

Stress and its Complex Work-Rate Performance: A Hybrid Constructional Identification Model Approach using Data Mining Techniques

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Abstract: Psychological complex problems like stress is a nowadays a serious threat to human life according to the recent research outcomes gives a luminous indication that the stress is a cause for severe health issues. stress can be of many forms that can actually creep into the human body like depression, burnout feeling or it can be through the thought process of brain thinking tediously over an issue or it can be effected through noise factors generated by loudspeakers or excessive shouting by the person in distressed mood. The level of stress depends on one person to another person depending on the way of their behavior thinking process of brain like if we take a scenario where a stress level dealing is different to a person who is a layman and the level of stress is indeed differs to a educated person, for a instance according to the random sampling techniques implemented though the survey of students studying in school the stress level differs to secondary level student stress in their academic level to the students in the primary level. The level of stress in there academics differs to the category of student studying in corporate school would be more then the category of student studying in government school. The survey also indicates that the level of stress to the students in urban area is further higher than the level of stress of student studying in rural area.

IndexTerms – Stress Management, Data Mining

1. INTRODUCTION TO STRESS MANAGEMENT

Stress Management has become a most important and valuable technique to boost the employee morale and the company's productivity in all companies. All the organizations have understood that the employees play a key role and they should be out of stress to give a high performance atmosphere. There are varieties of techniques to manage stress in organizations.

High stress jobs refer to work, which involves hectic schedule and complex job responsibilities that result into imbalance between personal and work life. Overwork may affect physical health of individual resulting into ineffective work and dissatisfaction among employees leading to imbalance in family or personal life also. Due to improper job role assignment, improper working conditions, under utilization of skills and organizational politics the employees could be stressed. There are lots of individual stressors like role ambiguity, psychological hardiness, and type of personality that affect the morale of the employees as a whole.

Effective stress management should overcome the stressors and it is obvious that no technique can completely remove stress but only can minimize it to negligible level. And the organizations are trying to minimize and cope up with the stress factors by implementing various trends and techniques in minimizing stress.

HCI (HYBRID CONSTRUCTIONAL IDENTIFICATION) MODEL is a study very useful in finding the stress factors for the employees and to analyze the solution for minimizing the stress effects. The findings and suggestions can be used in all units and other production plants too, which would be helpful for effective maintenance and management of stress of the workforce.

2. STATEMENT OF THE PROBLEM

A study on stress management in HCI (HYBRID CONSTRUCTIONAL IDENTIFICATION) MODEL will be done in the low level of employees because the management of the company feels that the employees working in the machinery units and the production plants face a lot of stress. There are many employees working in day and night shifts. Around 150 employees work in functional floor handling production and machineries. The study examines the individual stressors and organizational stressor in a manufacturing unit HCI (HYBRID CONSTRUCTIONAL IDENTIFICATION) MODEL Limited.

3. THEORETICAL BACKGROUND

Hoskins and Sherry 1 have identified the factors affecting leadership position of staff nurses, Brooks and Jason² has concluded the factors that have relationship with work stress and life of executives. Moffitt and Karen Rogers³ have stated the modeling relationship of stress with job satisfaction, organizational commitment and turnover. Shane and Jon⁴ have studied the various factors that influence the performance of police people. Atkins and Nancy ⁵ has studied the influence of spirituality on work stress. Spinal Matthew F., (2007)⁶

revealed a research in the relationship among commuter stress, work engagement, and proactive behavior of employees. The purpose of this study was to explore driver stress and its relationship with organizational behaviors. First, it sought to determine if there was a relationship between driver stress and work engagement. Second, it was designed to determine if there was a relationship between driver stress and personal initiative at work. Third, it sought to determine if there was a relationship between driver stress and learning- goal orientation. Mierswa and Mark⁷ has studied the emotions at work place that create stress and the factors that lead to team work and professionalism. Sims and Doreen⁸ have examined the job factors and impact on behaviors of personnel of front line social service. Collins, Allison E.,⁹ studied promoting well-being in the workplace which was a tailored approach to stress management. Work stress is associated with profound individual and organizational consequences Peg Games¹⁰ have highlighted the positive factors of stress. Philip dewed and Michael O'Driscoll¹¹ has studied various interventions and triggers of stress. James Striker; Leonard Dim berg; Bernhard H Lies¹² studied the individual and organizational perspectives of stress. Fitzgerald, Shillelagh, (1991)¹³ studied the stress- illness relationship among managers The investigation of the factors that contribute to health and illness is one that inherently involves psychological as well as physiological processes. The main purpose of this research was to investigate the links between two factors - burnout and illness - and range of personality and environmental conditions

4. RESEARCH METHODOLOGY

The data collection involves both primary and secondary data collection and they are collected from the respective sources. The primary data is collected by the help of a questionnaire from Low level employees of organization (Work associate, learners and Area leaders) comprising of organizational factors and individual factors of stress. The secondary data is collected from online database, books and the journals available as sources of information.

4.1 Sampling method

There are around 280 employees in the lower level region and they are to be analyzed for stress management effectiveness of which there are three categories namely

- Work associates-133
- Learners-102
- Area Leaders-48
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The Sampling method followed is stratified random sampling and data is collected from 85 employees under the required field of analysis based on various strata like work associates, learners and area leaders.

Table: 1 Demographic classification of the respondents

Age (yrs)	%	Educational level	%	Experience (yrs)	%	Income level (Rs)	%	Gender	%	Marital status	%
21-30	17.6	ITI	2.4	1-5	4.7	5k-7k	16.5	Male	68.2	Married	45.9
31-40	14.1	Diploma	5.0	6-10	9.3	8k-10k	4.7	Female	31.8	Single	54.1
40-50	36.5	PG	1.2	10-15	11.1	11k-13k	21.2				

Source: Primary Data

Table: 2 Descriptive statistics of demographic variables

Particular	N	Mean	Std. Deviation
Age	88	2.94	1.087
Gender	88	1.31	.464
Marital status	88	1.56	.500
Educational level	88	2.49	.567
Experience	88	3.23	.867
Income	88	3.47	.970

Source: Primary Data

The above table shows details regarding the educational qualification of the workers in the work associate department. About 50.5% of the employees were found to be diploma holders and the second highest 45.9% was found to be UG holders. Only 2.4% of the workers are found to be with ITI and the least was 1.2% of workers with the PG degree.

The experience levels of the work force were also examined. The organization is actually gifted to have the highest percentage of workers of about 34.1% who have already served 15 years and above in the same organization. This shows the loyalty level of the employees. Then the second highest cadre is found in the 6-10 years of experience level (32.9%). Then comes the category of 11-15 years served employees ranking third with 28.3% of employees. The last is the 1-5 years of experience level where the percentage is found to be very less i.e. 4.7%.

The above table reveals further details regarding the income level of the employees under the survey group. 57.6% of the respondents were in the Rs.13000 and above group due to their service level and the experience level in the organization. The second highest

is 21.2% of the employees who were in the Rs.11000 – 13000 group. The least was 4.7% in the Rs.8000-10000 group and 16.5% was found in the Rs.5000-7000.

Table: 3 Reliability Statistics for demographic variables

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.099	.015	6

Source: Primary Data

From the value Cronbach's Alpha.099 it known that the reliability of the scaling used for determining the stress level is appropriate and reliable.

Table 4 Percentage analysis of Organizational stressors

Particulars	Strongly agree (%)	Agree	Neutral	Disagree	Strongly disagree	Total
Job role	0	4.7	18.8	31.8	44.7	100
Company infrastructure	0	0	14.1	58.8	27.1	100
Leadership (task oriented)	0	0	47.1	43.5	9.4	100
Timing of the job	9.4	0	9.4	68.3	12.9	100
Salary allowances issues	0	0	5.9	36.5	57.6	100
Incentive issues	0	0	23.5	61.2	15.3	100
Transport	0	9.4	45.9	30.6	14.1	100
Canteen facilities	0	17.6	30.6	30.6	21.2	100
Refreshment facilities	0	23.5	5.9	44.7	25.9	100
Noise pollution	13	37.6	15.8	16.5	17.1	100
Lack of participative mgmt	0	5.9	21.2	57.6	15.3	100
Job prone to physical threats	12.9	10.6	22.4	15.3	38.8	100
High targets and high concentration	45.9	17.6	12.9	9.5	14.1	100

Source: Primary Data

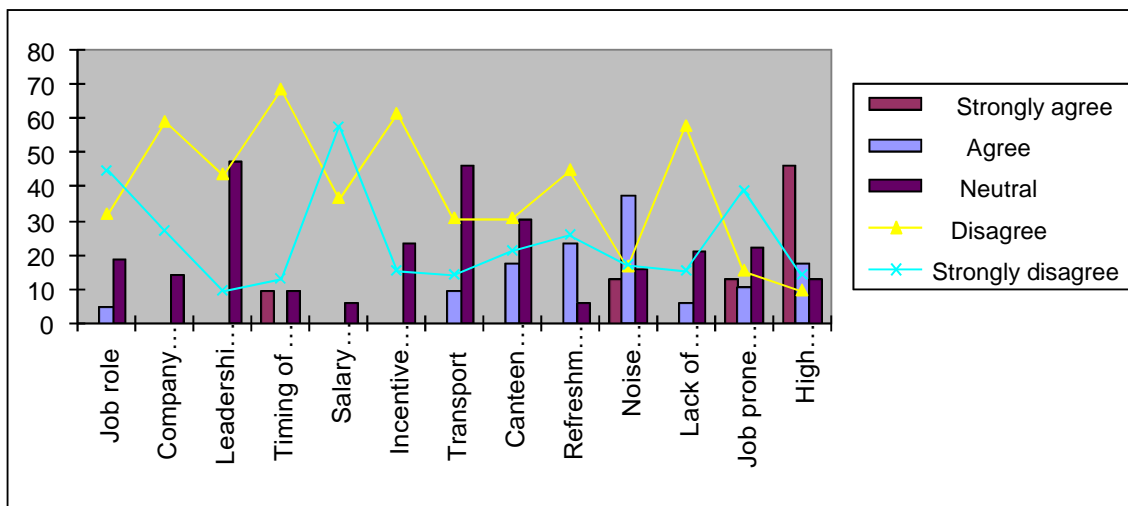


Chart: 1 Percentage analysis of Organizational stressors

Organisational stressors (table: 4 and chart: 2) have a significant importance. There is a considerable amount of investment in human resources in an organization

And it increases if people work in unhealthy and stressful environment. Organisational culture that leads to “dysfunctional culture”. When the human resources have negative view, stressed, they feel worthless in working such organization. They also show less interest in achieving organizational objectives along with individual objectives .the self esteem of the individual is lost and self-pity and stress is results in lesser productivity, creativity and job dissatisfaction

This table 2 and chart: 1 is helpful in analyzing the various organizational factors that create impact on stress level of employees... Various factors like job role, company infrastructure, leadership type, timing of the job, salary issues, transport and canteen facilities, recreation facilities, noise pollution, lack of participative management, job prone to physical threats, high targets etc. In the percentage analysis, each and every factor is analyzed. And the percentage of people agreement and disagreement are clearly identified.

About 37.6% of the respondents have said noise as a stressor. About 17.6% of the people agree that the high targets and high concentration creates stress. 57.6% of the respondents have said that salary allowances are not a stressor in the organization.

Above all these factors 45.9% of the people accept strongly that high target is one of the major stressors of the organization. Work pressure and targets are UN avoidable in the work place but if it becomes excessive and unmanageable it creates stress and it can damage employee’s health and ultimately business performance. High targets can be a reason if there is mismatch between the work demand on one hand and employee potential, skill level on the other hand. As per WHO (1986) health doesn’t mean that absence of disease but also mental and physical well-being.

Excessive and unmanageable targets are due to poor planning and work design. Based on research, work related hazards can be monotonous job, long duration of job and Heavy targets and work load. Further two hypotheses has been formulated to test the significant relationship of the organizational and individual factors of stress with age

Null hypothesis: 1 there is no significant relationship between age and organizational factors.

Table: 5 ANOVA showing the relationship between age and organisational stressors

Particulars	Sum of Squares	do	Mean Square	F	Sig.
Between age	10.523	3	3.508	2.560	.060
Within organizational stressors	115.102	84	1.370		
Total	125.625	87			

Source: Primary Data

From the above table 3 is clear that calculated value is 2.560 and table value is 2.713, and it is more than the calculated value so the null hypothesis is accepted. Age does not play a predominant role with organizational stressors. The common view point that aged people are over stressed compared with newly hired young employees. But the organization stressors are more hectic and it creates an imbalance in personal life and it act as a root cause for employee stress at all levels of age. It also creates health problems and leads to ineffective work, absenteeism, aloofness, role ambiguity and dissatisfaction. Conflicting demands and dissatisfaction in

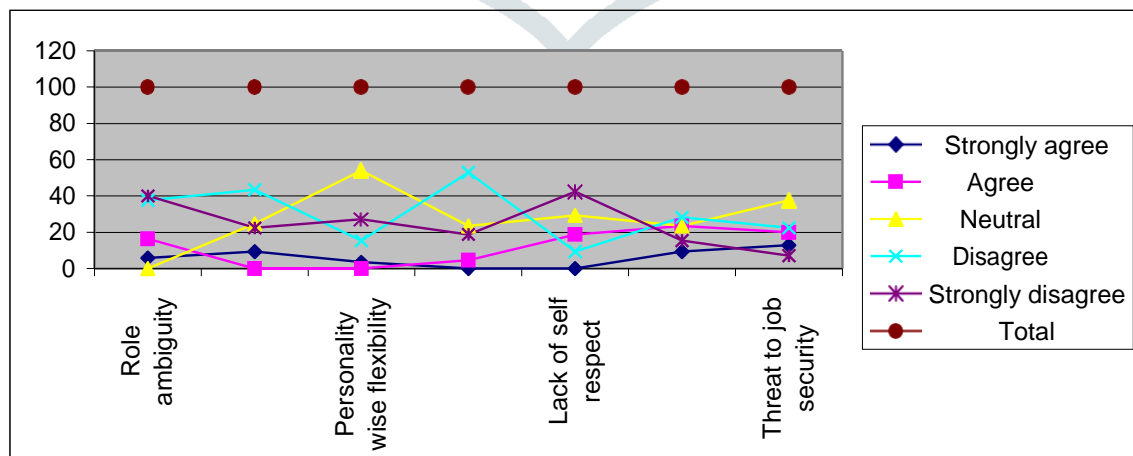
job will make the person to lose the control over health ,which has no significant relationship with age .The expectation from job varies with age, the cause of stress also varies, but stress is constant at all levels of age.

Table 6 Percentage analysis of the Individual stressors

Particulars	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
Role ambiguity	5.9	16.5	0	37.6	40	100
Psychological hardiness	9.4	0	24.7	43.5	22.4	100
Personality wise flexibility	3.5	0	54.1	15.3	27.1	100
Personal life factors reflected to work	0	4.7	23.5	53	18.8	100
Lack of self respect	0	18.8	29.4	9.4	42.4	100
If affected by bodily diseases	9.4	23.5	23.5	28.2	15.4	100
Threat to job security	12.9	20	37.6	22.4	7.1	100

Source: Primary Data

Chart: 2 Percentage analyses of the Individual stressors



This table 5 and chart: 2 are helpful in analyzing the perception of people towards the individual factors that have an impact on stress level. Among the reasons bodily

diseases, lack of job security and role ambiguity are noted factors that create stress in. In the percentage analysis, each and every factor is analyzed and the percentage of people agreed and disagreed are clearly found out.

This table clearly shows that 12.9% of the total respondents strongly agree that the threat to job security is one of the major factors of stress. 20% of them agree that job security is a factor of stress if not provided by the organization. 42.4% of the employees agreed that the lack of self respect is never a stressor in the organization. 40% of the respondents strongly disagree to the fact that the role ambiguity in the organization creates a stress. Their view is to reveal that the role ambiguity is not an issue in the organization.

Null hypothesis: 2 There is no significant relationship between age and individual factors.

Table: 6 ANOVA showing the relationship between age and Individual stressors

Particulars	Sum of Squares	do	Mean Square	F	Sig.
Between age	4.918	3	1.639	.214	.887
Within individual stressors	644.672	84	7.675		
Total	649.591	87			

Source: Primary Data

From the above table 5 is clear that calculated value is .214 and table value is 2.713, and it is more than the calculated value so the null hypothesis is accepted. The stress affects each person individually irrespective of the age level. The tolerance level to cope with stress varies with age for the individuals.

Table: 7 Reliability Statistics for organisational variables and individual variables that create stress

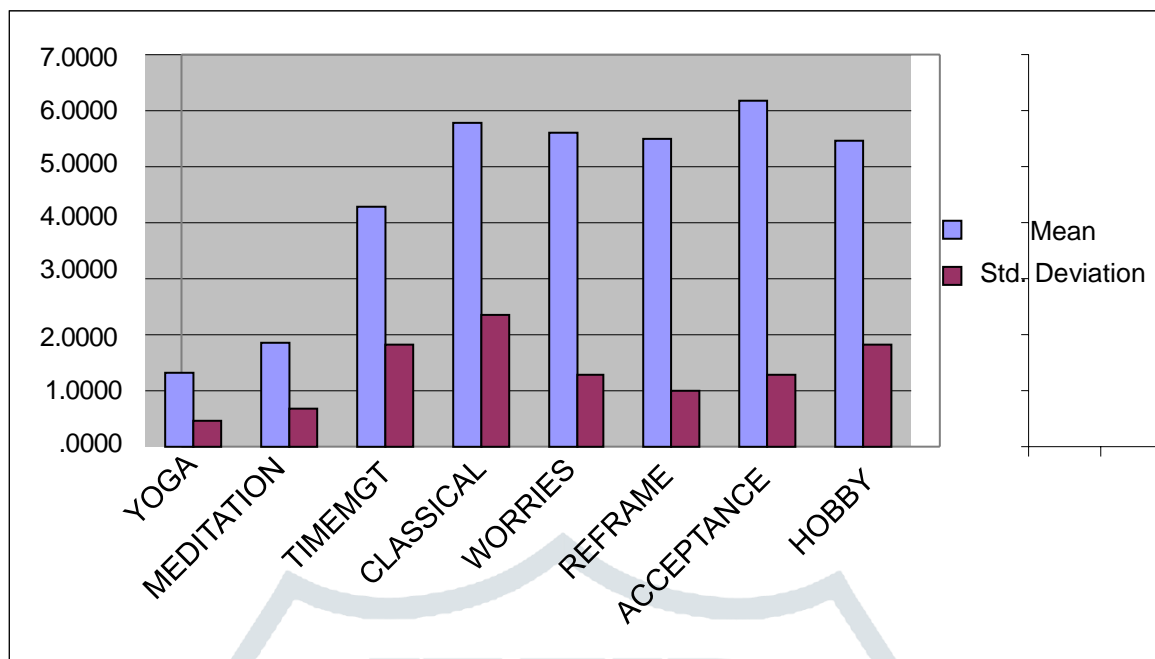
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.210	.260	20

Source: Primary Data

From the value Cronbach's Alpha .210 and it is known that the reliability of the scaling used for measuring the impact of organisational stressors and individual stressors on individuals is appropriate and reliable. Hence, the conclusion that the level of age together with the organisational and individual stressors has no association with stress among the individuals is proved.

Table: 8 coping methods to stress- Life style management Techniques

	N	Mean	Std. Deviation
Yoga	88	1.3182	.46844
Meditation	88	1.8409	.67613
Time management	88	4.2955	1.83928
Classical music	88	5.7727	2.36705
Worries	88	5.6023	1.30022
Reframe of strategies	88	5.5114	.99417
Acceptance	88	6.1932	1.30303
Hobby	88	5.4659	1.80643



The personality and personal well being determines what sort of perception and mindset individuals need to cope with stress. An integrated holistic approach is needed to increase the positive urge or energy with in individual, which let out stress. The composition of Yoga, Meditation, Time Management, Classical Music, Distinguishing productive and unproductive worries, Stop the action and reframe, Acceptance, Getting in to a hobby called “Life style management Techniques”.

The respondents are surveyed (table: 6 and chart: 3) and they are asked for the suggestions to recover from stress in their organization. Among the 85 respondents surveyed, 85% of them have said that they are in need of yoga and 82 % need to have formal procedural meditation training to keep them free and fit mentally without stress. The next maximum recommendation goes to the option of time management, classical music, distinguishing productive and unproductive worries; stop the action and reframe, acceptance getting in to a hobby.

5. RESULTS

The major findings from the study are, the stress management survey revealed the following details. 17.6% of employees are of the age group 21-30 years. The least crowded group is in the organization 31-40 years i.e. 14.1%. The largest group is 50&above group (36.5%). Then 31.8% of total people are found in the age group 41-50 years.

Under the considered sample of 85 respondents, 68.2% of the workers were male and the remaining 31.8% were females. The survey also helped in knowing the marital status of the employees i.e. 54.1% of the workers was single and 45.9% were family men. About 50.5% of the employees were found to be diploma holders and 45.9% of the respondents were found to be UG holders. Only 2.4% of the workers are found to be with ITI and the least was 1.2% of workers with the PG degree.

The organization is actually gifted to have the highest percentage of workers of about 34.1% who have already served 15 years & above in the same organization. Percentage of 1-5 years of experience level is found to be very less. 57.6% of the respondents were having an income of 13k& above. 21.2% of the employees were in the 11k – 13k groups. The least was 4.7% in the 8k-10k group and 16.5% was found in the 5k- 7k groups. These were the categories of the respondents surveyed.

From the data analysis performed from the collected primary data some of the major findings can be written as follows:

Only 4.7% of respondents agree that job role is a stressor in organization, 9.4% accept that due to commuting problems the stress occurs and the 37.6% agree that the noise pollution is also one of the major stressors. About 17.6% of the people agree that the high targets and high concentration creates stress. 57.6% of the respondents have said that salary allowances are not a stressor in the organization. About 38.8% of the employees interviewed said that the job is not prone to physical threats and hence that cannot be a stress factor. Above all these factors 45.9% of the people accept strongly that high target is one of the major stressors of the organization.

Discussing about the Individual factors contribution to stress, 12.9% of the total respondents strongly accept that the threat to job security is one of the major factors of stress. 42.4% of the employees surveyed, say that the lack of self respect is never a

stressor in the organization. 40% of the respondents strongly disagree to the fact that the role ambiguity in the organization creates a stress. Thus these are the major findings of the research done at the lower level of the employees in HCI (HYBRID CONSTRUCTIONAL IDENTIFICATION) MODEL Ltd Viralimalai

It is very difficult for the organization to provide a work environment with less stress individuals should envisage some coping strategies to balance their work and personal life.

6. CONCLUSION

Thus the effectiveness of the stress management in HCI (HYBRID CONSTRUCTIONAL IDENTIFICATION) MODEL Ltd is surveyed using a questionnaire and interviewing method. And the data collected are analyzed and the solutions and recommendations suggested by the employees are enlisted. The stress management is a leading fact that each and every organization should concentrate so that they can keep an eye on their performance and productivity.

The organizations should be a watch dog in the stress management process. All the employees regardless of his age, gender, experience, income, or any other priority should be treated equally and the business tactic of managing without any dissatisfaction is necessary.

Managing stress. This trend will definitely lead to empower employees which is the aspiration of not only HCI (HYBRID CONSTRUCTIONAL IDENTIFICATION) MODEL Ltd but for all the companies.

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