



## Stress and Coping Techniques among Employees of Sugar Mills in Tamilnadu

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### Abstract

Occupational stress is a global issue with implications for employees, business and society. If stress is not managed properly, it will cause ill effects to both employee and the organization. It is essential for all the organizations to provide stress management facilities to their employees and it is important for the employees to use a variety of coping strategies personally to manage stress. This study strives to explore the work stress and coping strategies among 330 employees in five sugar mills spread over Erode, Namakkal and Karur districts of Tamil Nadu. Structured questionnaire was used to collect data from the employees. The present study indicated that the profile variables which are significantly associated with the stress symptoms are age, experience, income, marital status and numbers of dependents of employees. Being worried is the top ranking stress symptom for cane officers and being short tempered is the dominant stress symptom for cane inspectors. Shortage of labor for harvesting sugarcane is the top most stress causing factor among the employees. The dominant health problem among cane officers and cane inspectors are headache and poor concentration in work respectively. Back pain is the second major health problem for both the categories of employees. Depression and stomach disorder are the other important health related problems. Positive correlation is found between stress symptoms and physical and mental health problems. Quarrelling with family members is the dominant behavioral change among the employees which is followed by seeking help from others. The most important stress coping strategies identified are positive thinking, prayer and conversation with likeminded persons.

**Keywords:** Cane Officers, Cane Inspectors, Stress Symptoms, Impact of Stress, Coping Strategies.

**JEL Classification:** I10

**Paper Classification:** Research Paper

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### Introduction

Human resources symbolize the total of inborn talent, capability and acquired knowledge represented by the ability and aptitude of the employees. In this age of globalization and



liberalization, competition among organization has increased and every employee spends most of his/her time on work. Employees have utmost responsibility to take care of work related activities, dealing work pressures, maintaining personal relationships, personal finance and changes. All these aspects of contemporary living can be extremely stressful, which force high physical demands and emotional costs on the employees' well-being. Du Brin (1996) opined that there is no job without potential stressors for some people. It is essential for the employees to keep stability among work and their personal survival so that both employees and the employer benefit in the long term. To handle stress, first, the employees should learn to recognize it. The stress symptoms usually vary from one person to another. Some people largely experience physical symptoms while some persons experience mental symptoms. Stress management is required when an individual is unable to cope with the demanding environment. Coping is an alleviating factor, which help people to maintain physical and mental health during pressurized periods. It includes various intellectual activities and efforts to reduce and or eliminate distress.

### **Statement of the Problem**

Stress is the state marked by a specific condition that consists of all the non-specifically induced changes within a biologic system. Every employee needs to have an understanding of his/her own stress inducing thoughts, feelings and behaviors. The stress that an employee faces in the workplace badly affects the productivity of an organization and decreases the health of individuals. In fact, every industry has its own exclusive set of problems and causes of stress. The sugar industry plays a crucial task in developing rural areas by activating rural resources, generating employment opportunities and creating transport and communication facilities. More than 500 sugar mills are functioning all over India. Hence a study is undertaken in sugar mills.

Each mill has different departments like Engineering, Processing, Accounting, Human Resources, Finance and Cane department. In cane department, cane inspectors are responsible for planting sugarcane, harvesting, and managing field workers. The cane officers have to ensure regular supply of sugar cane to sugar mills. Both cane officers and cane inspectors occupy crucial position in sugar mill as they serve as connecting link between the cane growers, field workers and sugar mill. Hence, the study is made from the point of view of cane officers and cane inspectors.

Coping techniques are the psychological and social means by which people deal with stress. Stress management is helpful when a person makes use of specific strategies to cope with stress. The study is an analysis of experience and attitude of the respondents towards the impact of stress and their strategies to cope up with the stress.

### **Review of Literature**

Dhanalakshmi (2008) intended to study the stressors as well as to measure the extent of stress among conductors and drivers from the administrative office in the two branches of Tamil Nadu State Transport Corporation in Coimbatore. It was identified that the employees experienced fair amount of stress and the factors identified were health conditions, working conditions, monetary benefits, timing of work and grievance redressal. The stress was influenced by the pressure inherent in the job such as handling the public commuters and the condition of the bus. It had been felt that the management of the Corporation, in order to stand the competition has gradually started making the employees accountable for each commuting trip they operate. The pressures on the employees' made them feel insecure. The study suggested that the employees may become more passenger-friendly to facilitate the good experience of the bus travel.

Mulki, Jaramillo & Locander (2008) tried to examine the consequence of ethical climate on job outcomes. The research was conducted with 208 service employees in health department in

Southeastern United States. They stated that healthcare employees were operated under extremely stressful circumstances resulting from heavy work demands, inadequate resources, and sensitive interactions with customers. The study had analyzed that the association between ethical climate and turnover intention was completely intervened by role stress, interpersonal conflict, emotional exhaustion, trust in supervisor, and job satisfaction. It was found that ethical climate had condensed role stress and inflated reliance in supervisor. Lower stress intensity had resulted in lower emotional exhaustion, higher job satisfaction and lower turnover intention. They also stated that supervisor trust had reduced interpersonal conflict and emotional exhaustion. The study suggested that organizations can encourage their employees with certain ethnicity that builds commitment and moral code of conduct.

Gupta & Adhikari (2008) explained about the stress associated among nurses in West Bengal. The study had given importance to two factors: 'role demand' and 'role performance'. According to them, the imbalances between these two factors had produced stress for the individual in many occasions. The study had showed that the set up in government hospitals in West Bengal depicted a massive stress posted among nurses in their routine tasks. It was found that role expectation conflict, inter-role distance and role overload were the highest contributing factors that caused stress. The study noted that both physical and physiological impacts of stress were found to be in greater extent. It was concluded that the nurses should essentially keep their health in a good condition to tackle stress.

Carlan & Nored (2008) explored that counseling could reduce officer stress in police departments. A sample (n=1,114) of police officers in Alabama were taken for the study. The researchers pointed out that the officers had haunted with reasonable stress subjective to demographic variables such as race and gender. The study showed that female police officers faced more stress when compared to male police officers. Likewise white male officers faced extreme amount of stress than African-American male officers. Most of the police officers stated that symptoms of stress were to be identified. It was also stated that good working environment and counseling sessions had remarkably cut down stress. The study suggested that there should be periodic counseling for police officers to cope with stress.

Noor (2008) analyzed the antecedents of turnover intentions among 248 employees working in marketing field in Pakistan. The study had identified that people disliked changes in their ongoing policies, timetables, daily schedules in their work due to the stimulation of increasing turnover intentions. She had noted that lack of awareness and job dissatisfaction guide a person to have less commitment towards work. The study strongly supported that the employees who experienced even a little amount stress in their current position had intentions to give up their job. According to her, there was a positive correlation found between work-life conflict and stress with higher turnover intentions. She suggested that the employees required redesigning of their schedules frequently.

Park, Min, Chang, Kim & Min (2009) examined the connection between depression and work stress among Korean employees working in various firms in Incheon, South Korea. The study identified that work stress contributed to a greater risk of depression and occupational climate and showed a significant relationship in both genders. It was noticed that job insecurity had reflected negative changes in their work conditions and occupational climate had caused trouble in job opportunities, negative culture, thoughtless and conflicting job requirements and gender favoritism. The study also revealed different effects like poor planning, lack of support from co-workers and improper recognition that were associated with depressive symptoms for males whereas organizational injustice was correlated with depressive symptoms for females. The study concluded that more investigations are required to eliminate work stress and health problems among Korean employees.

Wickramasinghe (2010) analyzed the importance of coping strategies and the association between work dimensions and job stress among 385 employees working in different enterprises in Sri Lanka. In the study, factor analysis identified important coping strategies such as positive thinking, smooth working environment, social support and entertainment. It was found that both positive thinking and smooth working environment produced the association between 'relationships with others' and 'stress'. The study also revealed that there was no association found between 'stress' and the other 'work-related dimensions'.

Dar, Akmal, Naseem & Khan (2011) identified the factors affecting stress and also examined the relationship between the occupational stress and work performance of 143 employees of different multinational companies, universities and banks in Pakistan. The study revealed that job stress brings some impacts such as under-estimation, workplace discrimination, lack of role clarity, worry about job insecurity, upsetting events at organization and financial unsteadiness those results in inattentiveness, mind upset and deprived decision-making abilities. The study explored that male employees had more stress exposure than their female counterparts. The study concluded that the work stress condensed the employees' job performance and motivation level.

Malik (2011) examined the impact of occupational stress produced upon 200 employees from private and public banks in Quetta City. The study noted that work stress was found in great extent among private sector bank employees compared to public bank employees. The study also noted that the tight workload and schedules were the stressors among employees in private banks. The study indicated that in both sectors role burden, role authority, role conflict and poor support from superiors were found to be the major stress factors among different occupational stress variables. The study concluded that the bank employees could not find enough time to take rest when they were carried out too much responsibility, work multiplicity, unfairness, partiality and inconsistent tasks.

Hazrati, Karimi, Hasani, Dalvand & Soltani (2012) investigated the effectiveness of stress management training on women nurses employed in Golestan, Razi, & Abuzar Hospital of Ahvaz University of Medical Sciences. The training covered three dimensions such as distressing fatigue, lack of individuality and private execution. The women nurses were grouped into control group and experimental group. The first group did not attend the training sessions. The second group had attended nine sessions of cognitive behavioral training. Finally, the study confirmed that the training had been helpful for getting better from burnout and also for proving individuality and mounting private execution among members of experimental group when compared to control group.

Rabe, Nubling & Giacomuzzi (2013) studied the mental stress among 309 work council members in Germany and compared them to the average of all professions. The study indicated that the work council members experienced increased mental stress when compared to the average of all profession members. The study noted that stress level varies between full-time and volunteer work councils. Likewise, perceived job demands change considerably among work council members due to the profession. The study confirmed that high mental stress had augmented in making crowd, leadership traits, lack of job security and support from colleagues. The study recommended that preventive measures to be taken for the work council members to meet specific demands and to reduce psychosocial stress and strain.

Swaminathan & Rajkumar (2013) examined the stress factors among 250 working professionals from entrepreneurial ventures, companies, banks and educational institutions in Chennai. They identified some stress factors such as extent of freedom in workplace, office politics and

environment of trust or mistrust. Their study found that office politics was a major stress among the employees. It was understood that high stress levels were found among the respondents having own businesses and respondents with experience of more than 20 years. While considering the nature of work, the field job involved high stress due to meeting targets, frequent travel, meeting all types of clients, working at irregular hours, day to day reporting and strict control by top management. The study suggested that excellent rapport with co-workers shrinks office politics and encourages understanding.

Zyl, Eeden & Rothmann (2013) investigated the emotional reactions and behavioral reactions to job security of employees (N= 242) working in a private hospital in Gaiiteng, South Africa. The study showed that job insecurity was connected with job stress. The study noted that affective job insecurity was positively correlated with detachment from the organization, while cognitive job insecurity was strongly related to low identification with the organization. The study concluded that employees who experienced cognitive job insecurity showed only little interest in applying coping strategies whereas employees who experienced affective job insecurity, job stress, and low organizational commitment showed more interest in applying coping strategies.

### **Research Gap and Contribution of Present Study**

In fact, every industry has its own unique set of problems and sources of stress, and stress should be necessarily reduced. The present study about stress management in sugar mills will help to increase the employee's efficiency and organizational effectiveness by knowing major factors that are causing stress in their job and suggesting them to cope by adopting suitable stress management techniques. Previous studies of stress management were focused on employees in banks, educational institutions and entrepreneurs, which reveal stress factors in their corresponding areas. There are not many studies undertaken in sugar mills regarding stress management in Erode, Namakkal and Karur districts of Tamil Nadu. Hence the present study was undertaken.

### **Objectives of the Study**

The study has the following objectives.

1. To explore the relationship between profile variables and stress symptoms of employees.
2. To find out the dominant stress symptoms experienced by the employees.
3. To examine the causes of stress among cane officers and cane inspectors.
4. To study the impact of stress on the health of the employees.
5. To understand the coping strategies adopted by the employees.

### **Research Methodology**

The intent of the study is to explore the stress factors and coping strategies among the employees in the five sugar mills in Tamil Nadu. A pretested questionnaire was administered to collect the opinion of the respondents.

### **Research Design**

This is an empirical study based on survey method. In this study, the researcher used ex post facto research design for identifying causes and impact of stress among employees in the sugar mills at present condition. The prediction of study factor is not attempted by using the present research design.

## Data

The following data was used in the study:

**Primary Data.** Two questionnaires, one in Tamil and other in English, were prepared to collect the data from Cane Inspectors and Cane Officers respectively.

**Secondary Data.** The secondary data were collected from sources such as official records, research papers, conference reports, books, journals, newspapers, magazines and websites.

## Sampling Design

In Tamil Nadu, 43 sugar mills are functioning in 19 districts of which 16 are in cooperative sector, 2 in public sector and 25 in private sector. The present study is confined to Cane Inspectors and Cane Officers from the five sugar mills in three districts, namely, Sakthi Sugars Limited and Bannari Amman Sugars Limited in Erode district, Ponni Sugars (Erode) Limited and The Salem Co-operative Sugar Mills Limited in Namakkal district and E.I.D Parry (India) Limited in Karur district of Tamil Nadu. The five sugar mills in these three districts were chosen for the study as their sugar production as well as man power is more when compared to sugar mills in other districts. For selection of the five sugar mills purposive sampling was adopted. All the 330 employees working in these five sugar mills were included for this study. Census method was adopted. Out of 330 samples, 268 employees are Cane Inspectors and 62 are Cane Officers.

## Reliability Test

Cronbach alpha reliability test was applied and the result was relatively high at 0.77. Therefore, it was found that the questionnaire used for assessing stress symptoms, health problems and the coping strategies was reliable.

## Data Collection Procedure

The researcher had clearly explained the purposes of the study to the divisional heads of each sugar mill and asked them for the total number of employees in each division. The researcher made use of the questionnaire for collecting primary data. Since the employees were located in different areas, researcher had collected data through mail by forwarding to their corresponding division offices. Instead of using the name of each sugar mill, the researcher indicated them by numbers such as 1, 2, 3, 4 and 5. The numbers for each corresponding sugar mill name were only known by the researcher. The researcher got back the mailed questionnaires in direct and through the division offices.

## Data Processing

After completing the data collection, the filled up questionnaires were edited properly to make them ready for coding. Classification tables were prepared with the help of the data recorded into the computer. Statistical package (SPSS) was used to analyze and interpret the data collected. Details of various variables used in study is given in Appendix I.

## Tools Used for the Study

To attain the objectives of the study, various statistical tools were adopted. They are Descriptive Analysis / percentage analysis, Average Score Analysis, Analysis of Variance, t-Test, Garrett Ranking Technique and Simple Regression Analysis.

### Hypotheses

The following hypotheses were framed in the study:

- H01: The stress symptoms do not differ significantly among different education groups;
- H02: The stress symptoms do not differ significantly among different age groups;
- H03: The stress symptoms do not differ significantly between Cane Officers and Cane Inspectors;
- H04: The stress symptoms do not differ significantly among different experience groups;
- H05: The stress symptoms do not differ significantly among different income groups;
- H06: The stress symptoms do not differ significantly between marital status of respondents; and
- H07: The stress symptoms do not differ significantly among number of dependents of respondents.

### Limitations of the Study

The study has the following limitations:

1. Field staff members like Cane Officers and Cane Inspectors in Cane department of five sugar mills were studied. Hence the results may not apply to office staff members, other departments and other sugar mills in Tamil Nadu.
2. Since the employees selected for the study were field staff members and working in different locations with tight deadlines, the researcher had to wait for the questionnaire to be filled. Thus the delay in obtaining filled questionnaire resulted in waste of time in making earlier analysis.
3. Finally, the limitation of the statistical tool applied in the study also influences the findings of the study.

### Results and Discussion

Out of 330 respondents 18.8 per cent of the respondents are Cane Officers and 81.2 per cent are Cane Inspectors. The dominant age group among the respondents is 36 to 45 years, which constitutes 34.8 per cent of the total population. It is followed by 46 to 55 years age group, which constitutes 27 per cent. It is observed that 31.8 per cent of the total respondents hold Bachelor's degree, which is followed by 28.2 per cent with School level education. 26.1 per cent of the respondents have experience of more than 20 years while 23.9 per cent have 11 to 15 years of experience. 40 per cent of the respondents earn a monthly income of Rs. 5,001 to Rs. 10 000. It is followed by the monthly income group of Rs. 10, 001 to Rs. 15, 00 that constitutes 39.1 per cent. 88.8 per cent of the respondents are married. The dominant family type among the total respondents is nuclear family, which constitutes 68.5 per cent, and the respondents from joint family constitute 31.5 per cent. 60.9 per cent of the respondents have less than 4 dependents in their family. It is followed by the respondents with 4 to 5 dependents, which constitute 36.4 per cent.

### Relationship between Profile Variables and Stress Symptoms

Twelve stress symptoms such as moody, irritability, short-temper, accelerated speech, nail-biting, restlessness, lack of confidence, getting confused easily, gain/loss of weight, feeling negative about everything, worrying, nervousness were identified among the respondents. The relationship between the stress symptoms and the personal variables are studied by applying ANOVA and t-test analysis and they are summarized in Table 1.

**Table 1: Relationship between Stress Symptoms and Profile Variables**

Hypothesis No.	Null Hypotheses	Accepted/Rejected	Significant/Not Significant
H01	The stress symptoms do not differ significantly among different education groups	Accepted (F - ratio value =2.345, Table value= 2.399)	Not Significant
H02	The stress symptoms do not differ significantly among different age groups	Rejected (F - ratio value =3.353, Table value= 3.327)	Significant
H03	The stress symptoms do not differ significantly between Cane Officers and Cane Inspectors	Accepted (t - test value 1.562, Table value= 1.967)	Not Significant
H04	The stress symptoms do not differ significantly among different experience groups	Rejected (F - ratio value =4.340, Table value= 3.377)	Significant
H05	The stress symptoms do not differ significantly among different income groups	Rejected (F - ratio value =9.091, Table value= 3.377)	Significant
H06	The stress symptoms do not differ significantly between marital status of the respondents	Rejected (t - test value 5.365, Table value= 2.591)	Significant
H07	The stress symptoms do not differ significantly among number of dependents of the respondents	Rejected (F - ratio value =3.605, Table value= 3.023)	Significant

Based on the results (Table 1) the present study rejects the Null Hypotheses H02, H04 H05, H06, and H07. So it is clear that there is strong relationship between age, experience, income, marital status and number of dependents of employees and stress. The present study accepts the Null Hypotheses H01 and H03. So it is understood that there is no significant relationship between stress and education and cadre of employees.

### Ranking of Stress Symptoms

In order to find out the most important stress symptoms among the respondents, they were asked to rate on a five-point scale. The marks assigned on the scales were 1 to 5 respectively. Based on the marks assigned, the average score was calculated to determine the level of agreeability of the respondents regarding the stress symptoms. The mean score of stress symptoms and rank are presented in Table 2. It is observed from the Table 2 that "worry" is the most important stress symptom for Cane Officers whereas "being short-tempered" is the dominant stress symptom for Cane Inspectors as the mean scores is 2.45 and 2.47 respectively. The second important stress symptom ranked by Cane Officers is "irritability" with mean score of 2.42 whereas for Cane Inspectors it is "worry" with mean score of 2.40. For Cane Officers, "being short-tempered" is the third important stress symptom as the mean score is 2.35 whereas for Cane Inspectors it is "irritability".

**Table 2: Ranking of Stress Symptoms**

S.No.	Stress Symptoms	Cane Officers		Cane Inspectors	
		Mean Score	Rank	Mean Score	Rank
1	Moody	2.23	5	2.06	5
2	Irritability	2.42	2	2.30	3
3	Being short-tempered	2.35	3	2.47	1
4	Accelerated speech	1.94	8	1.66	9
5	Nail biting	1.48	12	1.34	12
6	Restlessness	2.26	4	2.02	6
7	Lack of confidence	1.61	9	1.44	11
8	Getting confused easily	1.97	7	2.08	4
9	Gain/Loss of weight	1.58	10	1.71	8
10	Feeling negative about everything	1.55	11	1.46	10
11	Worry	2.45	1	2.40	2
12	Nervousness	2.10	6	1.81	7

### Causes of Stress among Cane Officers

In order to find the major stress factors among Cane Officers, they were asked to rank the stress factors such as workload, poor salary, time pressures and deadlines, frequent travel, repetitive and boring work, poor and unplanned work, shortage of cane harvesting laborers, unexpected accidents of sugarcane-loaded lorries, lack of career development, feeling of powerlessness, lack of job security and unable to satisfy all stakeholders. The ranks given by the Cane Officers were converted into percentages and the percentage of each rank obtained was converted into scores by referring the Henry Garrett table for each factor. Finally, ranks were assigned and thus important factors were identified. The mean scores of stress factors and ranks are illustrated in Table 3.

**Table 3: Ranking of Stress Factors by Cane Officers**

S.No.	Stress Factors	Mean Score	Rank
1	Workload	60.23	2
2	Poor salary	47.32	8
3	Time pressures and deadlines	59.48	3
4	Frequent travel	51.32	6
5	Repetitive and boring work	40.55	10
6	Poor and unplanned work	40.10	11
7	Shortage of cane harvesting laborers	70.19	1
8	Unexpected accidents of sugarcane-loaded lorries	48.03	7
9	Lack of career development	52.48	5
10	Feeling of powerlessness	43.61	9
11	Lack of job security	35.06	12
12	Unable to satisfy all stakeholders	58.10	4

It is understood from Table 3 that "shortage of cane harvesting laborers" is the most stress causing factor for Cane Officers which is followed by stress factors such as "workload" and "time pressures and deadlines". "Lack of job security" is the last factor according to the views expressed by the Cane Officers.

### Factors Influencing Stress among Cane Inspectors

To find the major stress among Cane Inspectors, they were asked to rank 12 stress factors given in the questionnaire. The ranks given by the Cane Inspectors were converted into percentages and the percentage of each rank obtained was converted into scores by referring the Henry Garrett table for each factor. Lastly, ranks were assigned and thus important factors were identified. The mean scores of stress factors and ranks are given in Table 4.

**Table 4: Ranking of Stress Factors by Cane Inspectors**

S.No.	Stress Factors	Mean Score	Rank
1	Workload	62.68	2
2	Poor salary	57.94	4
3	Time pressures and deadlines	45.72	8
4	Frequent travel	49.06	6
5	Repetitive and boring work	44.22	11
6	Poor and unplanned work	46.95	7
7	Shortage of cane harvesting laborers	62.82	1
8	Unexpected accidents of sugarcane- loaded lorries	37.82	12
9	Lack of career development	44.74	9
10	Feeling of powerlessness	44.73	10
11	Lack of job security	50.56	5
12	Unable to satisfy all stakeholders	61.75	3

Table 4 reveals that "shortage of cane harvesting laborers" is the most stress causing factor for Cane Inspectors which is followed by stress factors such as "workload" and "unable to satisfy all stakeholders". "Unexpected accidents of sugarcane- loaded lorries" is the last factor according to the views expressed by the Cane Inspectors. It is to be noted that the major causes of stress are the same for both the categories of employees.

### Impact of Stress on Health

Stress adversely affects the health of the employees. In the present study, out of 330 respondents, 288 reported that they had health problems due to stress.

### Physical and Mental Health Problems

The health problems among Cane Officers and Cane Inspectors differed significantly. In order to find the most important health problems between the two categories of the respondents, they were asked to rate their health problems in a scale varying from 'never' to 'always'. The marks assigned on these scales were 1 to 5 respectively. The mean score and rank for physical and mental health problems were computed and given in Table 5.

**Table 5: Ranking of Health Problems**

S.No.	Health Problems	Designation			
		Cane Officers		Cane Inspectors	
		Mean Score	Rank	Mean Score	Rank
1	Headache	2.51	1	2.36	3
2	High blood pressure	2.00	8	1.61	12
3	Stomach disorder and Ulcer	2.23	4	2.16	6
4	Chest pain	1.58	12	1.26	14
5	Back pain	2.46	2	2.50	2
6	Skin irritation and allergies	1.73	10	1.66	11
7	Cancer	1.00	15	1.00	15
8	Diabetes	1.46	13	1.70	10
9	Asthma	1.15	14	1.32	13
10	Fatigue	2.08	7	2.14	7
11	Sleep disturbances	2.12	6	1.92	9
12	Anxiety	1.88	9	1.95	8
13	Depression	2.15	5	2.35	4
14	Tendency to remain alone	1.65	11	2.20	5
15	Poor concentration	2.35	3	2.53	1

It is understood from the table 5 that "headache" is the dominant health problem among Cane Officers with a mean score of 2.51, whereas "poor concentration" is for Cane Inspectors with a mean score of 2.53. "Back pain" is the second major health problem for both cane officers and cane inspectors. "Depression" and "stomach disorder" are the other important health related problems.

### Impact of Stress Symptoms on Health

It is highly imperative to analyze the impact of stress symptoms score on physical and mental health problems score for knowing whether stress symptoms have influence over health problems. The respondents were asked to rate the health problems at five-point scale ranging from 'never' to 'always'. The assigned values are starting from 1 to 5 respectively. The mean of physical and mental health problems for each respondent was computed to get overall physical and mental health problem score. Physical and mental health problems are measured in such a way that the higher the score the higher the stress of the respondents. Simple linear regression analysis was administered to study the impact of stress symptoms score on health problems score. The fitted regression model is

$$Y = a + bX$$

where,



Y= Physical and Mental Health Problems Score (Dependent Variable)

X = Stress Symptoms Score (Independent Variable)

b = Regression Co-efficient of Independent Variable

a = Constant

The impact of stress symptoms score on physical and mental health problems score among the respondents is presented in Table 6.

**Table 6: Impact of Stress Symptoms on Health Problems**

	Regression Coef- ficient (b)	Std. Error	Correlation (r)	t	Sig.
(Constant)	6.249	2.413			
Stress Symptoms Score	0.814	0.102	0.402	7.963	Significant

The simple regression table shows that there is a moderate level of positive correlation between stress symptoms score and physical and mental health problems score ( $r=0.402$ ). The regression co-efficient found for stress symptom score is 0.814. This indicates that stress symptoms score affects physical and mental health problems score positively. That is, when the stress symptoms score increases by 1, the corresponding increase in physical and mental health problems score will be 0.814. The t – test result shows that the regression co-efficient is significant at 1 per cent level. Thus, from the above analysis, the following observation could be made. The physical and mental health problem score is positively and significantly associated with the stress symptoms score, which means that stress symptoms have influence over health problems.

### Behavioral Changes

The behavioral responses are vital in identifying the magnitude of stress that brings an innate set of physiological changes among the employees. It is a fact that physical and mental health problems will lead to behavioral changes. The respondents, who were suffering from health problems due to stress, reported that they had behavioral changes in them. To determine the dominant behavioral changes among the respondents their responses are shown in Table 7.

**Table 7: Behavioral Changes of the Respondents**

S.No.	Behavioral Changes	Number of Respondents		Total
		Yes	No	
1	Frequent hospitalization	111 (38.5)	177 (61.5)	288 (100)
2	Increased smoking	72 (25.0)	216 (75.0)	288 (100)
3	Excessive alcohol	73 (25.4)	216 (74.6)	288 (100)
4	Drug addiction	3 (1.0)	285 (99.0)	288 (100)
5	General proneness to accidents	37 (12.9)	251 (87.1)	288 (100)
6	Under eating /over eating	97 (33.7)	191 (66.3)	288 (100)

(Continued)

7	Frequent crying	26 (9.0)	262 (91.0)	288 (100)
8	Withdrawal from relationships	100 (34.7)	188 (65.3)	288 (100)
9	Consumption of supari/tobacco items	34 (11.8)	254 (88.2)	288 (100)
10	Gambling	4 (1.4)	258 (98.6)	288 (100)
11	Suicidal tendency	10 (3.5)	278 (96.5)	288 (100)
12	Violence	18 (6.3)	270 (93.7)	288 (100)
13	Quarrel with family members	181 (62.8)	107 (37.2)	288 (100)
14	Seeking help from others	133 (58.0)	155 (42.0)	288 (100)
15	Poor performance in job	99 (34.4)	189 (65.6)	288 (100)

From the table 7, it is clear that “quarrelling with family members” is the dominant behavioral change among the respondents that constitutes 62.8 per cent of the total which is followed by “seeking help from others” that constitutes 58 per cent.

### Ranking of Coping Strategies

In the present study, twelve important coping strategies have been identified and they are yoga, meditation, physical exercise, entertainment, being away from stressful environment, sleep, speaking with likeminded persons, playing with pet animals, prayer, medication, positive thinking, time management and tour. To know the most important coping strategies followed by the respondents, they were asked to rate their coping strategies in a scale starting from ‘never’ to ‘always’. The scores assigned on these scales were 1 to 5 respectively. The mean score and rank for coping strategies were computed and shown in Table 8.

**Table 8: Ranking of Coping Strategies**

S.No.	Coping Strategies	Cane Officers		Cane Inspectors	
		Mean Score	Ran	Mean Score	Rank
1	Yoga/Meditation	1.93	10	1.72	11
2	Physical exercise	2.54	6	2.03	9
3	Entertainment	3.19	4	3.03	5
4	Away from stressful environments	2.22	8	2.56	6
5	Sleep	2.12	9	2.17	8
6	Speaking with likeminded persons	3.38	3	3.22	3
7	Playing with pet animals	1.35	12	1.50	12
8	Prayer	3.83	2	3.25	2
9	Medications	1.80	11	1.81	10
10	Positive thinking	3.87	1	3.14	1
11	Time management	2.87	5	3.09	4
12	Tour	2.25	7	2.28	7

It is understood from the Table 8 that “positive thinking” is the most important coping strategy for both Cane Officers and Cane Inspectors with mean scores of 3.87 and 3.14 respectively. It is followed by “prayer” and “speaking with likeminded persons”.

### Suggestions

The important factor that causes stress to the employees is shortage of cane cutting/harvesting workers. This problem is mainly aggravated due to the workers’ changing attitude since laborers are not interested to work in the field nowadays. Many of the laborers migrated from their places to work in textile mills, construction and other industries. The sugar mills may take steps to set right this problem. In the situation where shortage of cane harvesting laborers exists, cane harvesting machines may be used to harvest sugar canes. So sugar mills may introduce cane harvesting machines. The company may take some measures like conducting time management program so that the employees learn how to manage their own time and that will lead them to improvement in the quality of job. The employees should know their own roles and responsibilities in the workplace, they should avoid procrastination, prioritize their tasks when they have to complete a few tasks at the same time and allocate specific time for performing each task.

The study reveals that the facilities provided by the sugar mills are not utilized by all employees for relieving stress. The employees should be educated to use the existing facilities offered by their organization. Also the employees should essentially follow some other suitable coping strategies to manage stress in order to avoid health related issues, behavioral changes and decreased job performance. Corporate fitness programs and health programs may be provided to foster a safe and healthy work environment which will reduce absenteeism and sick leave among employees.

Those employees who do the field work and record all information about farmers, area of sugarcane plantations, visit farmers, draw field maps and trip sheets for lorry drivers, have to do a lot of paper work. Paper work results in additional workload for the employees. There is a need to reduce paper work by using computers. Most of the employees reported shortage of Cane Inspectors as the major workload factor. Therefore the sugar mills may consider this problem and allot exclusive staff for procuring labor for cane harvesting.

### Directions for Future Research

1. The present study focuses on employees’ stress in five sugar mills in three districts of Tamil Nadu. The five sugar mills in these three districts were chosen for the study as their sugar production as well as man power is more when compared to sugar mills in other districts. Since the employees selected for the study were field staff members and working in different locations with tight deadlines, and based on sugar production as well as man power, only five sugar mills in three districts were considered. So the future studies may focus on employees stress in the remaining sugar mills in other districts to know the employees’ stress factors, health issues and coping strategies adopted in those organizations.
2. A comparison of stress problems faced by field staff members and office staff members in sugar mills may be studied.
3. Based on sugar production as well as man power, sugar mills in three districts in Tamil Nadu were chosen for the study. Considering the same factor, a comparative study of sugar mills in different states in India may be attempted which will be useful for increasing employees’ efficiency and organizational effectiveness by managing stress in the sugar mills of other states.

4. This study deals with the stress management from the employees' point of view. Employers also face many problems to smoothly run their business. They may have high stress while tackling employees and other resources. So, stress management may be undertaken from the management point of view.

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### Appendix I

#### Key concepts and Variables used in the Study

S.No.	Variable	Definition
1	Stress	Stress is a pressurized condition that affects physical or mental health of a person.
2	Stress Symptoms	To handle stress, employees should learn to recognize it. The stress symptoms and signs differ from one individual to another.
3	Stressors	The factors that cause stress are called as the stressors or stress factors.
4	Behavioral Changes	Stress symptoms and health problems induce behavioral changes such as changes in eating habits, increased smoking, sleep disorders, rapid speech and consumption of alcohol.
5	Coping Strategies	Coping strategies are the psychological and social means by which people deal with stress to avoid it becoming a strain.
6	Moody	If people are very miserable, then they are called as moody. Moodiness increases in people who have strong emotional reactions to stress.
7	Irritability	People tend to get overly temperamental when they have stress at work and this indirectly makes them to act irritable.
8	Short-Temper	Some people experience short-temper due to less patience, when they face an uncomfortable situation.
9	Accelerated Speech	While talking, some people tend to speak faster than they normally do because of the pressures of the stress they undergo (or experience).
10	Feeling Negative about Everything	People with panic disorder and stress tend to be negative thinkers with self-defeating beliefs.
11	Nail Biting	The habit of nail biting tends to happen during pressurized conditions, anger and tedium.
12	Restlessness	Excessive mental activity makes people to have restlessness.
13	Lack of Confidence	Lack of confidence is a harmful feeling, as it limits an individual's ability, excellence and growth.
14	Getting Confused Easily	When people have to handle many tasks together they get confused and are unable to make their own choices.
15	Gain/Loss of Weight	Gain /loss of weight means a significant gain or loss in the body weight of an individual over a period of month. Hectic situations lead to irregular eating habits among people.
16	Worrying	Worrying is a feeling of uneasiness due to getting concerned overly about a problem.
17	Nervousness	People, who feel constantly nervous in a work environment, suffer from excessive job stress
18	Workload	Workload occurs when job demand exceeds human limits and where people have to carry out excessive tasks, little opportunity to take rest and restore balance.
19	Poor Salary	Poor salary results in refusal to undertaking responsibilities, and reduce individual skills and performance.
20	Time Pressure and Deadlines	Time pressure often seems to result from external causes like having too much work assigned by a supervisor or the relentless objective flow of time itself. Pressure and anxiety are associated with deadlines.
21	Frequent Travel	Frequent travel and unexpected changes in routine activities, sleep pattern, tight workload are linked with physical and mental disorders.

(Continued)

22	Repetitive and Boring Work	Repetitive work means the work, which involves repeating the same task again.
23	Poor and Unplanned Work	Lack of planning leads to inadequate preparation, poor execution and unexpected problems at work.
24	Shortage of Cane Harvesting Laborers	Shortage of laborers refers to insufficiency in the labor force. This type of condition exists within a specific company, a community, or throughout a nation.
25	Unexpected Accidents of Sugarcane-Loaded Lorries	Due to rain and poor road facilities, the lorries that carry sugarcane from farmlands to sugar mills meet with unexpected accidents.
26	Lack of Career Development	Career development is a planned process to go with the requirements of an organization with the career paths of employees. Lack of career development builds job dissatisfaction and stress
27	Feeling of Powerlessness	When employees think about lack of power in the workplace, their commitment towards work suffer due to distractions.
28	Lack of Job Security	Security of job is a vital matter for employees. Continual job insecurity plays a role in creating health risk to employees.
29	Unable to satisfy all Stakeholders	Employees, customers, suppliers, employers, general public people, competitors and shareholders are commonly called as stakeholders. Employees need to work to fulfil the objectives and expectations of stakeholders.
30	Headache	Daily stress caused by a high pressured job can lead to chronic tension headaches.
31	High Blood Pressure	Stressful situations lead to high blood pressure.
32	Stomach Disorder and Ulcer	The most common disorders caused by stress include stomach upsets and stomach ulcers. Stomach ulcers are inflammation of the stomach caused by excessive release of hydrochloric acid.
33	Chest Pain	Stress leads to health problems like heart attacks, chest pains and unusual heartbeats.
34	Back Pain	Stressors results in physical health problems like back pain.
35	Skin Irritation and Allergies	People with stress have skin irritation, dryness, rashes and itchiness. These signs may be due to heavy workload, interpersonal problems, unbalanced diet or irregular sleep patterns.
36	Cancer	Chronic stress can raise the threat of cancer.
37	Diabetes	Both personal and work related problems trigger stress among people that results in both type 1 and type 2 diabetes.
38	Asthma	Stress weakens immune system of the body and increases vulnerability to asthma attacks and infections
39	Fatigue	Fatigue is characterized by extreme physical or mental tiredness.
40	Poor Concentration	Hostile work environments also adversely affect the ability of people to concentrate for long time.
41	Sleep Disturbances	Stress results in insomnia or oversleeping. Irregular sleeping habits make a person irritable and susceptible to daily stressors.
42	Anxiety	It is common for people to have some anxiety regarding their work and job performance.
43	Depression	Depression affects all aspects of everyday life include eating, sleeping, working, relationships and how a person thinks about himself/herself.

(Continued)



44	Tendency to Remain Alone	This is a psychological disorder, which manifests as lack of interest, restricted social communication and interaction and certain repetitive actions and behaviors.
45	Frequent Hospitalization	A prolonged illness due to emotional pressures and loss of control over surrounding environment is a concern for frequent hospitalization.
46	Increased Smoking	It is common to smoke away several cigarettes to beat the work place stress. Such risk factors like smoking have clear association with real-life stress.
47	Excessive Alcohol	Stress stimulates people to consume excessive alcohol.
48	Drug Addiction	Stress causes ill behavior like addiction to drugs that affects both the individual and his/her family.
49	General Proneness to Accident	When a person is affected by stress, poor attention while driving triggers proneness to accidents.
50	Under eating / Over eating	Chronic stress triggers either calorie accumulation or fat storage or under eating and nutrient depletion.
51	Frequent Crying	In humans, crying is shedding tears as a response to an emotional state. The chemicals that build up in the body during emotional stress can be removed by means of tears.
52	Withdrawal from Relationship	Increased feelings of irritation lead to withdrawal from both supportive and unsupportive relationships such as family, friends, co-workers and supervisors.
53	Consumption of Supari/Tobacco Items	Stress has a strong association to consumption of supari and tobacco products which creates demoralization among people.
54	Gambling	Gambling behavior is common when people feel depressed.
55	Suicidal Thoughts	Suicidal thoughts are a symptom of severe stress.
56	Violence	Stress and violence at work is a major issue. Violence is the wrong behavior shown by people when they are in anger, irritable mood and harassed.
57	Shouting at Family Members	It is a common fact for the employees to shout at their family members, when they are highly tensed or stressed.
58	Seeking Help from Others	When stress becomes overwhelming and employees are unable to function in a fairly normal way, they seek help from surrounding people to meet deadlines and to complete their work.
59	Poor Performance in Job	Distress unfavorably affects the employee's health and has a poor impact on employee's performance.
60	Yoga/Meditation	Yoga builds up a natural response to stress and brings the relaxed state more into daily life. Meditation is a mental exercise and a powerful way to relieve stress and evoke a state of deep relaxation.
61	Physical Exercise	Exercises like breathing exercise, tension-reducing exercise, walking, jogging and swimming are very beneficial to have a peaceful body, mind and soul.
62	Entertainment	Entertainment helps people to temporarily relieve mind from tensions or worries, and make time to have fun.
63	Away from Stressful Environments	Many stressors contribute to ill health and the employees want to move away from those stressful work environments.
64	Sleep	A good sleep improves quality of life as well as lowers stress for a short time.
65	Speaking with Like-minded Persons	Talking about personal and work events with family, friends, colleagues or to the other social network help employees to reduce stress for a short period of time.

(Continued)

66	Playing with Pet Animals	A popular way to relieve stress is to play with pets that makes people energetic and provides stress relief.
67	Prayer	People believe that prayer is the unique form of communication with God when they deal with some troubles, pressures, hurts and stress.
68	Medications	Medications are useful in the short term to relieve stress and sometimes the heaviness of a depression serves to mask painful emotions.
69	Positive Thinking	The power of positive thinking is increasingly recognized as a coping strategy to deal with stress. Development of positive thoughts helps employees to strongly face more problems.
70	Time Management	Time management helps the employees to reduce work stress by learning how to organize and plan work, and being more in control of time so as to achieve goals.
71	Tour	Going for a tour is one of the ways for the employees to relieve stress. It creates a diversion from worries of daily life.

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### *Authors' Profile*

**V R Malarvizhi** has teaching experience of eight years. She received Ph.D in Management Studies from Mother Teresa University, Kodaikanal in 2014. Her areas of specialization are human resource management and marketing management. She has published five research papers in peer reviewed national & international journals and presented 10 papers in national and international conferences. She has attended many workshops and staff development programs with the aim of upgrading her skills and knowledge in teaching field.

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