

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

Shamoon Noushad & Sadaf Ahmed

Psychophysiology Research Division
Advance Educational Institute & Research Centre- Pakistan (AEIRC)

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 ,Very 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

Item #	ITEMS	Average Response	Mann-Whitney U	Wilcoxon W	Z	p-value
1	Breathlessness	0.49	2397	7447	-7.5255042	0.000
2	Churning stomach	0.95	2535	7585	-6.2892548	0.000
3	Diarrhea/constipation	1.11	2987.5	8037.5	-5.1482366	0.000
4	Dizziness	1.22	1825.5	6875.5	-8.0451376	0.000
5	Dry mouth	0.83	1973	7023	-8.0228258	0.000
6	Excess sweating	1.3	1929	6979	-7.7864603	0.000
7	Fatigue	1.67	1884	6934	-7.8782082	0.000
8	Headaches	1.76	2086.5	7136.5	-7.3743731	0.000
9	Increased colds/flu	1.13	2714.5	7764.5	-5.8676907	0.000
10	Increased heart rate	0.99	1897.5	6947.5	-8.0427479	0.000
11	Indigestion	0.77	2608.5	7658.5	-6.3883289	0.000
12	Nausea feeling	0.91	2041	7091	-7.700675	0.000
13	Feeling of Palpitations	0.88	1165.5	6215.5	-10.029582	0.000
14	Feeling your heart beat	1	1725.5	6775.5	-8.4754468	0.000
15	Rapid and Shallow breathing	0.8	1361	6411	-9.5481347	0.000
16	Sleeping problems	1.07	1830	6880	-8.4689787	0.000
17	Tingling in hands/legs	0.63	2702	7752	-6.5460473	0.000
18	Tremor in hands/legs	0.58	2007.5	7057.5	-8.4498089	0.000
19	Weight loss/gain	1.16	2430	7480	-6.5820175	0.000
20	Bad memories of the traumatic event	0.83	2522	7572	-6.6421928	0.000
21	Periodic painful dreams	0.51	2628	7678	-6.9202755	0.000
22	Feeling of traumatic events happen again	0.6	2197	7247	-7.801159	0.000
23	Mental and physical discomfort when reminded of the traumatic event (e.g. On the anniversary of the traumatic event)	0.68	2823	7873	-5.9347079	0.000
24	Avoid discussion of that event	0.94				0.000
25	Reduced interest or participation in significant activities	0.7	2418.5	7468.5	-7.1861783	0.000
26	Disconnected feeling from others or reality	0.72	1501.5	6551.5	-9.4960174	0.000
27	No expression of emotions	0.87	2836.5	7886.5	-5.7648494	0.000
28	Pallor (paleness)	0.75	2018	6869	-7.8568646	0.000
29	Decrease urination	0.65	2900.5	7950.5	-6.0315534	0.000
30	Increase blood pressure	0.68	2965	8015	-5.6598844	0.000
31	Sleep deficiency	0.89	2269	7319	-7.3514041	0.000
32	Mental fog	0.56	2394	7444	-7.9265514	0.000
33	Irritability (bad temper)	1.64	1549.5	6599.5	-8.7084646	0.000
34	Abnormal thirst	0.82	1393	6443	-9.7261605	0.000
35	Sugar, carbs craving	0.82	2283	7333	-7.6400906	0.000
36	Abnormal bowel movements	0.6	2851	7901	-5.9023162	0.000
37	Pass a hard stool fewer than three times a week	0.79	2567.5	7617.5	-6.5144951	0.000
38	Strain frequently during bowel movements	0.43	2614.5	7664.5	-6.8741687	0.000
39	A sense of incomplete emptying after a bowel movement	0.59	1932	6783	-8.5897884	0.000
40	Have abdominal bloating or discomfort	0.65	2767.5	7817.5	-5.9968453	0.000
41	Pain in pelvis during passage of stools	0.52	2466	7516	-7.2496083	0.000
42	Moodiness	10.37	1576.5	6626.5	-8.5783119	0.000
43	Agitation, inability to relax	1.8	1108.5	6158.5	-10.147154	0.000
44	Sense of loneliness and isolation	1.13	1282.5	6332.5	-9.4074884	0.000

45	Depression or general unhappiness	1.35	686	5736	-10.886143	0.000
46	Anxiety	1.37	839	5889	-10.546323	0.000
47	Sadness	1.34	953	6003	-10.156692	0.000
48	Feeling insecure	1.54	1448	6498	-9.3225747	0.000
49	Lack of focus	1.11	1659	6709	-8.6377721	0.000
50	Defeat completely	1.11	1287.5	6337.5	-10.040171	0.000
51	Forgetfulness	0.83	1721.5	6771.5	-8.5809798	0.000
52	Crying spells	1.14	1231	6281	-9.7956563	0.000
53	Relationship conflicts	0.96	1755.5	6805.5	-8.4859743	0.000
54	Abnormal laughter	0.94	2692	7742	-6.7002022	0.000
55	Low self-esteem	0.63	2369	7419	-6.9369713	0.000
56	Panic attacks	0.86	2248	7298	-7.6320478	0.000
57	Hyperactivity	0.77	1610	6660	-9.1129141	0.000
58	Obsessive thoughts	1.01	1368	6418	-9.7536687	0.000
59	Repetitive thinking	0.85	1007	6057	-10.108145	0.000
60	Poor judgment (people situation etc)	1.44	1841	6891	-8.1000903	0.000
61	Disorientation	1.23	810	5860	-11.200699	0.000
62	Detachment	0.68	1552.5	6602.5	-9.2917166	0.000
63	Nightmares	0.76	2096	7146	-7.8107379	0.000
64	Difficulty in Thinking	0.67	1711.5	6761.5	-8.6869082	0.000
65	Memory problems	0.78	1918.5	6968.5	-8.100262	0.000
66	Inability to concentrate	0.84	1345	6395	-9.5660867	0.000
67	Seeing only the negative	0.97	1687	6737	-8.8664667	0.000
68	Anxious or racing thoughts	0.92	946	5797	-10.353525	0.000
69	Constant worrying	1.18	955	5905	-10.248365	0.000
70	Relaxation	1.32	4832	9882	-0.4241689	0.671
71	Absenteeism/presenteeism	2.01	1694	6447	-8.5614943	0.000
72	Accidents	0.82	2672	7722	-6.7441007	0.000
73	Inability to delegate	0.53	2543.5	7593.5	-6.8751641	0.000
74	Increased sick days	0.65	2242.5	7292.5	-7.404276	0.000
75	Inefficiency	0.68	1450	6500	-9.4237905	0.000
76	Persistent lateness	0.69	3036	8086	-5.324197	0.000
77	Jumping from one important task to another non important one	0.74	1779.5	6829.5	-8.3405613	0.000
78	Poor decision making	1.06	1649	6699	-8.4972218	0.000
79	Poor interaction with colleagues	1.32	1793	6743	-8.4243243	0.000
80	Reduced work performance	0.7	1644	6694	-8.7657451	0.000
81	Resentment or bitterness	0.73	1462	6313	-9.1234642	0.000
82	Aggression	0.83	2398	7448	-6.6354918	0.000
83	Avoidance behavior	1.22	1664	6714	-8.6316104	0.000
84	Decreased/increased sexuality	0.99	3071.5	8021.5	-5.4746775	0.000
85	Difficulty with relationships	0.49	1587	6537	-8.9972325	0.000
86	Eating fast	0.79	1643	6693	-8.6520753	0.000
87	Eating too much/too little	1.02	1246	6196	-9.5120131	0.000
88	Gambling (bet)	1.13	3091.5	8141.5	-5.6960617	0.000
89	Hostile behavior	0.55	1715.5	6765.5	-9.1204554	0.000
90	Impatience	0.8	1000	6050	-10.33412	0.000
91	Increased alcohol	1.17	4088	9138	-4.1042371	0.000
92	Increased caffeine	0.14	2667.5	7717.5	-6.582076	0.000
93	Increased smoking	0.86	4624	9674	-1.5479411	0.122
94	Losing temper	0.23	1625	6675	-8.5648239	0.000
95	Making mistakes	1.41	1230.5	6280.5	-9.5625339	0.000
96	Nail biting	1.44	3055.5	8105.5	-5.8407438	0.000
97	Poor eye contact	0.73	2629	7679	-6.2743038	0.000
98	Poor personal hygiene	0.89	2881	7931	-6.6900626	0.000
99	Poor time management	0.4	1877.5	6927.5	-8.1884883	0.000
100	Restlessness	0.97	1540	6590	-8.7688326	0.000
101	Risk taking	1.47	3138.5	8088.5	-4.594665	0.000
102	Substance abuse (drug, food, drink etc.)	1.58	3148	8198	-5.5407772	0.000
103	Talking fast	0.57	1315	6365	-9.4086343	0.000
104	Walking fast	1.39	2713.5	7763.5	-5.8063559	0.000

105	Withdrawal from relationships	1.4	1741	6791	-8.771923	0.000
106	Withdrawal from activities	0.72	2791	7841	-5.7367653	0.000
107	Like cozy rooms (deoxygenated places)?	0.87	3168.5	8218.5	-5.083857	0.000
108	Take less than four glass of water?	0.68	4280	9330	-1.844491	0.065
109	Use of medicines daily?	1.09	3302.5	8352.5	-5.2198372	0.000
110	Body temperature variations	0.54	2023	7073	-7.9234449	0.000
111	Feeling of dehydration	0.91	1660	6710	-8.658543	0.000
112	Shortness of breath	0.91	1709.5	6759.5	-8.8970691	0.000
113	Chest pain	0.65	2005	7055	-8.6379925	0.000
114	Irregular heartbeat	0.63	2207	7257	-7.9608252	0.000
115	Hypersensitivity to food additives or other	0.52	2727	7777	-6.9153806	0.000
116	Insensitivity to heat/cold	0.51	2618	7668	-6.7111839	0.000

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 (Lin, 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 furthermore 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 1992, Mates, D 1992 & Plunkett, 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 (Osipow, S. 1998, Beck, D. 1991 Beck, A. T 1998, Brantley, 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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