

OCCUPATIONAL STRESS AMONG BRICK KILN WORKERS INTERACTION OF DEMOGRAPHIC VARIABLES

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ABSTRACT

The purpose of the study is to investigate the cause and effect relationship among the occupational stress as dependent variables and age, working experience as the independent variables with the help of linear regression model. Further a two way analysis of variance has been applied in order to study the interaction effects of different demographic variables, on occupational stress. The study adopted a survey research design. A total of 100 workers were selected for the study working at brick kilns in Uttar Pradesh, India. The data was collected with the help of modified version of Occupational Stress Scale developed by the Srivastava A.K. (1976). The study clearly revealed that the fitting a cause and effect model, age and experiences in work are the robust explanation of the occupational stress. The amount of occupational stress perceived by the brick kiln workers divided into different categories on the bases of demographic variable ie., gender, family size, literacy status and marital status separately, were found to be significantly different, but the interaction of the two variable jointly did not show any significant impact on occupational stress.

Keyword: Demography, Interaction effect, Occupational stress, workers in unorganized sector.

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INTRODUCTION

The occupational stress is defined as the condition in which some factors or combination of factors interferes with the workers and interrupts his or her physical and psychological health. According to Cooper and Marshal (1976), occupational stress includes the stressors such as work overload, role ambiguity, role conflict and poor working conditions related with a particular job.

Lu (1997) has generalized that a small amount of stress can bring about an increase in individual's efficiency which is the positive stress known as 'eustress', while too much stress results in mental and physical ill health which is negative stress known as 'distress'. In other words the Occupational stress may be defined as the distractive physical and injurious emotional response that arises at time when the job do not match the capabilities, resources or needs of the worker. From that definition occupational stress is chronic condition caused by situation in the work place that may negatively affect an individual's job performance and their overall well being. The measurement of Occupational stress and its relationship that influences with other variables like socio-demographic, psychological well being, physical well being, has been investigated by the number of the researchers.

Occupational stress is defined as the harmful physical and emotional responses that arise when the requirements to perform job do not match with the capabilities and resources or needs of the worker (**Raeissi & Tavakoli, 2002**). From the definition occupational stress is described as chronic conditions caused by situation in the work place that may negatively affect an individual's job performance and their overall well being. Work and family are the two most important aspects in people's lives and contrary to the initial belief that they are distinct parts of the life, these domains are closely related.

The interaction of the occupational stress with demographic variables on occupational stress, were investigated by several researchers, occupational stress is influenced by the income and experiences of the individuals (**Ramya & Mallika, 2013**). Age, income, length of services, hierarchical components also put some impacts on the level of occupation stress, in an investigation in insurance industry, out of 374 insurance employees of all grades, 53% were below the age of 29 years. The respondents belonging to the age group of above 29 years

experienced more stress than other age groups and the respondents who earned monthly income above 50,000 experienced more stress compared to others. Further, the respondents with more than 5 years length of service and higher hierarchical level predicted high level of stress as compared to other groups (**Sharma & Kaur, 2013**). Occupational stress is associated with the status of the person is residence and due to which the problem of migration arises the, it is important to investigate the influences of socio economic factors, and demographic factors (age, gender, marital status) on the stress level of migrated workers as unorganized sector provide the job opportunity to the migrated workers. **Mohanaraj & Manivannan (2013)** argued that there is close association between age, gender and marital status, as the married male elderly are feeling higher level of occupational stress, their arguments is consistent with the previous findings and indicate that the occupational stress do not change with respect to the change in location in consideration to the demographic variables.

Other than demographic variables, several other factors has been investigated which influences the level of occupational stress, such as organizational factors, working conditions, job related stressors, role ambiguity etc. The root causes of the occupational stress lies under four dimensions namely rank, role and motivation related stressors, work and working hour related stressors, organization related stressors. The majority of stressors of all the dimensions and source of stress significantly influences the family, social life and health of an individual's where as it do not associate with the organization of the workers. The demographic variables (sex and marital status) don't have significant relationship with dimensions of sources of stress (**Rajan, 2014**). The remarks related to the demographic variables and stressors proposed by him seems to be contradiction of others works.

In a seminal work done by **Niharika & Kiran, (2014)**, the relationship among the occupational stress and other variables, hierarchy, work experience, type of bank were retested. Their work revealed that private bank employees had high occupational stress due to strenuous working conditions, unreasonable group, and role conflict, under participation, peer relations and intrinsic impoverishment in comparison to nationalized bank employees because of their heavy workload and work pressure to achieve their target. A positive highly significant relationship was observed between occupational stress and independent variables. Positive relationship was also observed between types of bank with role overload. Highly significant negative relationship also was observed between independent variables and occupational stress.

Heavy workload, repetitive work, and poor working environment were among the stressors identified in the category of job itself, other than these factors, the inconsiderate and inequitable level, lack of recognition, and conflict within the groups were the major sources of stressors (Beh & Loo, 2012). In a seminal work among the construction professional, in Nigeria (Ibem *et al.*, 2011) support the previous results and conclude that the principal sources of stress were high volume of work, uncomfortable site offices, lack of feedback on previous and ongoing building projects, and variations in the scope of work in ongoing building projects.

Hard physical labour, working environment, dust, noise has significantly influences the health of the women workers in construction industry, the working conditions has increased the difficulties to make equilibrium in work life (Devi, & Kiran, 2014).

Devi, & Kiran, (2015) studied musculoskeletal disorders among the workers of selected industries in unorganized sectors and concluded that the musculoskeletal disorder will be differs with the level and types of work.

Terry *et al.* (2011), in his study investigated the relationship among levels of work stress, social support and well being. It was proposed that high level of work stress (role ambiguity, role conflicts, work overload, and underutilization of skills) would have a negative impact on job satisfaction and psychological well being. A study on employees of a large public sector organization revealed that there was some support for the proposed affects of work stress and social support on well being. Role ambiguity and role conflict emerged as significant predictors of both psychological well being and job satisfaction. There was also some support for the proposed role of underutilization of skills However contrary to expectations, the experience of quantitative work overload did not have a significant main effect on either psychological well being or job satisfaction.

The brick kilns industry is the back bone of the constructions industry, the workers working in brick kilns industry have to perform several jobs which may cause physical stress among the workers. The prevalence of the occupational stress among the workers is an important issue as this industry is full of the workers who migrated from their native places, and jobs in this industry requires hard work under the natural setting of environment. The worker have to perform jobs in the summer seasons mostly therefore their working pattern is different from others as they work during every night, at the interior location where they do not have any health

and other facility. The study also has revealed that there are significant influences of the demographic status of the person on the level of occupational stress.

Most of the researchers have mostly used one way ANOVA technique to analyze the data. Previous researches have one layer of the facts of the study and the present research tried to explore two layer of information regarding the relationship with the help of two way ANOVA.

The present paper explores the variable interaction with the following objectives-

- To study the cause and effect relationship among the occupational stress as dependent and age and work experiences as independent variables with the help of linear regression model.
- To study influences of demographic variables on the occupational stress, and interaction effects of two demographic variables on occupational stress.

H₀: No cause and effect relationship exists among the dependent and independent variables.

H₀: Demographic variables do not influence the occupational stress.

H₀: No significant effects exists in the interaction of two demographic variables on occupational stress.

DATA AND METHODOLOGY

The data has been collected from the workers engaged in activities of production of raw bricks located at Lucknow city, state capital of Uttar Pradesh India. The site was selected on convenience basis of the researcher. Data was collected using modified version of occupational stress scale developed by Srivastava A.K. (1976) inclusive of 26 statements, comprising 17 items of physical stress and 9 items of psychological stress. Occupational stress is measured in continuous scale by adding the total score obtained by an respondent, the score for each item was recorded by using 5 point Likert scale. Scores ranges from 5 for strongly agree to 1 for strongly disagree. The demographic variables Gender, Literacy level, marital status, Family size are recorded as categorical variables. The respondents were interviewed personally. Validity and reliability of the instruments was done to check the relevance to the sample, area and time. The reliability of the scale was assessed and the value was 0.725 and standardized alpha coefficient was 0.777 which indicate that the scale used for the recording of the responses is reliable as it is greater than the alpha value of 0.60.

The hypothesis of cause and effects analysis has been tested by performing the linear regression analysis. Keeping the occupational stress as dependent variable and age and working experiences as dependent variables, the other hypothesis of differences of occupational stress across different demographic variables separately and jointly has been tested with the help of two-way ANOVA, which shows the outcomes of the interaction effects of two categorical variables on dependent variable followed by the single variable.

RESULTS AND DISCUSSION

Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.261 ^a	.068	.039	8.863

a. Predictors: (Constant), number of hours in work, years of experience, age

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	61.562	8.968		6.864	.000
Age	.223	.102	.249	2.193	.031
Years of experience	.074	.377	.022	.196	.845
Number of hours in work	-.241	.860	-.028	-.280	.780

a. Dependent Variable: occupational stress

From the table it is revealed that considering the age, work experiences and number of working hours only 7% variance of the total occupational stress can be explained and the regression equation is

Occupational stress = 61.562+ 0.223(Age) + 0.074(Work experience) – 0.241 (Number of working hrs)

The regression coefficient of age and year of experiences have the positive value (0.223 & 0.074) and number of working hours has negative regression coefficient with value 0.241.

TWO way ANOVA

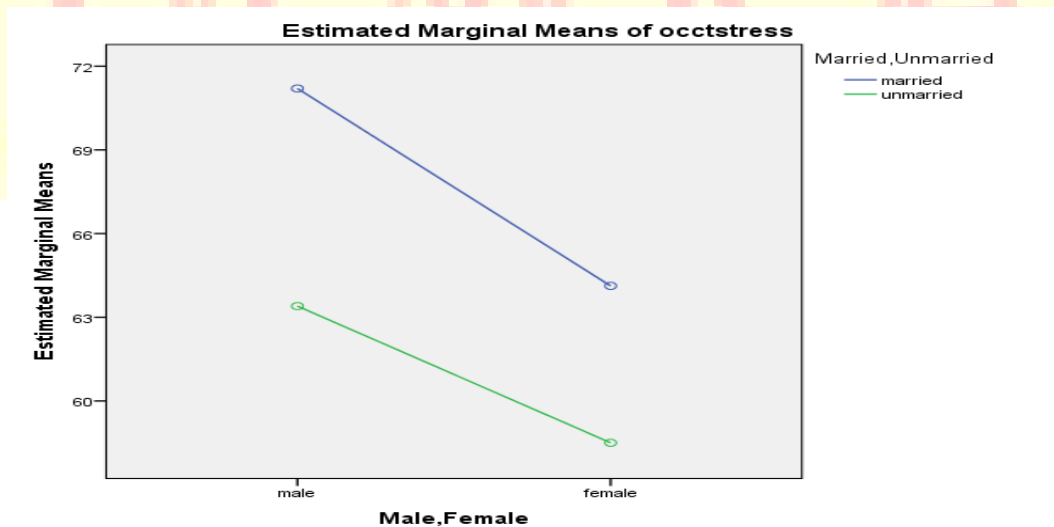
Between-Subjects Factors

		Value Label	N
Male ,Female	1	male	50
	2	female	50
Married, Unmarried	1	married	85
	2	unmarried	15

Tests of Between-Subjects Effects

Dependent Variable: occupational stress

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1903.315 ^a	3	634.438	9.841	.000
Intercept	190554.338	1	190554.338	2955.632	.000
Gender	412.994	1	412.994	6.406	.013
Marital status	519.064	1	519.064	8.051	.006
Gender * marital status	13.624	1	13.624	.211	.647



The table of the two way ANOVA shows male and female possess significantly different amount of occupational stress, the results are consistent with the married and unmarried person, as the significance value (0.013, 0.006) is less than 0.05 at 5 % level of significance. Hence, gender, marital status possess significantly different level of occupational stress. The results of study is consistent with the study of Mohanaraj & Manivannan (2013) i.e. gender and marital status influences the level of occupational stress. The mean scores of occupational stress gained by the different groups formulated considering the marital status and gender simultaneously shows that there are no significant differences across different groups as the p value (0.647) is greater than 0.05 at 5 % level of significance. The results are confirmed by the profile plot as both the lines are parallel to each other which indicate that there is no interaction with the dependent variable.

Between-Subjects Factors

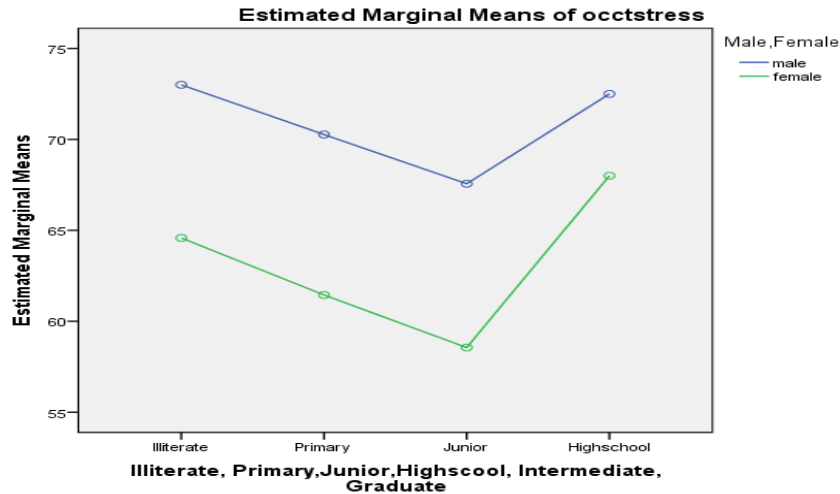
		Value Label	N
Male, Female	1	male	50
	2	female	50
Illiterate, Primary, Junior, High school, Intermediate, Graduate	1	Illiterate	48
	2	Primary	24
	3	Junior	25
	4	High school	3

Tests of Between-Subjects Effects

Dependent Variable: Occupational stress

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1931.226 ^a	7	275.889	4.120	.001
Intercept	147852.608	1	147852.608	2207.700	.000
Gender	486.737	1	486.737	7.268	.008
Literacy status	546.948	3	182.316	2.722	.049
Gender * literacy status	12.742	3	4.247	.063	.979

Profile Plots



The table shows that different workers belonging to different levels of literacy possess different amount of occupational stress and if gender is indicated as another group then the results is reversed as the p value, 0.979 is greater than 0.05, which revealed that perceived amount of occupational stress do not differ across the literate, illiterate male and females. The profile graph again confirms the results.

Between-Subjects Factors

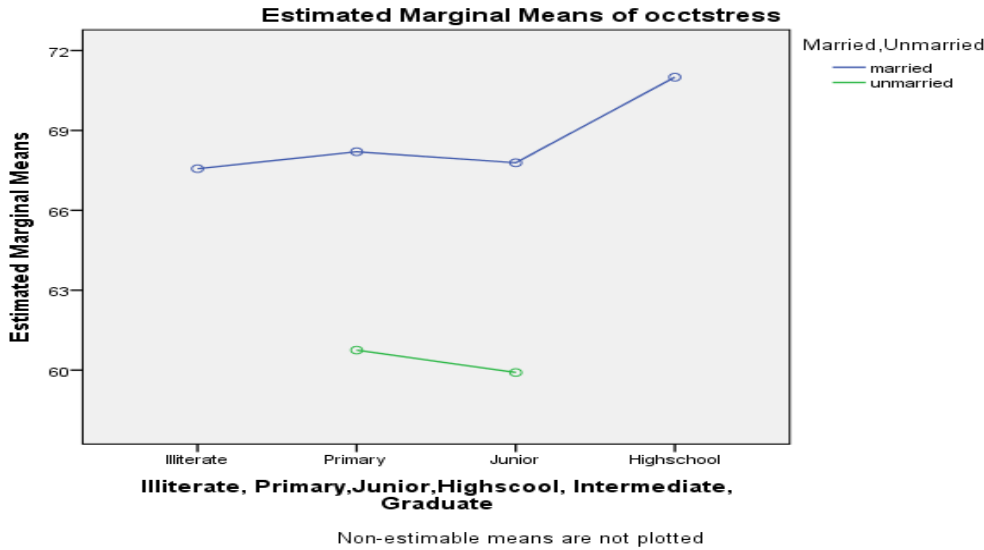
		Value Label	N
Illiterate,	1	Illiterate	48
Primary, Junior,	2	Primary	24
High school,	3	Junior	25
Intermediate,	4	High school	3
Graduate			
Married,	1	married	85
Unmarried	2	unmarried	15

Tests of Between-Subjects Effects

Dependent Variable: Occupational Stress

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	801.561 ^a	5	160.312	2.067	.076
Intercept	138835.099	1	138835.099	1789.939	.000
Literacy status	38.103	3	12.701	.164	.921
Marital status	508.082	1	508.082	6.550	.012
Literacy status * Marital status	.394	1	.394	.005	.943

Profile Plots



The table shows that there is no significant differences in occupational stress among the different groups on the basis of literacy level and marital status, in other way we can say that the married and unmarried persons with different educational background possess same amount of occupational stress.

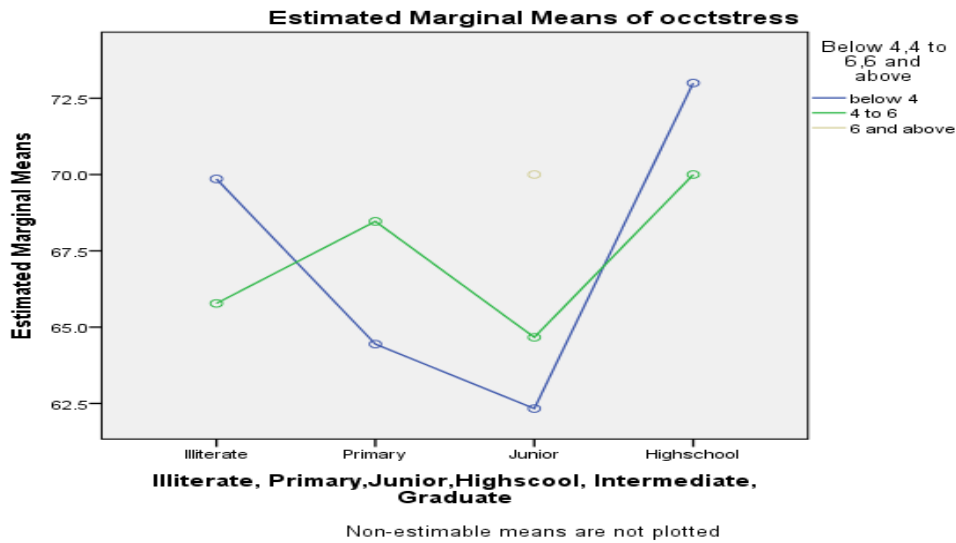
Between-Subjects Factors

	Value Label	N	
Illiterate, Primary, Junior, High school, Intermediate, Graduate	1	Illiterate	48
	2	Primary	24
	3	Junior	25
	4	High school	3
Below 4, 4 to 6, 6 and above	1	below 4	37
	2	4 to 6	62
	3	6 and above	1

Tests of Between-Subjects Effects

Dependent Variable: Occupational stress					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	586.063 ^a	8	73.258	.888	.530
Intercept	65657.697	1	65657.697	795.954	.000
Literacy status	306.037	3	102.012	1.237	.301
Family size	40.600	2	20.300	.246	.782
Literacy status * family size	305.198	3	101.733	1.233	.302

Profile Plots



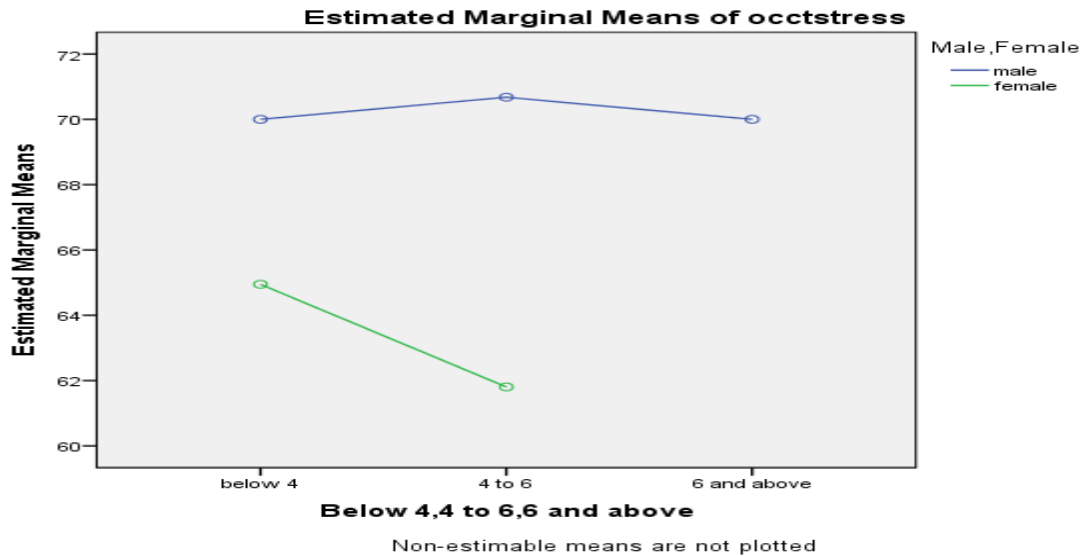
From the table it is clear that there is no significant interaction effects between the two variables with occupational stress. From the graph, it seems that there are two points where the interaction effects have been observed in occupational stress across the family size and their literacy level. Respondents of different levels of literacy belonging to the different family size possess similar amount of occupational stress.

		Value Label	N
Below 4,4 to 6,6 and above	1	below 4	37
	2	4 to 6	62
	3	6 and above	1
Male, Female	1	male	50
	2	female	50

Tests of Between-Subjects Effects

Dependent Variable: Occupational Stress					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1498.030 ^a	4	374.507	5.395	.001
Intercept	62173.945	1	62173.945	895.666	.000
Family size	35.169	2	17.585	.253	.777
Gender	1122.542	1	1122.542	16.171	.000
Family size * Gender	84.420	1	84.420	1.216	.273

Profile Plots



The table shows that there is a significant difference in mean score of occupational stress across the gender. On the other hand, no difference exists in the occupational stress across the family size. If considered both simultaneously no interaction effect exists across the gender and family size. The findings confirmed by the interaction effect plots also as both the lines are parallel. From the above analysis it can be concluded that male & female workers belonging to the small or large family size, vice, versa possess equal amount of occupational stress.

CONCLUSION

Occupational stress has an important role in the human life, the individuals having low level of occupational stress will achieve a superior working life and well being. The level of occupational stress can never be zero as significant amount of the occupational stress works as a crystal to the young ager workers and the employee productivity. But after a certain level, this will be injurious to the worker's behavior. The study accept the null hypothesis of cause and effect i.e. occupational stress cannot be fully understood with the help of age and working experience of the worker as the regression model do not have any significance. Several studies are available in the literature supporting that occupational stress depends on the demography of the worker, age, gender, marital status, literacy level, and family size up to certain extent. The results of our study are surprising as it reject the null hypothesis and accept the alternative as demographic variable

under investigation separately showing the differences in occupational stress, but as soon as they are grouped considering the two variables jointly, the null hypothesis cannot be rejected and occupational stress do not significantly vary across the different groups formulated on the basis of considering two variable jointly. The study revealed that although two or more demographic variable has significant influences on the perceived occupational stress but do not confirm that the effect of interactions of different variable with the occupational stress are similar as they are individually.

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