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# Impact of Job-Related Stressors on the Disengagement of Workers in the Production Department: An Overview on Engineering Based Industries

# Sujatha. M<sup>1</sup>, Uma Parameswari K<sup>2</sup>, John Dayana. A<sup>3</sup>, J. Anthony Gruze Thangaraj<sup>4</sup>

<sup>1</sup>Assistant Professor Department of commerce and management Sri Bhagawan Mahaveer Jain First Grade College, Kolar Gold Field, Karnataka.

<sup>2</sup>Assistant Professor, Post Graduate and Research Department of Commerce Sri Vidya Mandir Arts & Science College, katteri, Uthangarai, Tamil Nadu, India.

<sup>3</sup>Vice Principal and Assistant Professor, Department of Commerce Gonzaga College of Arts and Science for Women, Kathampallam, Krishnagiri District Tamil Nadu

<sup>4</sup>Professor and Head, Post Graduate Dept. of Commerce, Sri Bhagawan Mahaveer Jain First Grade College, Kolar Gold Fields, Karnataka India.

#### **Abstracts**

All kinds of organizations, including engineering industries workers, experience job stress. Stress at work can be caused by a number of reasons, such as unreasonable expectations, the seeming pressures of the job, and people's ability to manage their personal and work-based environment. In addition to examine the effects of work stress of workers engaged in the engineering industries and ability to maintain a work-life balance in the select engineering industries the researcher selected 323 respondents out of that 213 were male and 110 were female working in the engineering industries of Bengaluru silicon city of south India. The purpose of this research is to identify the source of Job stress. Hence engineering based industries' employees were chosen as a sample for this study. Standardized and close ended questionnaires were used to primary source of data form the respondents. Further, the stressors had a negative impact of the male employees works in the engineering industries its impact are directly related to the productivity and has effect on their working environment. Consequently, the idea that stress and work activities are positively associated was identified. The employees who suffer serious, unpleasant emotions as a result of their work-related variables like fury, unease, pressure, disappointment and insecurity are said to be the cause for the level of stress.

**Keywords:** Engineering industries, workers, Job stress, work life, working hours

#### 1.1 Introduction

Stress in the production units has effects on the quality of workers and leads for work related stress, unhappiness, feel heavy workload, many work-related conditions for employment. Low compensations,



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nonpayment for earned leaves, non-communication or correspondence, disturbance in the working environment by co-workers, supervisors, and managing directors and family and other money related stress levels. The stress level of employees weans out the peace of mind and life of the working employee. It has negative impact on their work completion, horrible negative feelings, the stress in the workplace occurs as employees face demand or pressures that are not suitable with skill and abilities expected, and the employees unable to cope up with the expectations. The stress levels creep up under various situations and aggravated by lack of support from coworkers and supervisors as well as due to limited control over work related process. (Dehghani et al., 2020) mental disability connected with depression this is one of the general health disorders commonly exists in the working population. Supporting to overcome the mental and physical health of the workers in the working environment turns a major factor. Neutralizing these factors are one of the main and fundamental action need to be optimized in the jobs for increasing productivity. (Yin et al., n.d.) in the recent studies it is evident that various industries are giving importance for lower cost, faster production time and expansion of production align with completeness created concern on future employability and job security of the employees lead for work related stress. (Kim et al., 2019)

#### 1.2 Stress Among Workers in engineering-based industries Members

Stress is the accumulation of all the undefined biological reactions, related to unacceptable and problematic external weighs. When one individual is facing with difficulties and indulging in inevitable situation on may understand it and sense it.(*Thesis-413766Mb-Final-The-Association-between-Job-Related-Psychological-Strain-and-Mental-Health*, n.d.) The word stress in not new concept, numerous researches have been done with wide range of historical periods, it described its severity and importance. The various opinions or view points on stress seems significant. Or else in another way stress is a unique state inside a living being due to an inclination for adjustment. The stress is characterized by a clear unevenness between request and reaction limit in situations where the inability to meet need has significant effects. Stress can be viewed in to tow different perspectives such as adoptive response and negative consequence(Sari et al., 2021).

#### 1.2.1 Job Stress

Workers of any industries need financial aid and support to protect themselves against mental and physical health. This mental and emotional unsoundness shall cause work stress and other psychological imbalances affect directly their production efficiency and quality of life.(Molek-Winiarska & Kawka, 2024) In the common term the stress is grouped into eustress and distress. Eustress is a positive form of stress leads to motivation and enhances performance. Eustress stress is associated with feelings of excitement and fulfillment such as Starting a new job, planning a wedding, on the other hand distress is negative form of stress that can cause anxiety, discomfort, and decreased performance.(Aqilah Seth et al., 2021)

The workers undergoing stress as their expertise does not align with the present demand of skill and efficiency lead to job dissatisfaction. When contently persisting dissatisfaction in one's Job role may signal an effective attitude to manage work related stress. the physical distress, emotional responses that shows when the requirements of the production role is diverge according to the role of workers, availability of resources. (Salopek, 2005)The job-related stress in the production leads to unforeseen vulnerabilities and events. It leads to psychological, physical, and emotional toll derive from the inappropriateness between



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the work-related skills and qualifications demand and the capacity to adopt to the demand of their role in the working environment. (Hashemi et al., 2019)

#### **1.2.2 Models**

Many psychological theories such as Emotional Theories, Personality Theories Psychoanalytic Theories, and Behavioral Theories and its models address occupational and related stress faced by the individuals, in the working conditions, it plays more predominant role in behavioural pattern of the workers. ("Measuring Stress in Female Workers: Indian Authors Developed Scale to Measure Stress Levels among Female Workers in Bangalore's Garment Industry," 2023)The Lists of basic emotions derived from the cognitive theory and research looking at appraisal scenarios, distinctive universal signals, distinctive physiology, Happiness, Anger, Fear, Disgust or Contempt Disgust Anger Sadness Surprise. (Chua et al., 2022)

#### 1.2.3 Job Characteristics Model

The job characteristics model largely covers various attributes belongs to the workers role, including the ability to integrate diverse work tasks, work ethics and job significance, freedom and information. This model deals with the outcome of work that has relationship with characteristics and psychological states of the individuals. The high level of internal motivation is attained with the help of responsible, autonomous and valuable work, and cannot be attained through external benefits like monetary rewards. The quality of work can be done only when the workers are possessing experience, skill and knowledge. The model deals with the employee's perception on the job optimizes psychological state to sense satisfaction. It reduces job turnover and workers are naturally motivated. (Blandino et al., 2024)

#### 1.2.4 Workload

In the production environment, managing the environment becomes so stressful and creates stressor to the workers. There are three dimensions of workload that can be challenging such as qualitative workload or overload deals with an excess of tasks the exceeds manageable limits, or else more working hours such as twelve hours working, leads to more tiredness and cause for mental illness.(Mohammed et al., 2020) The qualitative workloads deal with intellectual or professional works that is naturally difficult. Only the qualified or else person with special skills is able to deal with. Underload deals with the skills and abilities of the workers are underutilized in the working conditions. Based on this frame works, the tasks with different levels of demand can have stressful, and restrictive working environment.(Zadran et al., 2023)

#### 1.3 OBJECTIVES OF THE STUDY

- 1. To study the industries and Individual factors that causes stress among workers in the engineering-based industries.
- 2. To understand the impact of stress on Physical health and Emotional health of the workers in the production departments.
- 3. To know the stress coping / stress managing activities of the workers in the job site.

#### 1.4 Hypothesis:

H1: There is significant relationship between Mental Signs and stress level

**H2:** There is significant association between Enthusiastic Signs and stress level among workers in the engineering-based industries.

**H3:** There is a significant association between physical signs and the stress levels of workers in engineering-based industries.



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**H4:** There is significant association between social signs and level of stress among the workers in production department in engineering-based industries.

#### 1.5 RESEARCH METHODOLOGY

The purpose of this study is to examine the workers emotional quotient and job-related stress in relation to the workers in the production department in the engineering-based industries. The present study targets the demographic consists of workers from engineering-based industries in the Bengaluru city. In order to find out the overall validity and reliability of the study the used explicit methodology or procedures used to sperate, select, and process and analyses the date. For that sake percentage analysis, chi-square, t -test and f- test applied. This move outlines the development of activities, record series, and scheduled the research strategy.

#### 1.6 SAMPLING

**Sample size:** The sample size was derived as 323 95% confidence level and 5% level of significance at 0.30 probability of success under the application of Selvin's formula for unknow population.

**Sample Unit:** The unit of study conducted among workers in the engineering-based industries of Bengaluru city.

**Sampling Design and Selection of Sample Size:** Sample size in this confined to be. In this research, the respondents are the workers from the engineering-based industries of Bengaluru city. The unit of study was done in consideration of seven industries in and around of Bengaluru city.

Total **Engineering** Sampling **Engineering Population** industries **Techniques** industries Select the population from Seven engineering-based industries viz. Tata (Non- probability sampling) Consulting Engineers (TCE), Seven engineering Convenience Sampling method is Bengaluru BEML, HAL, bases industries used and the sample size is arrived Larsen & Toubro (L&T), city from Bengaluru city by application of solvin's formula ABB India Ltd., Kirloskar for unknown sample size. Electric Company Ltd, Bharat Electronics Limited (BEL),

Table no: 1 Provides the details of the sampling techniques

#### 1.7 REVIEWS OF LITERATURE

Employes are constantly experiencing job insecurity, it refers to more perceived threat of job loss and worries related to the treat. The happiness in the working environment is mission, the job insecurity Is hinderance stressor, the psychological theories, claim a negative association between job insecurity and happiness at work, including job satisfaction, effective organizational commitment and work engagement employees have lower positive feelings on their job. Job insecurity creates lower levels of emotional attachment, involvement in the job. Insecurity causes lower levels of energy and mental resilience among



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workers and wakens the involvement, enthusiasm, challenges, concentration and engrossment in the work (Zadran et al., 2023). Indonesian's government cautiously encouraged the companies to increase its production capacity in order to meet the global demand. This increased the strong demand from workers side-effects worker's Health, often leads for associated problems like fatigue, stress, and leads to excessive work and affects workers performance due to more pressure (Zanabazar et al., 2022) Workplace safety culture in the organisation affect job satisfaction and job stress. Providing safety and health education to the employees improves the congenial environment and finally leads for job satisfaction and reduces the stress level. (Zakaria et al., 2022)Ethical climate decides the congenial environment in the organisation conflict, the negative ethical climate lead for more stress and created work family conflict. Researcher recommended adopting few workplace strategies, including business culture, work environment, flexible working arrangements, autonomy, remote working, encourages the peer workers and managers gives freedom to the employees to set their working boundaries leads for less stress and psychological issues. (TAEGAR, Martha Ejakpofon et al., 2024))

Occupational stress and Job satisfaction among red collar workers affects specific workforce and evaluates its impact on the job satisfaction. The workers experience considerable stress due to high workload demand, job insecurity and lack of work life balance. (HD, 2023)

Stress affects employees and leaders' attitudes, work related stress are still standing issue affects performance at regular time. Stress affects the effective working attitude of the employees and restricts the active performance. Stress lead for delay in organizational commitment and production activities of the industry (Stankevičiūtė et al., 2021). The industrial revolution technological advancement in manufacturing and introducing automation data monitoring systems lead new industrial shifts and cognitive activities lead to decrease physical work and mental work and monitoring responsibility becomes burdensome. (Goswami, 2023).

#### 1.8 STRESS

Workers from engineering industries experience stress as an exaggeration of negative thoughts influenced by external factors. Stress results from external elements shaping the internal emotions of individuals. (Liang et al., 2022) Prolonged emotional states of workers can intensify when they face challenges in managing their emotions due to specific circumstances. This can impact both the psychological and physiological aspects of their lives. (Madasamy, n.d.) For instance, workers from engineering-based industries may commonly experience stress in situations where decisions are made for them, where they have limited control and options, where they feel unprepared, where fairness is in question, and where the consequences of failure are significant or unpredictable.

#### 1.8.1 HOW YOU FEEL WHEN STRESSED?

- Irritable
- Aggressive
- Impatient or twisted up
- Over-troubled
- Anxious
- Nervous or apprehensive
- Like your contemplations are dashing and you can't turn off
- Depressed
- Uninterested throughout everyday life



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- Like you lost your comical inclination
- · A feeling of fear
- Worried about your wellbeing
- Unable to have fun

#### 1.8.2 HOW YOUR BODY REACTS TO STRESS?

At the point when you're confronted with stress, certain hormones (synthetic concoctions) in your body are discharged. These hormones trigger numerous adjustments in your body.(Suganya et al., 2024) For example, your:

Body weight may rise

Heart may pound

Muscles may fix

Stomach may get tense

#### 1.8.3 HOW TO IDENTIFY STRESS

These are a portion of the side effects that are markers of an excess of weight that can emerge out of work, home, any blend of, or perhaps every one of the three.(Lastya Sari et al., n.d.) It is here and there simpler for another person to perceive worry in you yet not all that simple to remember it yourself. It is anything but difficult to state the indications will leave however they may not and don't overlook you may need to go to see your GP if the side effects are enduring.(Azar et al., n.d.)

Table no:2 Provides details of stress at different phases

|   | MENTAL SIGNS                    |   | ENTHUSIASTIC SIGNS         |
|---|---------------------------------|---|----------------------------|
|   | Inability to think or settle on |   |                            |
| • | straightforward choices         | • | Cheerful                   |
| • | Memory slips                    | • | Irritable                  |
| • | Becoming rather dubious         | • | Mood swings                |
| • | Easily occupied                 | • | Extra delicate to analysis |
| • | Less natural and inventive      | • | Defensive                  |
| • | Worrying                        | • | Feeling crazy              |
| • | Negative reasoning              | • | Lack of inspiration        |
| • | Depression and nervousness      | • | Angry                      |
|   |                                 | • | Frustrated                 |
|   |                                 | • | Lack of certainty          |
|   |                                 | • | Lack of confidence         |

|   | PHYSICAL SIGNS                     |   | SOCIAL SIGNS   |
|---|------------------------------------|---|--|
|   | Aches/torments and muscle          |   | No time for unwinding or pleasurable   |
| • | strain/granulating teeth           |   | exercises  |
| • | Frequent colds/diseases            | • | Increased dependence on liquor, smoking, caffeine, recreational or illicit medications |
| • | Allergies/rashes/skin aggravations | • | Becoming an obsessive worker   |



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| • | Constipation/the runs/IBS                                    | • | Poor time the executives as well as poor measures of work |
|---|--|---|---|
| • | Weight misfortune or increase                                | • | Absenteeism   |
| • | Indigestion/acid reflux/ulcers                               | • | Self-disregard/change in appearance                       |
| • | Hyperventilating/protuberance in the throat/pins and needles | • | Social withdrawal   |
| • | Dizziness/palpitations                                       | • | Relationship issues                                       |
| • | Panic assaults/sickness                                      | • | Insomnia or waking tired                                  |
| • | Physical tiredness   | • | Reckless  |
| • | Menstrual changes/loss of moxie/sexual issues                | • | Aggressive/outrage upheavals                              |
| • | Heart issues/hypertension                                    | • | Nervous   |
|   |  | • | Uncharacteristically lying                                |

# 1.9 Findings and Discussions: Socio economic profile of the workers Table No. 3 Gender of Respondents

|        | _ <del></del> |            |
|--------|---------------|------------|
| Gender | Frequency     | Percentage |
| Male   | 213           | 66         |
| Female | 110           | 33         |
| Total  | 323           | 100        |

Source: output SPSS

Table no 3 shows, out of 323 respondents 213 (66 %) of respondents are male while 110 (34 %) of respondents belong to female category. Therefore majority 213 (66%) of the respondents belong to male category.

Table No. 4 Age of Respondents

| Age            | Frequency | Percentage |
|----------------|-----------|------------|
| less than 25   | 94        | 29         |
| 26-35 years    | 97        | 30         |
| 36-45 years    | 74        | 23         |
| above 45 years | 58        | 18         |
| Total          | 323       | 100        |

Source: output SPSS

Table no 4 shows, out of 323 respondents 94 (29 %) of respondents are less than 25 years of age while 97 (30 %) of respondents belong to 26-35 years of age, while 74 (23 %) of respondents belong to 36-45 years of age and 58 (18 %) of respondents belong to are above 45 years of age. Therefore, majority of the respondents 97 (30 %) are 26 to 35 years of age.



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**Table No. 5 Qualification of Respondents** 

| Qualification | Frequency | Percentage |
|---------------|-----------|------------|
| ITI           | 110       | 34         |
| Diploma       | 85        | 26         |
| B (Eng)       | 69        | 21         |
| M (Eng)       | 59        | 18         |
| Total         | 323       | 100        |

Source: output SPSS

Table no 5 shows, out of 323 respondents 110 (34 %) of respondents are ITI holders while 85 (26 %) of respondents are diploma holders, while 69 (21 %) of respondents are B(eng) graduates. An the remaining 59 (18%) of the respondents are M(Eng) graduates Therefore, majority of the respondents are110 (34 %) belongs to ITI holders.

**Table No. 6 Designation of Respondents** 

| Designation      | Frequency | Percentage |
|------------------|-----------|------------|
| Engineer         | 75        | 23         |
| Project Engineer | 68        | 21         |
| Senior Engineer  | 58        | 18         |
| Design engineer  | 60        | 19         |
| Test engineer    | 62        | 19         |
| Total            | 323       | 100        |

Source: Output SPSS

Table no 6 shows, out of 323 respondents 175 (23 %) of respondents are engineers, 68(21%) of the respondents are project engineers, 58(18%) of the respondents are senior engineers, 60(19) of the respondents are design engineers and 62(19%) of the respondents are Test engineers. Therefore, majority of the respondents 75 (23%) of the respondents are engineers.

**Table No. 7 Experience of Respondents** 

| Experience         | Frequency | Percentage |
|--------------------|-----------|------------|
| Less than 10 years | 87        | 27         |
| 10-20 years        | 171       | 53         |
| above 20 years     | 65        | 20         |
| Total              | 323       | 100        |

Source: Output SPSS

Table no 7 shows, out of 200 respondents 54 (27 %) of respondents are having less than 10 years of experience, 106 (53 %) of respondents are having 10 - 20 years of experience, while 40 (20 %) of respondents having more than 20 years of experience. Therefore, majority of the respondents 106 (53 %) are having 10-20 years of experience.



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Table No. 8 Consequences of stress in Workplace

| Stress Factors         | Yes    | No      | Total  |
|------------------------|--------|---------|--------|
| Headache               | 197    | 126     | 323    |
|                        | (61%)  | (39%)   | (100%) |
| Frustration            | 216    | 107     | 323    |
|                        | (67%)  | (33%)   | (100%) |
| Irritation             | 168    | 155     | 323    |
|                        | (52%)  | (48%)   | (100%) |
| Fatigue end of the day | 168    | 155     | 323    |
|                        | (52%)  | (48%)   | (100%) |
| Neck Pain              | 27     | 296     | 323    |
|                        | (8.5%) | (91.5%) | 100    |
| Body Pain              | 213    | 110     | 323    |
|                        | (66%)  | (34%)   | 100    |

Source: Output SPSS

Table no 9.6 shows that out of323 respondents, 197 (61 %) respondents are encountered the headache while high stress in work place and 7126 (39 %) respondents does not have headache in work place, thus it is inferred that majority of the respondents are encountered the headache in work place due to over stress. 216 (67 %) respondents are encountered the frustration while high stress in work place and 107(33 %) respondents does not have any frustration in work place, thus it is inferred that majority of the respondents are encountered the frustration in work place due to over stress. And 168 (52%) respondents are encountered the irritation while high stress in work place and 155 (48%) respondents does not get irritation in work place, thus it is inferred that majority of the respondents are encountered the irritation in work place due to over stress. And 168 (52%) respondents are encountered the fatigue while high stress in work place and 155 (48%) respondents does not get fatigue in work place. And 27(8.5%) respondents are suffering from neck pain while 296 (91,5%) of the respondents are does not get neck pain, and 213 (66%) respondents are encountered the body pain while high stress in work place and 110 (34%) respondents does get body pain in work place due to over stress, thus it is inferred that majority of the respondents are encountered the body pain in work place due to over stress.

# 1.10 Relationship study between Mental signs, Enthusiastic Signs, physical signs and social signs of the respondents and its impact on the stress level of the employees in engineering industries:

Table no:8 Mental Signs and stress level

| S.no | Statement related to mental signs | P-Valeu | Results         |
|------|-----------------------------------|---------|-----------------|
|      |                                   |         |                 |
| 1.   | Inability to think or settle on   | 0.607   | Not significant |
|      | straightforward choices           |         |                 |
| 2.   | Memory slips                      | 0.000   | Significant     |
| 3.   | Becoming rather dubious           | 0.000   | Significant     |
| 4.   | Easily occupied                   | 0.016   | Significant     |
| 5.   | Less natural and inventive        | 0.237   | Not significant |



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| 6. | Worrying                   | 0.212 | Not significant |
|----|----------------------------|-------|-----------------|
| 7. | Negative reasoning         | 0.000 | Significant     |
| 8. | Depression and nervousness | 0.001 | Significant     |

Source: SPSS Out put

The chi-square test shows that the p-value for the variables such as Inability to think or settle on straightforward choices, less natural and inventive and Worrying are not significant at 5 level. Hence the null hypotheses regarding these variables are accepted. However, the above analysis shows that the p value for the variables, Memory slips, becoming rather dubious, easily occupied, Negative reasoning and Depression and nervousness are significant at 5 percent level, therefore fail to accept the null hypothesis. In overall it is observed that mental signs among the workers are affected and due to that workers are suffering in mental stress and work pressure.

Table no:9 Enthusiastic Signs and stress level among workers

| S.NO | Statements                 | P-Value | Results         |
|------|----------------------------|---------|-----------------|
| 1.   | Cheerful                   | 0.000   | Significant     |
| 2.   | Irritable                  | 0.000   | Significant     |
| 3.   | Mood swings                | 0.000   | Significant     |
| 4.   | Extra delicate to analysis | 0.186   | Not significant |
| 5.   | Defensive                  | 0.058   | Not significant |
| 6.   | Feeling crazy              | 0.000   | Significant     |
| 7.   | Lack of inspiration        | 0.087   | Not significant |
| 8.   | Angry                      | 0.000   | Significant     |
| 9.   | Frustrated                 | 0.000   | Significant     |
| 10.  | Lack of certainty          | 0.000   | Significant     |
| 11.  | Lack of confidence         | 0.000   | Significant     |

Source: SPSS Out put

The chi-square test shows that the p value for the variables such as Defensive, Extra delicate to analysis and Lack of inspiration are not significant at 5 percent level. Hence the null hypothesis is accepted. On the other hand, the above analysis shows that the p-value for the variable such as Cheerful, Irritable, Mood swings, feeling crazy, Angry, Frustrated, Lack of certainty, and Lack of confidence are significant at 5 percent level, therefor fail to accept the null hypothesis. In overall it is observed that enthusiastic signs among the workers engaged in the production in the engineering industries are prone to stress level but their level of stress differs according the enthusiasm they perceive at the working sites.

Table no:10 Physical Signs and The Stress Levels of Workers

| , ,  |  |          |                 |  |  |
|------|--|----------|-----------------|--|--|
| S.NO | Statement  | P- Value | Results         |  |  |
| 1.   | Aches/torments and muscle strain/granulating teeth | 0.82     | Not significant |  |  |
| 2.   | Frequent colds/diseases                            | 0.29     | Not significant |  |  |
| 3.   | Allergies/rashes/skin aggravations                 | 0.139    | Not significant |  |  |
| 4.   | Constipation/the runs/IBS                          | 0.001    | Significant     |  |  |
| 5.   | Weight misfortune or increase                      | 0,000    | Significant     |  |  |
| 6.   | Indigestion/acid reflux/ulcers                     | 0.000    | Significant     |  |  |



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| 7.  | Hyperventilating/protuberance in the throat/pins and | 0.02  | Significant     |
|-----|--|-------|-----------------|
|     | needles  |       |                 |
| 8.  | Dizziness/palpitations                               | 0.30  | Not significant |
| 9.  | Panic assaults/sickness                              | 0.000 | Significant     |
| 10. | Physical tiredness                                   | 0.000 | Significant     |
| 11. | Menstrual changes/loss of moxie/sexual issues        | 0.000 | Significant     |
| 12. | Heart issues/hypertension                            | 0.000 | Significant     |

Source: SPSS Out put

The chi-square test shows that the p-value for the variables such as Aches and torments and muscle strain and granulating teeth, Frequent colds and diseases, Allergies and rashes and skin aggravations and Dizziness and palpitations are not significant at 5 percent level. Hence the null hypothesis is accepted. On the other hand, the chi-square value of the variables such as Constipation/the runs and IBS, Weight misfortune or increase, Weight misfortune or increase, Indigestion/acid reflux/ulcers, Hyperventilating and protuberance in the throat and pins and needles, Panic assaults/sickness, Physical tiredness, Menstrual changes and loss of moxie and sexual issues and Heart issues and hypertension are significant at 5 percent level, therefore fail to accept null hypothesis. In overall it is concluded that workers engaged in the production in the engineering industries are exposed to stress level but their stress level differs based on their physical signs.

Table no:11 Social Signs and Level of Stress Among the Workers

| S.NO | Statements   | P-value | Results     |
|------|--|---------|-------------|
| 1.   | No time for unwinding or pleasurable exercises       | 0.000   | Significant |
| 2.   | Increased dependence on liquor, smoking, caffeine,   | 0.000   | Significant |
|      | recreational or illicit medications                  |         |             |
| 3.   | Becoming an obsessive worker                         | 0.000   | Significant |
| 4.   | Poor time the executives as well as poor measures of | 0.000   | Significant |
|      | work   |         |             |
| 5. s | Absenteeism  | 0.000   | Significant |
| 6.   | Self-disregard/change in appearance                  | 0.000   | Significant |
| 7.   | Social withdrawal                                    | 0.000   | Significant |
| 8.   | Relationship issues                                  | 0.000   | Significant |
| 9.   | Insomnia or waking tired                             | 0.000   | Significant |
| 10.  | Reckless   | 0.016   | Significant |
| 11.  | Aggressive/outrage upheavals                         | 0.237   | Not         |
|      |  |         | Significant |
| 12.  | Nervous  | 0.212   | Not         |
|      |  |         | Significant |
| 13.  | No time for unwinding or pleasurable exercises       | 0.000   | Significant |

Source: SPSS Out put

From the above chi-square inlays it is inferred that p-value for the variables such as Aggressive and outrage upheavals, and Nervous are not significant at 5 percent level. Hence the null hypothesis is accepted. On the other hand p-value for the variables such as No time for unwinding or pleasurable exercises, Increased



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dependence on liquor, smoking, caffeine, recreational or illicit medications, Becoming an obsessive worker, Poor time the executives as well as poor measures of work, Absenteeism, Self-disregard and change in appearance, Social withdrawal, Relationship issues, Relationship issues, Insomnia or waking tired and Reckless are significant at 5 percent level, therefore fail to accept the null hypothesis . in overall it is concluded that there is significant difference between social signs and level of stress among the workers in production department in engineering-based industries.

#### 1.11 Findings

Majority 213 (66%) of the respondents belong to male category, 97. (30) of the respondents are falling under the age group of 26- 35 years of age, 110 (39%) of the respondents are ITI holder, 75(23%) of the respondents are belonging to engineering category, 171(53%) of the respondents are falling under 10-20 years of experience, 197(61%) of the responses are s suffering from Head ache and 168(52%) of the employees are suffering from fatigue and 216(67%) of the respondents are facing frustration problem. Overall observation show that workers are facing stress problem in the production sites in the engineering industries according to their Mental signs, Enthusiastic Signs, physical signs and social signs.

#### 1.12 Suggestions:

- Appointing field experts to get technical support at the working site for getting immediate solution for the production related doubts and clarifications.
- Creating sufficient safety measures for the employees operating Advanced Machineries and engaged in routine production with the help of AI based production.
- Giving medical and psychological support along with recreations support with frequent breaks for relaxation to the employees operating monotonous machines.
- Supportive training and skill development programmes at different levels

#### 1.13 CONCLUSION

This study aimed to demonstrate the impact of workers in the engineering industries, burnout and stress on their physical and mental well-being. This study contributes to analyses the impact of job-related stressors on workers disengagement in the production and provides suggestions for improving the quality and efficacy of instruction in the production site to provide solution for their Mental signs, Enthusiastic Signs, physical signs and social signs stands cause for stress levels. The workers are the back bone of the organizations and largely contributes for the development of economy and enhancing employment opportunities to the educated graduates.

#### **References:**

- Aqilah Seth, N., Haslinda Abas, N., & Hanafi Rahmat, M. (2021). International Journal of Sustainable Construction Engineering and Technology the Perception of Work-Related Stress Indicators and The Relative Importance of Job Demand Stressors Among Construction Professionals in Malaysia. INTERNATIONAL JOURNAL OF SUSTAINABLE CONSTRUCTION ENGINEERING AND TECHNOLOGY, 12(4), 101–113. https://doi.org/10.30880/ijscet.2021.12.04.009
- 2. Azar, G. B., Givehchi, S., Vosoughi, S., Ghasem, \*, & Azar, B. (n.d.). This work is licensed under a Creative Commons Attribution 4.0 International License WORKFORCE SAFETY CULTURE, JOB STRESS AND JOB SATISFACTION IN AN AUTOMOTIVE INDUSTRY.



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- 3. Blandino, G., Colombo, S., & Montagna, F. (2024). On-site analysis of work-related stress to design workers-friendly manufacturing systems. *Proceedings of the Design Society*, *4*, 205–214. https://doi.org/10.1017/pds.2024.23
- 4. Chua, B.-L., Al-Ansi, A., Kim, S. (Sam), Wong, A. K. F., & Han, H. (2022). Examining airline employees' work-related stress and coping strategies during the global tourism crisis. *International Journal of Contemporary Hospitality Management*, 34(10), 3715–3742. https://doi.org/10.1108/IJCHM-09-2021-1085
- 5. Dehghani, Z., Tajik, R., & Zare, R. (2020). The Relationship Between Occupational Stress and Job-Related Risks in the Steel Industry. *Journal of Arak University of Medical Sciences*, 60–71. https://doi.org/10.32598/jams.23.1.5635.1
- 6. Goswami, N. K. (2023). A study of the effects of job-related stress on mental well-being, with a particular focus on workers in the diagnostic industry of Ahmedabad. *INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT*, 07(03). https://doi.org/10.55041/ijsrem17892
- 7. Hashemi, S. Y., Emkani, M., Dehghan, A., Kalantari, R., & Gholami, M. (2019). The Relationship of General Health and Job Stress in Industrial Workers. In *J Health Sci Surveillance Sys* (Vol. 7, Issue 1).
- 8. HD, P. (2023). A STUDY ON IMPACT OF OCCUPATIONAL STRESS WITH SPECIAL REFERENCE TO JOB SATISFACTION AMONG RED COLLAR WORKERS AT ORIENT BELL LTD IN HOSKOTE. *INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT*, 07(10), 1–11. https://doi.org/10.55041/ijsrem26626
- 9. Kim, J., Kim, Y. K., Leem, S. H., & Won, J. U. (2019). Association between job-related stress and experience of presenteeism among Korean workers stratified on the presence of depression. *Annals of Occupational and Environmental Medicine*, *31*(1). https://doi.org/10.35371/AOEM.2019.31.E26
- 10. Lastya Sari, D., Storyna, H., Intan Putri Sinaga, R., Gunawan, F. E., Asrol, M., & Perwira Redi, A. (n.d.). THE RELATIONSHIP BETWEEN JOB STRESS AND EMPLOYEE PERFORMANCE IN MANUFACTURING INDUSTRY IN INDONESIA. *Journal of Academic Research and Sciences*), 6(2), 26–38. https://ejournal.unisbablitar.ac.id/index.php/jares
- 11. Liang, H., Liu, T., Yang, W., & Xia, F. (2022). Impact of COVID-19 Pandemic Perception on Job Stress of Construction Workers. *International Journal of Environmental Research and Public Health*, 19(16). https://doi.org/10.3390/ijerph191610169
- 12. Madasamy, S. (n.d.). To Study Job-Related Stress On Employee Performance Between Private And Public Sector Banks.
- 13. Measuring stress in female workers: Indian authors developed scale to measure stress levels among female workers in Bangalore's garment industry. (2023). *Human Resource Management International Digest*, *31*(3), 27–29. https://doi.org/10.1108/HRMID-02-2023-0035
- 14. Mohammed, D., Chan, E., Ahmad, R., Dusic, A., Boglarsky, C., Blessinger, P., & Zeine, R. (2020). Health implications of job-related stress, motivation and satisfaction in higher education faculty and administrators. *Journal of Applied Research in Higher Education*, 12(4), 725–741. https://doi.org/10.1108/JARHE-04-2018-0056
- 15. Molek-Winiarska, D., & Kawka, T. (2024). Reducing Work-Related Stress Through Soft-Skills Training Intervention in the Mining Industry. *Human Factors*, 66(5), 1633–1649. https://doi.org/10.1177/00187208221139020



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- 16. Salopek, J. J. (2005). Job Stress. In *T and D* (Vol. 59, Issue 1, pp. 17–19). https://doi.org/10.53730/ijhs.v6ns6.10971
- 17. Sari, D. L., Storyna, H., Intan, R., Sinaga, P., Gunawan, F. E., Asrol, M., & Redi, A. A. N. P. (2021). The effect of job stress to employee performance: Case study of manufacturing industry in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 794(1). https://doi.org/10.1088/1755-1315/794/1/012085
- 18. Stankevičiūtė, Ž., Staniškienė, E., & Ramanauskaitė, J. (2021). The impact of job insecurity on employee happiness at work: A case of robotised production line operators in furniture industry in Lithuania. *Sustainability (Switzerland)*, 13(3), 1–20. https://doi.org/10.3390/su13031563
- 19. Suganya, R. V., Vetrivel, M., & Sri Devi, A. (2024). Navigating Work-Related Stress: Strategies for IT Professionals in the Tech Industry. *ComFin Research*, *12*(1), 50–58. https://doi.org/10.34293/commerce.v12i1.6817
- 20. TAEGAR, Martha Ejakpofon, TARURHOR, Emmanuel Mitaire, & Oboreh, Jacob Snapps. (2024). ORGANIZATIONAL CHANGE AND EMPLOYEE WORK RELATED STRESS: EVIDENCE FROM CONSUMER GOODS INDUSTRY IN NIGERIA. *International Journal of Applied Research in Social Sciences*, 6(2), 106–115. https://doi.org/10.51594/ijarss.v6i2.753
- 21. Thesis-413766Mb-Final-The-association-between-job-related-psychological-strain-and-mental-health. (n.d.).
- 22. Yin, S., Shimura, A., Maniaci, A., Ding, X., Copyright, fpubh, Yan, T., Ji, F., Bi, M., Wang, H., Cui, X., Liu, B., Niu, D., Li, L., Lan, T., Xie, T., Wu, J., & Li, J. (n.d.). *Occupational stress and associated risk factors among 13,867 industrial workers in China*.
- 23. Zadran, B. G., Haqyar, F., & Hamid, A. R. A. (2023). Study the Sources of Work-Related Stress Risk at Construction Sector of Afghanistan. *Journal for Research in Applied Sciences and Biotechnology*, 2(4), 206–213. https://doi.org/10.55544/jrasb.2.4.29
- 24. Zakaria, H., Diyana Kamarudin, Faiz Azizul, Asma' Durrah Mohd Feham, & Ame Abdullah. (2022). WORK-RELATED STRESS: CONTRIBUTING FACTOR OF EMPLOYEE BURNOUT IN MALAYSIA'S FOOD AND BEVERAGE INDUSTRY. *International Journal of Humanities Technology and Civilization*, 7(2), 99–106. https://doi.org/10.15282/ijhtc.v7i2.8737
- 25. Zanabazar, A., Jigjiddor, S., & Jambal, T. (2022). The Impact of Work-related Stress on Job Satisfaction and Organizational Trust during COVID-19 Pandemic. *SHS Web of Conferences*, *135*, 01019. https://doi.org/10.1051/shsconf/202213501019