NOVEL STRESS EVALUATING TOOL; SADAF STRESS SCALE (SSS), TESTED SO FAR ON PAKISTANI POPULATION

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ABSTRACT
A tool has been developed for evaluation of stress by observing major signs & symptoms, and classification of these symptoms in seven different classes. The tool comprised of 114 items that differentiates physical, mental, traumatic, psychosocial, nutritional, emotional & chemical stress. It will help the researchers with a tool for evaluation of cause as it is first of its kind & will help the health professionals for assessment of stressed. Preliminary data was collected from Pakistan and analyses showed that the tool has both high reliability and validity. The Cronbach reliability test was carried out and the α value obtained was between 0.954-0.916. In this study the Spearman-Brown Coefficient analysis has been used to obtain the significant level of related coefficients (0.900-0.884). The findings of this study support the use of SSS as an evaluation tool.

KEYWORDS
physical, mental, traumatic, psychosocial, nutritional, emotional, chemical, stress

INTRODUCTION
Being a Psychological Healthy being is at multiple risks in Pakistan with continuous decline of the sense and form of healthiness (WHO, 2006). It is now under strong consideration that factors like massive terrorist activities, poverty, illiteracy, economic pressures; burden of disease etc. are acting on our society; living with these is encountered as actual cause, exaggeration and initiation of many maladies (Easterly, W. 2001). All the burdens and initiators are determined and found to be under the roof of stress that is a major term and ailment (Hashmi, S., 2011). Due to long lasting stress full events, Pakistan is among the countries that are troubled with various types of stressors acting upon with lack of proper awareness about seriousness and management of stress (Michael, S., 2007). Due to which population is unaware of this concealed hazard. General practitioners and health professionals fail to identify the declining psychological and mental health in most of the cases where Stress is the major risk factor for many diseases (Goldberg, 1985); though it might leads to positive or negative effects in different cases. Stress is the lead cause of physical disorders of internal body system as well as cellular changes in body as a response to stress (Grant, J 2006). Up till now various studies have been done to analyze the prevalence of stress, its causes, exaggerating factors and management in Pakistan (All B, Saud 1993 ) but there is still a lack of stress diagnostic tool specifically to evaluate the status of well being in Pakistan with all unique and general stressors acting upon populace.

AEIRC initiated a research project to develop a stress evaluation tool. This purpose was endorsed by Psychophysiology Research Division Of AEIRC that succeed in Building a Tool Entitled ”Sadaf Stress Scale” designed and based on classification of sorts and sources of stress in Pakistan; a comprehensive outlook(Sadaf Ahmed 2013), with differentiation of stress in seven categories summarized here:

| Physical stress | Due to exercise, cuts, burns, sprains, broken bones, surgery, pregnancy. Etc. |
|-----------------|--------------------------------------------------------------------------|
| Traumatic stress| Due to effects of any traumatic event                                    |
| Nutritional stress| Due to deficiency or excess of particular nutrients or more.              |
| Emotional stress| Due to long term interruption of any emotion.                            |
| Mental stress   | Occur due to number of intellectual tasks.                               |
| Psychosocial stress| Due to pressures of society.                                           |
| Chemical stress | Occur due to any chemical drug abuse.                                    |

Table 1: Summary Of Seven Kinds Of Stress (Sadaf, A. 2013).

METHODOLOGY
The survey was conducted through collaboration with Pakistan society of psychophysiology, a 2-stage design. The rural and urban areas of each of the 4 provinces of Pakistan were taken as strata. Data collection began in February 2012 and was completed in August 2013. Survey data were collected via interview. The study instrument was developed in English and then translated into Urdu, Punjabi, Pashto, Sindhi, and Balochi. In total, 370 persons were study. Quality control for the survey included visits to the field by expert consultants, duplicate examinations by field supervisors. Survey response rates were uniformly excellent. This tool was made in 2 phase.

Phase 1:
During phase 1 of study frame work of tool was set according to signs & symptoms by conducting interviews with local residents. The listed items were constructed in the form of statement. Each
statement was related to situation creating or resulting in subjective experience of stress. Altogether 166 statements were constructed and precautions were taken while constructing the test items. Sufficient care was paid to see that each item was closely related to stress. After detailed review some questions were excluded by experts.

**Phase 2:**
After the completion of this questionnaire, each Question Likert type 5 point scale ranging 1 to 5 i.e. Never , Rarely , Sometimes, Often , Always. We have asked these 116 questions from the sample of “N=370” respondents. After collecting the data, the scores of each respondent are summed individually. Then compare the mean rank values, for each question, between high and low scorers with the help of Wilcoxon W test. Those items (questions) whose p-value is significant at level 0.05 level were retained in the tool. Validity & reliability of the tool was also tested.

**RESULTS**

The p-values of item number 70 & 93 are very far away from the level of significance, so we eliminated these two items. But the p-value of item number 108 is near the border line of the level of significance, therefore we are not going to eliminate this item. So at last we got 114 Items to retain in the Sadaf Stress Scale (SSS).

![Table 1: SUMMARY OF THE DATA](image)
| No. | Symptom                                      | Score 1 | Score 2 | Score 3 | Score 4 |
|-----|---------------------------------------------|---------|---------|---------|---------|
| 45  | Depression or general unhappiness           | 1.35    | 686     | 5736    | -10.88E+14 |
| 46  | Anxiety                                     | 1.37    | 839     | 5889    | -10.54E+13 |
| 47  | Sadness                                     | 1.34    | 953     | 6003    | -10.51E+09 |
| 48  | Feeling insecure                            | 1.54    | 1448    | 6498    | -9.32E+07 |
| 49  | Lack of focus                               | 1.11    | 1659    | 6709    | -8.63E+02 |
| 50  | Deliberately                                | 1.11    | 1287.5  | 6327.5  | -10.04E+01 |
| 51  | Forgetfulness                               | 0.83    | 1721.5  | 6771.5  | -8.58E+00 |
| 52  | Crying spells                               | 1.14    | 1231    | 6281    | -7.95E+03 |
| 53  | Relationship conflicts                      | 0.96    | 1755.5  | 6805.5  | -8.46E+03 |
| 54  | Abnormal laughter                          | 0.94    | 2602    | 7742    | -7.67E+02 |
| 55  | Loss self-control                           | 0.63    | 2369    | 7419    | -7.36E+03 |
| 56  | Panic attacks                               | 0.86    | 2248    | 7298    | -7.62E+04 |
| 57  | Hypersensitivity                            | 0.77    | 1619    | 6660    | -9.11E+04 |
| 58  | Obsessive thoughts                          | 1.01    | 1368    | 6418    | -1.35E+03 |
| 59  | Repetitive thinking                         | 0.85    | 1007    | 6057    | -1.01E+04 |
| 60  | Poor judgment (people situation etc)        | 1.44    | 1841    | 6891    | -1.08E+04 |
| 61  | Disorientation                              | 1.23    | 810     | 5860    | -1.12E+04 |
| 62  | Detachment                                  | 0.68    | 1552.5  | 6602.5  | -9.29E+03 |
| 63  | Nightmares                                  | 0.76    | 2096    | 7146    | -7.81E+02 |
| 64  | Difficulty in thinking                      | 0.67    | 1711.5  | 6761.5  | -8.68E+02 |
| 65  | Memory problems                             | 0.78    | 1918.5  | 6908.5  | -1.00E+02 |
| 66  | Inability to concentrate                    | 0.84    | 1345    | 6385    | -9.56E+03 |
| 67  | Seeing only the negative                    | 0.97    | 1687    | 6377    | -8.86E+06 |
| 68  | Anxious or racing thoughts                  | 0.92    | 946     | 5797    | -1.03E+05 |
| 69  | Constant worrying                           | 1.18    | 955     | 5905    | -1.08E+05 |
| 70  | Relaxation                                  | 1.32    | 4832    | 9882    | -8.42E+05 |
| 71  | Absentminded/presencism                     | 2.01    | 1694    | 6447    | -8.56E+04 |
| 72  | Accidents                                   | 0.82    | 2672    | 7722    | -5.74E+02 |
| 73  | Inability to delegate                       | 0.53    | 2543.5  | 7593.5  | -8.75E+03 |
| 74  | Increased sick days                         | 0.65    | 2242.5  | 7282.5  | -7.49E+03 |
| 75  | Insufficiency                               | 0.68    | 1458    | 6500    | -9.42E+05 |
| 76  | Persistent lateness                         | 0.69    | 3036    | 8086    | -5.32E+02 |
| 77  | Jumping from one important task to another non important one | 0.74 | 1778.5 | 6829.5 | -8.34E+03 |
| 78  | Poor decision making                        | 1.06    | 1649    | 6699    | -8.40E+02 |
| 79  | Poor interaction with colleagues            | 1.32    | 1793    | 6743    | -8.42E+03 |
| 80  | Reduced work performance                    | 0.7     | 1644    | 6694    | -8.76E+02 |
| 81  | Restlessness or bitterness                  | 0.73    | 1462    | 6313    | -9.12E+04 |
| 82  | Aggression                                  | 0.83    | 2398    | 7448    | -6.35E+01 |
| 83  | Avoidance behavior                          | 1.22    | 1664    | 6714    | -8.63E+04 |
| 84  | Decreased/increased sexuality               | 0.99    | 3071.5  | 8021.5  | -5.47E+05 |
| 85  | Difficulty with relationships               | 0.49    | 1587    | 6537    | -8.90E+03 |
| 86  | Eating fast                                 | 0.79    | 1643    | 6693    | -8.65E+03 |
| 87  | Eating too much/too little                  | 1.02    | 1246    | 6196    | -9.12E+03 |
| 88  | Gambling [bet]                              | 1.13    | 3091.5  | 8141.5  | -5.60E+05 |
| 89  | Honele behavior                             | 0.55    | 1715.5  | 6765.5  | -9.12E+04 |
| 90  | Impatience                                  | 0.8     | 1000    | 6050    | -1.03E+04 |
| 91  | Increased alcohol                           | 1.17    | 4088    | 9138    | -4.10E+03 |
| 92  | Increased caffeine                          | 0.14    | 2667.5  | 7717.5  | -6.58E+03 |
| 93  | Increased smoking                           | 0.86    | 4624    | 9674    | -5.14E+03 |
| 94  | Lossing temper                              | 0.23    | 1625    | 6675    | -8.54E+03 |
| 95  | Making mistakes                             | 1.41    | 1230.5  | 6280.5  | -9.56E+03 |
| 96  | Nail biting                                 | 1.44    | 3055.5  | 8105.5  | -5.84E+03 |
| 97  | Poor eye contact                            | 0.73    | 2628    | 7679    | -6.27E+03 |
| 98  | Poor personal hygiene                       | 0.89    | 2881    | 7931    | -6.60E+05 |
| 99  | Poor time management                        | 0.4     | 1877.5  | 6927.5  | -8.18E+04 |
| 100 | Restlessness                                | 0.97    | 1540    | 6550    | -8.76E+05 |
| 101 | Rock taking                                 | 1.47    | 3138.5  | 8088.5  | -4.59E+04 |
| 102 | Substance abuse (drug, food, drink etc.)    | 1.58    | 3148    | 8198    | -5.54E+07 |
| 103 | Talking fast                                | 0.57    | 1315    | 6365    | -9.48E+03 |
| 104 | Walking fast                                | 1.39    | 2733.5  | 7763.5  | -5.80E+05 |
DISCUSSION

Stress is a broad term and there was a lack of a tool which can evaluate all types of stress. Several researchers have endorsed that to maintain vigorous body residents must know the accurate root of stress (Litt, Y. M 2009); by the help of classification of SSS & its types i.e. acute positive, acute negative, chronic positive & chronic negative respectively (Sadaf Ahmed, 2013), we have executed a tool which can help population to find which stressor is affecting them most. It can also be used by researchers for future research further clinicians can also take advantage from this scale.

Globally research is been carried out for the causes of stress (Stren, M., 1990, Groer, M.W & Phan, S.W, 2000) and studies have showed that stress have both positive and negative effects (Schuler, R.S 1980). Stress inventories & scales previously made were focused towards daily assessments and events related to it (Ospiew, S. 1998, Beck); in 1991 Beck, A. T, 1998, Branlity, P. J., 1987) while sadaf stress scale was design in a way that it can evaluate and classify stress. It will also help to find positive & negative stress furthermore one of its classifications is novel in a way that it helps to determine chemical stress. In contrast with other tools used for evaluation of stress, SSS has a unique assessment criteria which can indicate the chemical stress in any individual which can be useful for detection of any kind of drug addiction. Absence of stress is also bad for life while chronic stress can lead to several disease conditions.

Due to lack of any evaluating tool health care professionals were not able to diagnose the actual cause of stress. While youngsters of Pakistan are using several types of abusive chemicals to overcome the stresses (Faizan & Sadaf, 2013) these chemicals are continuously damaging the body (Azher et al 2012). In this study we explain the development and preliminary testing of a tool for assessment of stress for population affected. We conducted our research plan on the sorts of stress (Sadaf Ahmed 2013) and in this study describe the phases of development of the SSS with preliminary test of its effectiveness. We tested the reliability of SSS and found for reliable components of questionnaire for simplicity of analysis and validity for further evaluation. The results of our study integrated that evaluation of stressful situations can be determined by indicators/symptoms though variability in levels of stress is exciting due to variations in stressors of ranges of stressful events. The indicators like breathlessness sleep problems, cardiovascular incidents etc changes with the span of time and intensity of stressors. Secondly, overlapping symptoms of different sort of stress demons rated correlation among others that is why we have included one symptom in more than one type. The judgment on response options via likert scale has been calculated after interval and the administrated questionnaire showed reliability, that is high and indicated that understandability of scale/tool is good moreover we use multiple logistics to validate the tool by finding associations among scale items and the scores of same subject with the same interval/ space of time. From this study AEIRC took an important step in studying the different psycho physiological responses to stress and variables that can lead to many clinical conditions when exposure to stressors get prolonged. Thus, higher scores on SSS can be an indicator of psychosocial, physical and mental health status that can give valuable information about the option of identifying the actual cause and line of management for particular stresses. Through a systematic process this is by far first tool to evaluate stress type has been developed in local languages of Pakistan that cover characteristic items of stress in the existing classification system. This tool will help the physicians and health researchers to evaluate the actual cause of stress; furthermore it helps to identify the risks in early stages.

CONCLUSION

This is the first study of its kind to evaluate stress with the help of related variables. The findings of this study support the use of SSS as an evaluation tool to analyze effects of stressful situation on population and will encourage basic research designs that will be aiming to verify the consequences and forms of stress in Pakistan.

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