 items.

Figure 1. Scree Plot



The preceding figure 1 displays a scree plot. The steepness of the curve indicates that the development of three factors would be possible. As a result, these factors would be cross loaded to organize the trends or groups categorically. After developing the factors, it allowed for further analysis. The three factor solutions were also tasked to be used or retained for further examination.

In order to develop the final factors from the scale items, the extraction process was employed. A scree plot was also made based on the components of the scale. The scree plot suggested 6 large or significant and 3 moderate or slightly significant components. Researchers began to analyze the results by developing 6 factors and going backwards. The 6 had plenty of dubious factors so the scree plot was rejected. Factor 6, 5 and four were also ignored when observed with dubiousness. Finally, three factors were developed based on the least amount of dubious items. As well, the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was .95, and Bartlett's test of Sphericity was significant (χ 2 (666) = 8014.72, p < .001).

Factor descriptions: Each factor is labeled by a researcher according to shared themes and suitability of each item.

Factor 1: Interpersonal challenges: This first factor contains 20 items. A high score on this factor indicates an individual is experiencing difficulties with other people. Items included "I become harsh with students," "I cannot give positive praise to students," "I feel difficulty during communication," "I feel lack of patience," "I behave aggressively," "relations with colleagues suffer," etc.

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Factor 2: Personal malfunctioning. This second factor contains 10 items. A high score on this factor indicates an individual is experiencing difficulties with self-chores and is confused and disoriented. Items included "I feel tired/exhausted," "I feel burden on my nerves," "my overall performance is affected," "I feel sad/down," "I feel de-motivated for my daily activities," "I cannot well manage household responsibilities," etc.

Factor 3: Work inefficacy. This third factor contains 7 items. A high score on this factor indicates an individual is inefficient and struggling to deal with work matters. Items included "I cannot well prepare class lectures," "I cannot manage time properly," "I lose hope for promotion," "I cannot fulfill work schedule," etc.

Psychometric Properties: Reliability of Self-Awareness of Stress Scale (SSS)

Cronbach's Alpha Reliability

The psychometric characteristics of the SS were based on mean, standard deviation, Cronbach's Alpha, potential and actual ranges, and skewness values calculated using reliability and descriptive analysis (see Table 4), as well as inter-factor correlation, which demonstrated the relationship among Self-Awareness of Stress Scale (SSS) factors (see Table 5).

Table 2
Psychometric Properties of Self-Awareness of Stress Scale (SSS, N= 250)

				Range		_
Factor	n	M (SD)	α	Potential	Actual	Skew
1. IC	20	27.54 (18.41)	.96	0.0-4.0	0.0-3.7	.49
2. PM	10	15.42 (7.72)	.91	0.0-4.0	0.2-3.9	.70
3. WE	7	8.91 (6.15)	.89	0.0-4.0	0.0-3.7	.70
4. SSS T	37	51.87 (29.61)	.97	0.0-4.0	0.1-3.6	.53

Note. n: no. of items. α = Cronbach's alpha. IC: interpersonal challenges; PM: personal malfunctioning; WI: work inefficacy; SSS: Self-Awareness of Stress Scale.

Table 2 illustrates the means, standard deviations, Cronbach's alpha values, potential and actual response range with skewness values. Results indicate that Cronbach's Alpha values range from .89 to .97 indicating high internal consistency among the Self-Awareness of Stress Scale (SSS) and its factors. In addition, the Self-Awareness of Stress Scale (SSS) demonstrates skewness values ranging from .49 to .70.

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Table 3
Summary of Intercorrelations, Means, and Standard Deviations for Scores on Self-Awareness of Stress Scale (SSS) and its Subscales (N=250)

Factor	1	2	3	4
1. IC	-	.67**	.81**	.96**
2. PM		-	.69**	.82**
3. WI			-	.89**
4. SSS T				-
М	27.54	15.42	8.91	51.87
SD	18.40	7.71	6.15	29.60

Note. IC: interpersonal challenges; PM: personal malfunctioning; WI: work inefficacy; SSS: Self-awareness of Stress Scale. **p < .01.

Table 3 depicts the strength of association between factors and total of SS was examined using Pearson product moment correlation. The results showed that all factors of Stress Scale were found to have a significant and positive correlation (p<.01). In addition, the total SS score was found to have a significant and positive correlation with its factors, notably interpersonal challenges (r = .96, p < .01), personal malfunctioning (r = .82, p < .01), and work inefficacy (r = .89, p < .01).

Validation: Convergent Validity of Self-Awareness of Stress Scale (SSS)

To assess the convergent validity of Stress Scale, Pearson Product correlation was computed. The Depression Anxiety Stress Scale-21 (DASS-21) was used and compared to the newly created Self-Awareness of Stress Scale (SSS).

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Table 4: Summary of Intercorrelations, Means, Standard Deviations, and Cronbach Alphas of Self-Awareness of Stress Scale (SSS), Factors, and DASS-21 (N=100)

Measure	1	2	3	4	5	6	7	8
1. IC	_	.84**	.85**	.98**	.51**	.46**	.44**	.52**
2. PM		_	.77**	.91**	.50**	.54**	.49**	.56**
3. WI			_	.90**	.45**	.45**	.38**	.47**
4. SSS T				_	.53**	.50**	.46**	.55**
5. D					_	.69**	.73**	.91**
6. A						_	.81**	.91**
7. S							_	.92**
8. DASS T								_
M	22.49	15.15	7.51	45.15	5.83	5.27	6.00	17.10
SD	16.34	7.81	5.61	28.21	4.99	3.99	3.89	11.72
Α	.96	.91	.86	.97	.61	.81	.81	.89

Note. IC: interpersonal challenges; PM: personal malfunctioning; WI: work inefficacy;

SSS T: total of Self-Awareness of Stress Scale; D: depression; A: anxiety; S: stress;

DASS T: total of Depression Anxiety Stress Scale. **p < .01.

Table 4 presents the inter-correlations, means, standard deviations, and the Cronbach's Alpha for SS, its factors, and the DASS-21. The data indicated that overall, each scale possesses high reliability and positive significant correlation with one another. Additionally, the DASS-21 and its factors have positive significant correlations with the Stress Scale and its factors.

DISCUSSION

The current study examined the development and validation of a measure of stress and self-awareness of self while teaching in private and semi-government universities. An extraction method was utilized to develop the final factor structure of the items of the arrangement. A scree plot was constructed through the factors of the scale. The scree plot suggested 6 significant factors and 3 somewhat significant factors. Factors 4, 5 and 6 were also omitted based on dubious items. A total of three factors, were ultimately selected based on the low number of dubious items. Additionally, Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was found to be .95, and Bartlet's test of Sphericity was found to be significant (χ 2 (666) = 8014.72, p < .001).

Stress has become more widespread in this day and age. The negative impacts of stress in our lives can mentally disturb, physically disturb, and socially disturb our lives. If we are not aware of these negative

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impacts, we will not manage it and this will interfere in our daily life. Teachers are an integral part of grown in a country and without them is a disrupted life routine from the various aspects of social life and being well-being with health. As discussed in previous studies of current explored research factors contributed factors of stress among teachers as specifically examined in Pakistan but there has not been enough study to examine as self-awareness of stress as psychological variables regarding stress and awareness in teachers particularly, this context is specifically noted as. According to Riolli and Savicki (2003) and supported by Raedeke and Smith (2004), employees' characteristics of personality have the tendency to moderate the effect of stressful situations encountered by them, i.e., character traits can either protect or exacerbate the negative results. ^{11,12} The relationship variables have more generally been considered as important to the onset of stress, and the consideration of the variables are generally associated with the perception of environmental stress.

The first factor of SSS was Interpersonal Challenges which consists of 20 items. A high score on this factor suggests a person is experiencing difficulty when dealing with other people. Items in this factor included, 'I become harsh with students,' 'I cannot give positive feedback to students,' 'I feel difficulty during a communication,' 'I feel lack of patience,' 'I behave aggressively,' and 'relations with colleagues being affected,' etc. This study reports that predictors of interpersonal challenges amongst teachers. Research show that stress occurs when someone believes that there is a disparity between the challenges that they typically face and the resources available to them to deal with those difficulties. When an individual is confronted with a situation that calls for some kind of potential from that person, that person experiences a significant level of stress when that person is uncertain about his or her capability to meet the demands of the situation or when that person believes they have an opportunity to do their best yet is uncertain if they will be able to realize those potential circumstances. This could result in burnout, which is one's physical, emotional, or mental exhaustion with a decrease in motivation, decreased performance, and a negative attitude to oneself and others. Burnout occurs when an individual has been performing at a high level and stress and pressure take their toll, particularly from extreme and prolonged physical or mental exertion, or from excessive workload. The balance or imbalance is not between real demand and competence, but rather one's appraisals of the task and the ability to meet the challenge. 13,14 This study supported prior findings that neuroticism was a strong positive predictor of teachers' interpersonal difficulties.

The second factor of SSS was Personal Malfunctioning, which contains 10 items. A high score on this factor means that a person has confused and disoriented performance in terms of self-chores. The items included "I feel tired/exhausted," "I feel burden on my nerves," "my overall performance is affected," "I feel sad/down," "I feel de-motivated for my daily activities," "I cannot well manage household responsibilities," et. The consequences of a teacher's high levels of stress include dissatisfaction, aggressive conduct, anxiety, avoiding work, subpar performance, and absenteeism. If the workplace is unfavourable, employee stress will increase and the task will provide incorrect outcomes, and the teacher may ultimately wish to leave the field. Eventually, the teacher will want to exit the field. Stress is also linked to a person's inability to function at work. Workplace stress has been linked to a number of factors, where stress and a worker's diminished ability to function are directly related. Much of work life has direct connections to stress, too. Certain aspects of work may also contribute to stress because of job overload and role-based problems, such power imbalances, conflict of roles, and ambiguous roles. The third component of SSS was Work Inefficacy, which consisted of 7 items. A high score on this component indicates that a person feels ineffective and is having trouble managing work-related

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activities. The items were 'I cannot prepare class lectures well', 'I cannot manage my time adequately', 'I have lost hope of getting promoted', 'I cannot stay on schedule for work-related activities', etc. Stress relates to impairment in individual functioning as it relates to work. Inefficient functioning of individuals relates back to stress in the tasks completed at work. ¹⁵ Negative effects could include reduced productivity, diminished ability to perform better, a decline in initiative and motivation to work, a rise in mental rigidity, a decline in commitment to the company and coworkers, and a lack of accountability. ¹⁶ The majority of the time, teacher stress has detrimental effects on both the individual and the standard of instruction. Possible outcomes of stress in teaching faculty could be lower teacher self-efficacy, lower dedication, lower job satisfaction, higher burnout, and increased turnover rate, which requisite psychosocial interventions. ¹⁷⁻¹⁹

Limitations and Recommendations

While the present study had important findings, it had limitation of sample from only two cities of Pakistan. The study examined a sample of institutes in the private sector (2 universities) and semigovernment sector (1 university). For future studies, the inclusion of associate professors and professors from government sector would be beneficial.

CONCLUSION

This study made important contributions to the development of a measure of the self-awareness of stress in teachers. In this study, 3 factors were identified: Factor 1 as Interpersonal difficulties, Factor 2 as Personal dysfunction, and Factor 3 Work ineffectuality. The SSS measure could also be used for individuals in other occupations and professions would be valuable in determining self-awareness of stress as well as more broadly stress.

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