



Work Related Stress among Coal Mine workers: A study on select coal mines of Dhanbad & Jharia regions

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ABSTRACT: Stress is a real phenomenon and it is associated with job satisfaction level of employees in any place. In this study the workers of coal mine in Dhanbad are taken as samples. The study enables to arrive at the factors responsible for stress among workers working in coal mine. This study provides valid suggestions and measures to be taken to improve Job stress of the employees and the study is also useful in the area where the workers face job stress can be ascertained.

Keywords: Stress, Role, demographic Variable, Psychological Impact

I. INTRODUCTION

A. The Dhanbad-Jharia coal-mining area

Dhanbad is a city in the state of Jharkhand, and is also known as the 'Coal Capital of India'. The Dhanbad-Jharia area forms part of a mineral rich corridor, most of India's reserves in coal, copper, iron ore and uranium are located in the Durgapur-Dhanbad-Bokaro-Jamshedpur triangle.

The Dhanbad Jharia coal fields form part of this heavy industrial triangle. They are a rural mining area, with about 110 official coal mines and probably the same amount of unofficial mines. They are India's main center for coking coal, a particular sort of coal important for steel production. Scattered in the region are the vast opencast mines, interspersed with villages and miners colonies.

II. REVIEW OF LITERATURE

Stress is a general and global phenomenon encompassing man's psychological, physical, familial and social dimensions. Many studies have been carried out to find out the causes of stress and its effect in organizational outcome.

A. Factors Affecting Stress

Various organizational related variables have been found to be the reason behind the workplace stress. Bhatti *et al.* (2010) [4] reiterates that out of the intra organizational and extra organizational causes of stress, 67 per cent of the overall stress experienced by the employees is due to factors within the organization whereby major cause of the stress is the workload. Researches indicate that nearly a third of the working population in developed countries report high to very high levels of stress. Similarly, evidence for newly industrialized countries is also indicative of the prevalence of stress. Time pressures, excessive demands, role conflicts, ergonomic deficiencies, job security and relationship with customers are particularly common stressors amongst employees in the financial services sector. Furthermore, new stressors such as computer breakdowns, computer slowdowns and electronic performance monitoring, have developed as a result of increased human interaction with computers.

According to Ganster & Loghan 2005, [11] work environment, management support, work load etc. are the key factors in determining how stressful the work can be and its effect on employee physical and mental health.

According to (Anderson, 2002) [3] work to family conflicts is also a predecessor which creates stress in employees of an organization. Job stress has been also viewed as dysfunctional for organizations and their members. Eleven forces are used as an antecedents of stress by researches which are Overload, Role vagueness, Role conflict, Responsibility for people, Participation, Lack of feedback, Keeping up with quick technological change, Being in an innovative role, Career growth, Organizational structure and environment, and Recent episodic events.

B. Consequences of Stress

The nature of relationship between role stress and outcomes important for organizations is diverse, ranging from positive outcomes to negative of different intensities. Singh and Singh (1989) [2] researched on the impact of position of an employee in the hierarchy of an organization on stress and found that the employees belonging to lower hierarchical position experience more stress. The forms of stress reported include lack of group cohesiveness, role conflict, and experience of inequity, role ambiguity, role overload, and lack of leadership support, constraints of change, job difficulty, job requirement-capability mismatch, and inadequacy of role authority. Not only the normal work routine, the organizational citizenship behavior shown by employees involving individual initiative, like coming to work early, staying late, volunteering for special projects, etc. is also associated with higher levels of employee role overload, job stress and work-family conflict [5].

The concepts of occupational stress and psychological health have been widely studied. Several studies show clear evidence that employees who work under stressful conditions are suffering of decreased mental health and that traumatic work – related events have psychological consequences also found that lack of decision autonomy and high level of job demands were two important stressors that predicted anxiety and depression. Lack of social support appeared to be part of an overall job stress measure and did predict reduced mental/ physical health and job satisfaction [5].

Lack of participation in the decision making process, lack of effective consultation and communication, unjustified restrictions on behavior, office politics and no sense of belonging are identified as potential sources of stressors [10]. Lack of participation in work activity is associated with negative psychological mood and behavioral responses, including escapist drinking and heavy smoking. Caplan *et. al.* (1975) [7].

Eric Verborg, Deputy Director, European Foundation (2013), declared that stress was the leading illness among workers. The problem will not vanish but it can be minimized. It is possible to prevent stress using an approach, which is global, multidisciplinary and involving synergy between varied actors in the workplace and their environs. The challenge is how to develop and disseminate measures to effectively present stress at the workplace.

Caplan (1985) [6] reported the factors like supervisory climate, co-workers, and time pressures, pressures for conformity which affect the mental and physical health of employees. Low control over the work environment, decreased participation in decision making about conditions of work, unpredictability of events, both too little and too much complexity in work, role ambiguity, and excessive workload, responsibility for persons, role conflict, and lack of social support are found to affect the wellbeing of employees at the work place. With more exposure to these factors over a period of time, employees face more emotional and physiological trauma.

Abdel-Halim (1978) [1] examined the relative importance of role ambiguity, role conflict and role overload as source of stress and dissatisfaction among managerial level employees. The results showed that role ambiguity has the strongest relationship with role responses. On the similar lines, [10] studied role conflict and role ambiguity as factors in work stress among managers in Singapore and indicated that role conflict and role ambiguity are positively and significantly related to work stress among managers and work stress is negatively and significantly related to job satisfaction. Ambiguity, role conflict and role overload as source of stress and dissatisfaction among managerial level employees. The results showed that role ambiguity has the strongest relationship with role responses.

A 2½ year study involving almost 28,000 employees in 215 organizations showed that poor teamwork and ineffective supervision were the two most important factors leading to employee stress, with role conflict and lack of equality issues having the strongest influence on job burnout, health problems, and performance problems. (Managing Employee Stress and Safety: A guide to mini- mizing stress-related cost while maximizing employee Managing Employee Stress and Safety [8].

Chand and Sethi (1997) [9] studied 156 junior and middle level executives both from public and private sector organizations they also found that role conflict and role ambiguity are negatively related with satisfaction with pay, supervision, working conditions, colleagues, opportunity for promotions and with the job as a whole.

II. MATERIAL AND METHODS

A. Objective of the study

1. To identify the causes of work stress among coal mine workers.
2. To study the impact of demographic variables on stress experienced by workers
3. To study the relationship between job stress on one hand and organizational commitment, work life balance and job satisfaction on the other hand.
4. To study different dimensions of work stress of coal mine worker

B. Hypothesis of the study

Hypothesis 1: There is no measurable set of factors that causes stress.

Hypothesis 2: Factors causing stress are independent of demographic factors.

Hypothesis 3: There is no significant relationship between work stress and its outcomes.

C. Research design

The research design used quantitative and qualitative research. It is descriptive in nature as it answer like who, where, what kind of questions and qualitative based as questionnaire is used to measure some data. The design of the study contains statement of the problem, objective of the study, research methodology, tools and techniques of data collection.

Sample design

A sample design was constructed for the purpose of study including population, sampling unit and sample size etc.

Sampling unit: coal mine worker

Sample Size: The sample unit consists of only the coal mine workers: The sample size is 120

Data collection

The data has been collected from two sources which are given below:

Primary Data

- Personal Investigation
- Observation Method
- Information from Questionnaire Method
- Information from superiors of the organization

Secondary Data

- Published Sources such as Journals.
- Unpublished Sources such as Company Internal reports prepare by them given to their analyst & trainees for investigation.

III. DATA ANALYSIS

The study uses various statistics tools to arrive at the results. The responses were categorized, tabulated, processed and analyzed using different methods. The various tools applied in the present study are mean, correlation, factor analysis, two-independent-samples t-test. SPSS version has been used for the purpose of the analysis.

Table 1: Coal mine being survey.

No. of coal mine	Frequency	Percentage
Jharia (Bhowara North)	55	45.9%
Nirsa	15	12.5%
Digwadih	0	10%
Tetulmari (Sijua area)	12	7%
Dhansar (Kusunda area)	20	20%
Total	120	100%

Demographics

It is observed from the table that the respondents categorized based on their demographics such as age, gender, marital status, educational qualification, designation, experience, and monthly income or wages of the select Mines.

Table 2: Age of the Respondents working in select coal mine worker in Dhanbad.

Sl. No	Demographics	Frequency	Percentage
01.	Age		
	25-40	64	53.33%
	40-55	20	16.66%
	Above 55	36	30%
Total			100%

Table 2 reveals that about 30 % were basically between 25-40 years of age which include mainly newly workers. 17% respondents were 40-55 years of age and their population is less followed by 30% of 55 years.

Table 3.

02	Gender	Frequency	Percentage
	Male	71	59.16%
	Female	49	40.83%
Total			100%

Table 3 that 59 % are male respondents and 41 % are female respondents.

Table 4.

03.	Qualification	Frequency	Percentage
	Not pass 10th	57	47.51%
	high school	39	32.5%
	More than graduate	24	20%
Total			100%

Table 4 shows that about 20% respondents have completed Master and above followed by 32.5% of +2 or intermediate and 47.51% have not done 10 class.

Table 5.

04.	Experience	Frequency	Percentage
	Less than 5 year	32	26.66%
	5-10 year	54	45%
	More than 10 year	34	28.33%

Table 5 reveals that about 27% respondents have less than 5 years of work experience followed by 45 % of 5-10 years of work experience and 28% of more than 10 year.

Table 6: No. of dependent in the family.

05.	No. of dependent	Frequency	Percentage
	0	10	8.3%
	1	06	5%
	2	35	29.16%
	3	30	25%
	4	21	17.5%
	5	6	5%
	6	8	6.6%
	7	2	1.6%
	8	2	1.6%
Total		120	100%

Table 6 shows that 8.3 % respondents have no dependents in the family, 12.8% have 1 dependent, 26.1 % have two dependents in the family and about 59.5 % have more than two dependents i.e. three, four and even maximum of seven.

Table 7.

06	Marital status	Frequency	Percentage
	Single	52	43.3%
	Married	68	57%
Total			100%

IV. DATA ANALYSIS AND INTERPRETATION

The hypotheses are tested using different statistical tools.

A. Testing of Hypotheses

There are no measurable set of factors that cause stress.

Hypothesis is tested by using factor analysis. Factor analysis is a method of reducing data complexity by containing the number of variables. With regard to the factors that cause stress, a total of 41 variables are subject to factor analysis.

Table 8: KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.762
Bartlett's Test of Sphericity	Approx. Chi-Square	2408.647
	Df	820
	Sig.	.000

The measure of sampling adequacy (Kaiser-Meyer-Olkin; KMO measure) was 0.762, which demonstrates that factor analysis is appropriate for this data (Kaiser, 1974, Kaiser 1970). This approach identifies the relationship between various interrelated variables and list them in few appropriate factors .Bartlett's Test Sphericity was significant for the test ($\chi^2 = 2408.647$, $df = 820$, $p < 0.000$), which shows that correlations exist among the items. Moreover, factors having loadings greater than or equal to 0.30 (ignoring the signs) have been retained and the resulting solution yielded twelve interpretable factors. The scale is analyzed using principle component analysis with varimax rotation with the help of SPSS package. Varimax rotated factor analytic results for all the respondents are presented in the Table 9.

Table 9: Total Variance Explained.

Component	Initial Eigen values			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.045	22.061	22.061	3.447	8.408	8.408
2	2.794	6.814	28.875	3.341	8.149	16.557
3	2.130	5.195	34.070	3.301	8.051	24.608
4	2.026	4.943	39.013	2.686	6.551	31.159
5	1.833	4.472	43.485	2.246	5.477	36.637
6	1.813	4.423	47.907	2.222	5.420	42.056
7	1.606	3.918	51.825	1.927	4.701	46.757
8	1.420	3.463	55.288	1.881	4.588	51.345
9	1.283	3.130	58.418	1.718	4.190	55.535
10	1.253	3.057	61.475	1.679	4.095	59.630
11	1.135	2.768	64.243	1.582	3.859	63.489
12	1.017	2.481	66.725	1.326	3.235	66.725
13	.990	2.414	69.139			
14	.878	2.142	71.281			
15	.854	2.084	73.365			
16	.825	2.011	75.376			
17	.749	1.826	77.202			
18	.730	1.781	78.982			
19	.673	1.641	80.623			
20	.663	1.618	82.241			
21	.655	1.598	83.839			
22	.584	1.423	85.263			
23	.543	1.325	86.587			
24	.503	1.226	87.813			
25	.487	1.187	89.001			
26	.458	1.117	90.118			
27	.429	1.047	91.165			
28	.408	.995	92.161			
29	.378	.922	93.083			
30	.347	.846	93.928			
31	.344	.840	94.768			
32	.314	.767	95.535			
33	.278	.678	96.214			
34	.275	.671	96.884			
35	.255	.621	97.505			
36	.218	.532	98.038			
37	.197	.480	98.518			
38	.188	.458	98.976			
39	.174	.424	99.400			
40	.141	.344	99.743			
41	.105	.257	100.000			

Extraction Method: Principal Component Analysis

Principal Factor Method (PFM) was applied to this study. Because of its effectiveness in factor extraction to maximize the variance explained for each factor, determined in order of increasing factor number Twelve factors are extracted whose Eigen value is greater than one and the twelve factors explain 66.725 variance.

Table 10: Rotated Component Matrix.

Factors	Component											
	1	2	3	4	5	6	7	8	9	10	11	12
Time Management	-.010	.138	-.043	.221	-.106	.106	-.037	.715	-.041	-.176	-.128	-.029
More Working hours	-.037	.036	-.112	-.062	.243	-.063	-.010	.691	-.215	.179	.031	-.154
Tedious work culture	.086	-.186	.141	-.166	-.214	-.281	.002	.621	.168	.076	.227	.157
Satisfactory salary	-.068	.156	.043	.769	.068	-.085	.172	.072	.190	-.060	-.091	-.079
Satisfactory Compensation Package	.197	.081	-.046	.848	.053	.119	-.063	-.087	-.098	.048	-.029	.085
Good Bonus and Incentives	.134	.114	.239	.728	.079	.065	.032	.089	-.040	.085	.137	.165
Job recognition	.235	.274	.270	.197	.115	.005	.208	.060	-.412	-.019	.351	-.234
Challenging job	.118	.499	.222	.151	.437	-.079	.025	.249	.152	-.132	-.056	.107
Good working condition	.414	.435	.186	.239	.145	.250	-.081	-.073	.109	-.044	.047	.008
Motivating reward	.501	.074	.507	.346	.177	.097	-.205	.022	-.054	.138	.150	.085
Good HR Practices	.587	.244	.301	.209	.088	.145	-.159	-.079	.120	.082	.262	.104
Encouraging promotion opportunity	.240	.386	.259	.089	.482	-.048	-.030	-.249	-.049	.176	.026	.001
Good Career development Opportunity	.163	.443	.152	.135	.556	.064	.030	-.104	.175	.187	.086	-.061
Good quality of work life	.364	.437	.088	.067	.282	.327	-.325	-.017	.014	.032	-.004	-.284
Convenient work place	.151	.199	-.040	.076	.053	-.110	-.002	-.063	.677	.058	.050	-.046
Flexible work schedules	.665	-.019	-.009	.040	.175	-.047	.183	-.046	.174	-.107	-.057	-.112
Satisfactory paid vacation leave	.133	.000	.011	.116	.751	.139	.191	.071	-.037	-.082	.118	.231
Opportunities for learning new skill	.212	.194	.585	-.015	.495	-.092	.064	-.048	.089	-.092	-.061	.031
Participation in decision making	.173	.061	.163	.244	.042	.194	.530	.018	.044	-.285	-.095	.124
Good Superior encouragement	-.039	.099	.762	.052	.107	.096	.109	.058	-.079	-.009	.197	.132
freedom in job	.147	-.021	-.002	-.030	.157	.347	.721	-.098	.007	.023	-.024	-.065
Training opportunity	.537	-.051	.336	.116	.297	-.121	.219	.134	.053	-.029	-.090	.014
Fair Performance appraisal	.307	.172	.422	.331	.162	.076	.248	-.119	.037	.055	.352	.118
High team work	.658	.112	.245	.035	-.042	.023	.223	.031	-.052	.107	.118	.074
Continuous feedback	.275	.306	.462	.193	-.002	-.012	.482	-.027	-.112	.068	.022	-.123
Relations with Colleagues	.302	.349	.035	-.063	.135	.318	.340	.203	.304	.151	-.148	-.041
Clear responsibilities and target	.385	.237	.554	.106	.055	.055	-.029	.103	.262	-.105	-.192	-.032
Interesting Job	.369	.497	.324	.067	.024	-.013	.048	.040	.197	-.296	-.018	.229
Reward for performance	.039	.160	.119	-.013	.054	.016	-.103	.020	.062	-.005	.841	-.022
Job Accomplishment	-.031	.766	.221	.153	-.043	.032	.070	-.033	.099	.017	.151	-.029
Job satisfaction	.206	.567	.240	.296	.159	-.059	-.021	.030	-.078	-.048	.227	.078
Willingness to work	-.045	.521	-.094	-.101	.268	.029	.389	.270	.018	-.073	-.014	.221
Task overload	.125	-.153	-.196	-.017	.029	-.664	-.078	.114	-.282	.078	.006	.086
Role overload	-.018	.055	-.011	-.037	.058	-.710	-.155	.067	.301	.011	-.126	-.074
Roles Ambiguity	.129	-.035	-.139	.079	.161	.693	.186	.122	-.022	-.121	-.076	.284
Personal Growth	.051	.097	.131	.152	.159	.140	-.012	-.067	-.014	.084	-.019	.774
Recreation in Job	-.052	.101	.151	.080	-.059	-.301	-.150	.138	-.508	.388	-.313	-.027
quality time for Family	.121	.083	-.111	-.145	.107	.067	-.028	-.073	-.189	-.775	.156	-.039
Job Priority	.168	.003	-.200	-.078	.141	-.065	-.100	-.087	-.189	.661	.210	.064
Good counseling services	.237	.192	.608	.025	-.078	-.052	-.027	-.272	-.207	-.003	.072	-.046
Valued in organization	.541	.419	-.162	.021	.112	.037	.047	-.050	-.224	-.090	.074	.340

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

In case of few components, factor loadings are less. In case of five components, either the factor loadings are small or there are only one or two factors with minimum factor loadings of 0.3. Hence seven factors out of twelve factors are considered.

Table 11: Factors identified based on Factor Loadings.

Factors	Variables
1. Time Management	<ol style="list-style-type: none"> 1. I start and finish work on-time. 2. I work more than agreed number of hours. 3. Work culture is tedious in my organization
2. Compensation System	<ol style="list-style-type: none"> 1. Salary is satisfactory. 2. Overall compensation package is satisfying. 3. Bonus and incentives given by management are good 4. Rewards offered by the management are motivating.
3. Intrinsic Factors	<ol style="list-style-type: none"> 1. The job is challenging and responsible. 2. Encouraging promotion opportunity. 3. Overall quality of work life is good. 4. I get support and encouragement from my colleagues. 5. My job is interesting and meaningful. 6. I feel a sense of accomplishment in my work 7. I am very satisfied with my work
4. Empowerment	<ol style="list-style-type: none"> 1. Suggestions given are not recognized by the superiors. 2. There is no freedom in doing the job. 3. There is no freedom in doing the job. 4. I am willing to put extra effort in order to help the organization become successful.
5. Development	<ol style="list-style-type: none"> 1. Training is given frequently in the organization. 2. Appraisals are conducted in a fair and objective manner. 3. Superior's encouragement for my development is good. 4. Opportunities to learn new skills are encouraged. 5. Expectations and targets are clearly communicated.
6. Role Overload	<ol style="list-style-type: none"> 1. I experience role overload. 2. I feel that I am unable to do proper justice to all the roles equally. 3. I often suffer from shifting of time
7. Time for himself and his family	<ol style="list-style-type: none"> 1. I take quick, short or no breaks during the day. 2. My family members and friends complain that I don't have enough quality time for them. 3. In order to get recognized in organization, employees must constantly put work ahead of their family or personal life.

Hence, null hypothesis is rejected it is because there are measurable set of factors that cause stress in bank employees.

B. Hypothesis 2: Factors of work stress are independent of demographic variables.

Hypothesis is tested using Chi-square.

Table 12: Age and Factors causing Stress.

Factors	Chi square	Level of significance
Time Management	27.951	1 % significant
Compensation System	46.207	Insignificance
Intrinsic Factors	80.298	Insignificance
Empowerment	59.818	10 %
Development	59.818	10%
Role Overload	84.770	10%
Quality time for family and his family	22.701	Insignificance

Null hypothesis is rejected in case of time management, Empowerment, Development, Role overload *i.e.* These factors causing stress differ depending on the age group because chi-square values are significant.

Null hypothesis is accepted in case of compensation system and quality time for family and himself because chi-square values are insignificant.

Table 13: Gender and Factors causing stress.

Factors	Chi square	Level of significance
Time Management	4.931	Insignificance
Compensation System	14.774	Insignificance
Intrinsic Factors	20.823	Insignificance
Empowerment	13.678	Insignificance
Development	13.678	Insignificance
Role Overload	23.813	Insignificance
Quality time for family and his family	8.096	Insignificance

What we can infer from the table 13 that there is no significant difference between gender and factors causing stress because the chi square is insignificant. So we can accept the null hypothesis in this case. Now a day, gender may not be the factor to determine the stress level.

Table 14: Marital Status and Factors causing Stress.

Factors	Chi square	Level of significance
Time Management	8.404	10% level of significance
Compensation System	16.887	Insignificance
Intrinsic Factors	33.168	Insignificance
Empowerment	9.789	Insignificance
Development	9.789	Insignificance
Role Overload	13.847	Insignificance
Quality time for family and his family	8.160	Insignificance

From the table 14, it shows that only gender is related to the time management because there is significant difference between gender and factors causing stress. In all other cases the value is insignificant.

Table 15: Qualification and Factors.

Factors	Chi square	Level of significance
Time Management	15.042	Insignificance
Compensation System	65.772	Insignificance
Intrinsic Factors	103.636	5 % level of significance
Empowerment	60.259	10 % level of significance
Development	60.259	10 % level of significance
Role Overload	78.615	Insignificance
Quality time for himself and his family	22.984	Insignificance

Table 15 shows that qualification is significantly related to intrinsic factors, Empowerment and development. Thus null hypothesis is rejected in this case but there is no significant difference between qualification and time management, compensation system, role overload and quality time for family and himself.

Table 16: Work Experience and Factors causing Stress.

Factors	Chi square	Level of significance
Time Management	6.508	Insignificance
Compensation System	76.660	Insignificance
Intrinsic Factors	114.358	Insignificance
Empowerment	76.351	10 % level of significance
Development	76.351	10 % level of significance
Role Overload	99.450	Insignificance
Quality time for himself and his family	37.266	Insignificance

Table 16 shows that Work experience is significantly related to empowerment and development but in other factors there is no significant difference between work experience and factors causing stress.

Table 17: No. of Dependents and Factors causing Stress.

Factors	Chi square	Level of significance
Time Management	6.508	Insignificance
Compensation System	76.660	Insignificance
Intrinsic Factors	114.358	Insignificance
Empowerment	76.351	10 % level of significance
Development	76.351	10 % level of significance
Role Overload	99.450	Insignificance
Quality time for family and his family	37.266	Insignificance

Table 17 shows that no. of dependents are only significantly related to empowerment and development. But null hypothesis is accepted to other factors and no. of dependents.

C. Hypothesis 3: There is no relationship between work stress and its outcomes.
Hypothesis is tested using correlation

Table 18: Work Stress and its Outcomes.

Factors	Correlations	Level of significance
1. Job satisfaction	- 0.617	Significant at 1%
2. Work-life balance	- 0.125	Significant at 10%
3. Attrition Rate	0.100	Insignificant
4. Job commitment	- .128	Significant at 10%

(a) There is negative correlation between job satisfaction and work stress. *i.e* 0.617 at 1% level of significance. If job satisfaction increases level of stress decreases.

(b) Work life balance and level of stress have weak negative correlation at 10 % level of significant. .If work stress increases work life balance is difficult to maintain.

(c) There is positive correlation between attrition rate and work stress. If stress increases attrition rate also increases but the correlation value is insignificant.

(d) There is weak negative correlation between job commitment and work stress at 10 % level of significance. If work stress increases, job commitment may come down.

Hence , null hypothesis is rejected in case of the relationship between work stress on one hand and outcomes such as job satisfaction, work-life balance and job commitment on the other hand as the correlation values are significant. Therefore it can be concluded that there is significant negative relationship between work stress and outcomes such as job satisfaction, work-life balance and job commitment thereby implying that if work stress increases, job satisfaction, work-life balance and job commitment decreases.

In case of the relationship between work stress and attrition, the correlation value is insignificant and hence null hypothesis is accepted.

B. Various Dimensions of Work Stress

Table 19: Dimensions of Time Management.

Factors		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Missing
Time Management	Frequency	9	5	14	79	70	3
	Percentage	5	2.8	7.8	43.9	38.9	1.7
More working hours	Frequency	5	24	37	78	34	2
	Percentage	2.8	13.3	20.6	43.3	18.9	1.1
Tedious work culture	Frequency	7	39	62	52	12	8
	Percentage	3.9	21.7	34.4	28.9	6.7	4.4

It is inferred from the table 19 that 83 % agree that they can manage the time and 7.8 % believe that they cannot manage the time. 7.8 % respondents are neutral about their views on time management.

Similarly 43.3 % agree that they agree that they have working hours and 18.9 % strongly agree that they have more working hours. 16.1 % believe that they don't have more working hours.20.6 % are neutral about their views on more working hours.

6.7 % strongly agree that they have tedious work culture and 28.9 % percent believe that they agree about tedious work culture. 25 % believe that they don't have tedious work culture.

Table 20.

Factors		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Missing System
Satisfactory salary	Frequency	10	36	50	75	7	3
	Percentage	5.5	19.9	27.6	41.4	3.9	1.7
Satisfactory compensation package	Frequency	8	27	59	76	5	6
	Percentage	4.4	14.9	32.6	42	2.8	3.3
Good Bonus & Incentives	Frequency	21	34	55	68	2	1
	Percentage	11.6	18.8	30.4	37.6	1.1	0.6
Motivating reward	Frequency	9	43	67	54	6	2
	Percentage	5	23.8	37	29.7	3.3	1.1

Dimensions of Compensation System

The table 20 shows us that 45.3 % agree that they are satisfied with salary and 25.4 believe that they don't have satisfactory salary.

In the same way 2.8 % strongly agree that they have satisfactory compensation system and 19 % believe that they don't have satisfactory salary.

About 38.7 % strongly agree that they have good bonus and incentives and about 30.4 % believe that they disagree about having good bonus and incentives in their banks.

About 29 % believe that they don't have motivating reward in their organization and about 33 % believe that they agree about having motivating reward. 37 % are neutral about having motivating reward.

Table 21: Dimension of Intrinsic Factors.

Factors		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Missing
Challenging Job	Frequency	3	6	32	97	42	1
	Percentage	1.7	3.3	17.7	53.6	23.2	0.6
Encouraging Promotion Opportunity	Frequency	8	27	53	76	16	1
	Percentage	4.4	14.9	29.3	42	8.8	0.6
Good career Development	Frequency	2	26	49	87	16	1
	Percentage	1.1	14.4	27.1	48.1	8.8	0.6
Good quality of work life	Frequency	3	18	60	84	12	4
	Percentage	1.7	9.9	33.1	46.4	6.6	2.2
Relations with Colleagues	Frequency	2	7	35	114	21	2
	Percentage	1.1	3.9	19.3	63	11.6	1.1
Interesting job	Frequency	4	18	43	89	25	1
	Percentage	2.2	10	23.9	49.4	13.9	1.7
Job Accomplishment	Frequency	3	11	45	104	15	3
	Percentage	1.7	6.1	24.9	57.5	8.3	1.7
Job Satisfaction	Frequency	4	17	58	84	15	3
	Percentage	2.2	9.4	32	46.4	8.3	1.7

From the table 21, about 77 % believe that they agree about having challenging job and 5 % believe that they disagree about having challenging job. Similarly about 50 % believe that they have encouraging promotion opportunity. 29.3 % respondents are neutral about their view on having promotion opportunity. About 57 % agree about having good career development opportunity but 16 % disagree about having career development opportunity. About 53 % and 74 % believe that they have good quality of work life and good relationships with colleagues.

7.8 % respondents believe that they don't have interesting job and 63.3 % believe that they don't have interesting job. About 65.8 % respondents agree about accomplishing job and 7.8 % don't agree about accomplishing job in time.

46.4 % agree about having job satisfaction but only 8.3 % strongly agree about having job satisfaction. 11.6 % don't agree about having job satisfaction.

From the table 22, 29 % respondents agree about their suggestions are taken by superiors but 30 % don't agree that their suggestions are taken by superiors. 40.3 % are neutral whether their suggestions are taken by superiors or not. About 43 % agree about having freedom in job and 28 % don't agree about having freedom in job. 55 % agree that they get continuous feedback from the superiors and 15 % disagree about getting continuous feedback. 27.1 % are confused whether they get continuous feedback or not.

Table 22: Dimensions of Empowerment.

Factors		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Missing System
Participation in decision making	Frequency	4	50	73	43	10	1
	Percentage	2.2	27.6	40.3	23.8	5.5	0.6
Freedom in Job	Frequency	7	44	51	60	17	2
	Percentage	3.9	24.3	28.2	33.1	9.4	1.1
Continuous feedback	Frequency	3	24	49	97	6	2
	Percentage	1.7	13.3	27.1	53.6	3.3	1.1
Willingness to work	Frequency	3	14	24	96	43	1
	Percentage	1.7	7.7	13.3	53	23.8	0.6

About 77 % respondents agree that they are willing to put extra effort but 9 % don't agree that they are not willing to put extra effort to get their jobs done.

Table 23: Dimensions of Development.

Factors		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Missing
Training Opportunity	Frequency	12	44	62	54	8	1
	Percentage	6.6	24.3	34.3	29.8	4.4	0.6
Fair Performance Appraisal	Frequency	18	32	47	77	4	3
	Percentage	9.9	17.7	26	42.5	2.2	1.7
Good Superior encouragement	Frequency	5	17	56	88	12	3
	Percentage	2.8	9.4	30.9	48.6	6.6	1.7
Good Counseling services	Frequency	10	23	50	84	12	2
	Percentage	5.5	12.7	27.6	46.4	6.6	1.1
Opportunities for learning new skills	Frequency	5	27	61	71	14	3
	Percentage	2.8	14.9	33.7	39.2	7.7	1.7
Clear responsibilities and target	Frequency	2	26	52	83	16	2
	Percentage	1.1	14.4	28.7	45.9	8.8	1.1

From the table 23, 34 % agree that they get good training opportunity and 31 % disagree about getting training opportunities.

44 % agree that they get fair performance appraisal but 27 % disagree about having fair performance appraisal. 26 % are neutral about getting fair performance appraisal.

55 % agree that they get good superior encouragement but 12 % disagree about having good superior encouragement. 30.9 % are neutral about good superior encouragement.

53 % agree that they get good counseling services but 18 % disagree about getting good counseling services.

39.2 % agree that they get opportunities for learning new skills but 2.8 % strongly disagree that they don't get opportunities for learning new skills.

55 % agree that their responsibilities and target are properly communicated but 16 % disagree on getting clear communication of clear responsibilities and target.

Table 24: Dimensions of Role Overload.

Factors		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Missing
Task overload	Frequency	38	73	32	33	2	3
	Percentage	21	40.3	17.7	18.2	1.1	1.7
Role Overload	Frequency	19	46	53	52	7	4
	Percentage	10.5	25.4	29.3	28.7	3.9	2.2
Role Ambiguity	Frequency	5	30	40	80	24	2
	Percentage	2.8	16.6	22.1	44.2	13.3	1.1

From the table 24 it is cleared that about 19 % agree that they have task overload. About 51 % disagree about having task overload. 28.7 % agree that they have role overload and 3.9 strongly agree that they have role overload. 10.5 % strongly disagree about their role overload and 29.3 % with neutral responses.

About 58 % agree on their role ambiguity but 19 % disagree on having role ambiguity.22.1 % is with neutral responses

Table 25: Dimensions for Quality time for himself and his family.

Factors		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Missing
Recreation in Job	Frequency	9	50	34	69	16	2
	Percentage	5	27.8	19.1	38.8	9	1.1
Quality time for family	Frequency	20	66	40	41	12	1
	Percentage	11.1	36.7	22.2	22.8	6.7	0.6
Job Priority	Frequency	15	48	39	66	12	0
	Percentage	8.3	26.7	21.7	36.7	6.7	0

From the above table 25, it is clear that 48 % agree that they get free time during work but 5 % strongly disagree on that, 27.8% disagree, 19.1 % are neutral on this point.

30 % believe that they have quality time for family but 48 % believe that they don't have quality time for family and 22.2 % are neutral on this view.

43 % agree that they give more priority to job, 8.3 % strongly agree, 26.7 % agree, 21.7 % on neutral responses.

Table 26: Valued in Organization.

Opinions		Frequency	Percent
	Strongly disagree	3	2.6
	Disagree	13	10.9
	Neutral	52	43.3
	Agree	36	30
	Strongly Agree	14	11.7
	Total	118	98.3
Missing		2	1.7
Total		120	100.0

The Table 26 reveals that 11.7 % strongly agree that they are valued in an workplace and 2.6 % strongly disagree, 10.9 % disagree, 43.3 % on neutral responses.

Table 27: Work stress

Opinions	Frequency	Percent
Strongly disagree	10	8.3
Disagree	21	17.6
Neutral	48	40
Agree	15	12.6
Strongly agree	16	13.3
Total	120	100.0

From the table 27 it is inferred that 12 % agree that they are stressed but 17.6% disagree that they are stressed.8.3 % strongly disagree that they are stressed. 8.9 % strongly agree that they are stressed.40 % have neutral responses.

Table 28: Effect of Work Stress on Personal Life.

	Frequency	Percent
Strongly disagree	11	9.2
Disagree	42	35.2
Neutral	35	29.4
Agree	21	17.7
Strongly Agree	10	8.4
Total	119	99.9

From the table 28, it can be seen that 17.7% agree that there is impact of stress on personal life. 8.4 % strongly agree that there is high impact of stress on personal life. 9.2 % strongly disagree on these and 35.2 % disagree on the same. Again 31.1 % are neutral about this point.

Table 29: Impact of Work Stress on Health.

Opinions	Frequency	Percent
Strongly disagree	14	11.7
Disagree	16	13.3
Neutral	26	21.7
Agree	43	35.9
Strongly Agree	19	15.9
Total	118	98.3
Missing	2	1.1
Total	120	100.0

It is inferred from the table 29 that 13.3 % disagree as well as agree of their impact of stress on health. 21.7% are neutral of their view.11.7 % disagree that there is impact of stress on health.

Table 30: Work- Life Balance.

Opinions	Frequency	Percent
Disagree	26	21.7
Neutral	18	15
Agree	45	37.5
Strongly agree	24	20
Total	113	94.1
Missing	7	5.9
Total	120	100.0

Table 30 reveals that 37.5 % agreed that they have work-life balance and 21.7 % disagreed.

Table 31: Intention to Quit the Job.

Opinions	Frequency	Percent
Strongly disagree	25	20.9
Disagree	42	35
Neutral	35	29.1
Agree	13	10.9
Strongly agree	5	4.1
Missing		
Total	120	100.0

It is inferred from the figure that 20.9 % strongly disagree on their intention to quit the job, 35% disagree, 29.1 % have neutral responses, 10.9 % agree and 4.1 % strongly agree about their intention to quit the job.

Table 32: Job Security.

Opinions	Frequency	Percent
Strongly Disagree	20	17
Disagree	33	27.6
Neutral	24	20
Agree	39	32.5
Strongly Agree	4	3.3
Total	120	100.0

Table 33: Work stress due to shift of time.

Opinions	Frequency	Percent
Strongly Disagree	2	1.6
Disagree	9	7.5
Neutral	16	13.3
Agree	33	27.5
Strongly Agree	60	50
Total	120	100.0

Table 32 reveals that 32.5 % agree that they feel job security and 27.6 % disagree about having job security. 17 % strongly disagree in having job security but only 3.3 % strongly agree on having job security. 20 % are neutral about their view on job security.

Findings of the study

The present chapter outlines the findings of the research study highlighting various factors causing stress, stress level experienced by employees in banks in Nepal, impact of stress on various outcomes and other dimensions of work stress. The findings are presented as per the objectives of the study.

Hypothesis 1: There is no measurable set of factors that causes stress.

Finding: In order to determine the major factors causing stress, factor analysis was applied. The results revealed that seven factors have been identified as the factors affecting stress. They are:

1. Time Management
2. Compensation System
3. Intrinsic Factors
4. Empowerment
5. Role Overload
6. Time for himself and his family

Hypotheses 2: Factors causing stress are independent of demographic factors.

Findings

Through testing of hypothesis by chi square, it is found that age is the demographic factor for causing differences in the individuals' stress level whereas for other demographic variables like gender, marital status, education qualification, it is not significant.

Hypothesis 3

There is no significant relationship between work stress and its outcomes.

Findings

Using correlation, it is found that job satisfaction, work – life balance, job commitment are negatively related to work stress whereas attrition rate is positively related to the stress. Job satisfaction, work life balance, organizational commitment are at stake due to stress level in workers which seriously affect the performance of coal mine

It implies that with increase in stress, intention to leave the work also increases which impede the productivity and efficiency of workers.

Key Findings

- About 50 % of the respondents believe that they face high level of stress which are due to the different causes
- About 31 % are dissatisfied with the low bonus, incentives and lack of reward.
- About 20 % opined that there is lack of promotion opportunity and career advancement.
- About 30 % are not satisfied with the empowerment and freedom in job.
- Similarly other grey areas include training opportunity, fair performance appraisal and role ambiguity.
- It has been seen that 50% of respondent opined that stress caused due to shift problems

V. CONCLUSION

To sum up, the quality of work life of employees is poor in areas like working conditions, flexible working system, and nature of work, job enrichment, timely promotions, autonomy, participative decision making and stress. But the quality of work life of employees is quite good in various areas like job security, social relevance of work, wages and salaries, training and development, safety, reward mechanisms welfare etc. In short, the areas where the quality of work life is poor is offset by the provision of various employee oriented programs undertaken by the company. Work stress is becoming a major issue and a matter of the concerns for the workers as well as the organization. It has various psychological, sociological and organizational impacts.

Eustress is regarded as beneficial force that helps to forge ahead against obstacles. Feeling of insecurity, inadequacy, helplessness, anxiety and frustration turn stress into distress. Number of factors cause work stress in coal mine industry like more working hours, inadequate salary, lack of career development opportunity, task overload, working condition which has a high level of impact on employee efficiency and productivity. Work stress gives rise to increased turnover, dissatisfaction, lack of job commitment which impedes the growth and success of banks.

In an age of highly dynamic world, workers are exposed to all kinds of stressors that can affect him on all realms of life. Hence, the management must take several initiatives in helping their workers to overcome its disastrous effect.

VI. RECOMMENDATIONS

Stress, at work, is one of the threats in providing a healthy platform of work to workers. The cost of stress is not only direct but also it leads to much indirect costs. The management of stress is therefore very essential especially in coal mine industry.

Since the working conditions are poor, the company has to implement all the provisions of Mines Act to ensure good working conditions. It should also educate the workers about the various measures taken to improve the working conditions

- At the organizational level, there is need to formulate preventive and remedial strategies to keep their workers away from the exposure of all types of stress. The most helpful method of dealing with stress is learning how to manage it.

The following measures will help in mitigating stress:

- Attractive system of reward and recognition of good work.
- Equal distribution of the workloads, fair performance appraisal, recognition of good performers at the right time.
- Adequate role clarification to be made whenever necessary to eliminate role ambiguity.
- Empowerment to the employees so that they get freedom in job and have chance for personal growth.
- Introduce more job oriented training programs, which improve employees' skill and their confidence to work effectively.
- As stress has got a number of negative consequences for the individuals that is why very individual should take responsibility for reducing his or her stress level. Knowledge about stress, Time Management, Planning in advance, Social support network are some of the stress coping strategies for individual.
- To overcome the high stress levels of workers the company has to conduct yoga and meditation classes at regular intervals. It should also educate workers about the advantages of quitting bad habits such as smoking, alcoholism, gambling, gutka chewing etc.

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