



OCCUPATIONAL SCREENING AS A TOOL FOR HEALTH PROMOTION IN WORK ENVIRONMENT

Dr.Ravindra Kembhavi	Professor (Additional), Department of Community Medicine, Seth GSMC & KEMH, Parel, Mumbai, Maharashtra 400012
Dr.Harshal kshirsagar	Senior Resident, Department of Community Medicine, Seth GSMC & KEMH, Parel, Mumbai, Maharashtra 400012
Dr. Ganesh Narwane*	Assistant Professor, Department of Community Medicine, Seth GSMC & KEMH, Parel, Mumbai, Maharashtra 400012 *Corresponding Author
Dr Chetana Deshmukh	Junior Resident, Department of Community Medicine, Seth GSMC & KEMH, Parel, Mumbai, Maharashtra 400012

ABSTRACT Work-related stress is considered harmful when physical and emotional responses occur resulting in mismatch between job requirements and the workers' capabilities, resources, or needs. Against this background, we conducted this study to assess the health profile, extent of morbidity & risk pattern of employees of renowned engineering and manufacturing industry in Mumbai and recommend preventive interventions for health promotion. A Cross-sectional study where 80 employees were recruited from industry and specified Laboratory investigation of employees was done along with baseline data and results were analyzed using SPSS software. 67(83%) were male and 13(17%) were females. 11 (13.8%) had systolic and 14(17.5%) had diastolic hypertension. 8 (10%) had raised fasting blood sugar levels and 11(13.8%) had Postprandial hyperglycemia. 16.3%employees were always under stress whereas 56.4% were occasionally under stress. Regular health checkup and education pertaining health promotion can play important role in improved productivity.

KEYWORDS : Working Environment, Occupational Screening, Health Promotion.

Introduction:

Modern organizations consider job stress and job satisfaction of their employees as two important workplace issues^[1]. According to recent studies, occupational stress accounts for 50–60% of all lost working days^[2]. Exposure to physical hazards can be associated with anxiety that, in turn, drives experiencing work-related stress. Psychosocial hazards include factors related to work design, organization, and management, together with workplace social structure that can have negative effects on individuals^[3]. Work-related stress usually influences individual and organizational issues including behavioural, mental, as well as physical outcomes, performance, job satisfaction and organizational commitment^[4].

Employee is an essential component in achieving the mission and vision of a business. Employees should meet the performance criteria set by the organization to ensure the quality of their work. To meet the standards of organization, employees need a working environment that allows them to work freely and perform with full potential. Musculoskeletal problems, diseases of the respiratory system and eye, accidents etc. are common among workers. The ill health is compounded by various socioeconomic factors such as poor working conditions, excess working hours, and poor diet^[5]. Results have shown a positive link between work environment and intrinsic aspect of the job satisfaction. Against this background, and with few studies has been carried out in this part of the country to date, we conducted this study among workers with following

objectives:

- 1) To study the health profile of BHEL employees.
- 2) To assess the extent of morbidity & risk pattern and recommend preventive interventions for health promotion.

Methodology:

- This was a Cross Sectional study enlisting 80 employees who were interviewed using a predesigned, pre-tested, semi structured questionnaire translated into the local language which collected data on socioeconomic conditions, occupational history, health problems. Efforts were made to elicit the problems faced at workplace, dealings with their employer and the changes they would like for a better and conducive working environment. Clinical examination and Specified laboratory investigation of each employee was done like 1) Blood lipid profile 2) HB, CBC,

- Sugar PP & Fasting 3) Urine Routine 4) Eye Test 5) ECG.
- Health report card for each employee was prepared
- Data generated was analyzed using S.P.S.S software.

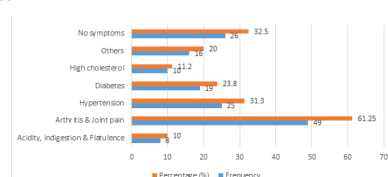
Results:

Table 1: Distribution of Workers according to Socio-demographic profile.

Socio-demographic factor	Variables	Number of workers (N=80)	Total	
Sex	Male	67 (83%)	80	
	Female	13 (16.3%)		
Diet	vegetarian	43 (53.8%)	80	
	Non-vegetarians	37 (46.3%)		
Anemia	Male (67)	Female (13)	32	
	Present	23(34.3%)		9 (69%)
Hypertension	Present	Systolic	11(13.8%)	25
		diastolic	14 (17.5%)	
Blood Sugar	Fasting	8(10%)	19	
	Postprandial	11 (13.8%)		
Addiction	Factors	Yes	No	
	Smoking	5 (6.3%)	75 (93.8%)	80
	Alcohol	31 (38.8%)	49 (61.3%)	80

Out of 80 employees, majority 67 (83%) were male and 43 (53.8%) were non-vegetarian. 9 (69.2%) females were anemic significantly higher in female than male with mean Hb male: 14.43% & Hb in female: 11.03%. 8 were newly diagnosed hypertensive among 25. Similarly, 6 new employee were detected among 19, as diabetics. 31 (38.8%) were alcoholic of which 3 was required de-addiction treatment and 5 (6.3%) were smoking.

Figure 1: Distribution of employees according to associated Symptoms:



* > 1 symptom in few employees

61.25% employees had arthritis and joint pain related symptoms. High blood pressure was found in 31.3% individuals and 23.8% showed altered blood sugar levels on examination. High Cholesterol was found in 11% employees whereas 32.5% individuals were not having any symptom. Other symptoms include cough, allergy, chest pain etc.

Table 2: Distribution of workers according to physical parameters.

Factors	Variables	frequency	Percentage (%)
Stress	Always	13	16.3
	Never	26	32.5
	Occasional	44	55.0
Body Mass Index	Underweight	9	11.3
	Normal	36	45
	Overweight	28	35
	Obese	7	8.7
LDL HDL Risk	Low Risk	42	53.2
	Moderate	36	45.6
	High	8	2.2
Total		80	100

16.3% employees were always under stress whereas 32.5% never felt stress of their work and 55% were occasionally under stress. BMI measurement of the employees showed that 45% individuals had normal BMI whereas 35% individual were overweight and 8.7% had obesity. 11.3% percent were also found as underweight.

Table 3: Correlation between factors associated with employees.

Models	t'	Diastolic BP	Cholesterol	LDL Cholesterol	Fasting blood sugar	Post-meal blood sugar
Diastolic BP	Pearson correlation sig.(2-Tailed) N		.253* .023 80	.228* .044 79	.235* .037 79	.229* .041 80
Cholesterol	Pearson correlation sig.(2-Tailed) N	.253* .023 80		.932** .000 79		
LDL Cholesterol	Pearson correlation sig.(2-Tailed) N	.228* .044 79	.932** .000 79			
Fasting blood sugar	Pearson correlation sig.(2-Tailed) N	.235* .037 79				.742** .000 79
Post-meal blood sugar	Pearson correlation sig.(2-Tailed) N	.229* .041 80			.742** .000 79	

*: Correlation is significant at the 0.05 level (2 tailed)

** : Correlation is significant at the 0.01 level (2 tailed)

Out of 80 employees, 53.2% had LDL HDL risk ratio whereas 2.2% had high risk ratio. Diastolic hypertension has positive correlation with serum cholesterol and LDL cholesterol levels. Also, Positive correlation was found between Diastolic and fasting and post prandial blood sugar. Serum cholesterol and LDL cholesterol levels also had positive correlation whereas HDL cholesterol is negatively correlated with Cholesterol and LDL cholesterol. Hence, the protective value of HDL cholesterol is statistically proved.

Discussion:

Apart from the home environment, the workplace is the setting where many people spend a large proportion of their time. But for many people, particularly in developing countries, the boundary between their home and workplace environments is blurred [4]. Out of 80 employees, Arthritis and Joint related problems were highly prevalent with 61.25% complaining about it. Our findings were similar to Saha et al [4] and Joshi et al [5]. We also found that women employees had high prevalence of anaemia where 69% of all women were anaemic. Stress

was an important factor among employees impairing their work. The reasons for stress can be multiple including Physical inactivity, alcohol use, facing verbal abuse at workplace, physical ailments, type of shift .We findings were similar to the study done by Jeyapal DR et al.[8] among call centre workers where all these factors played an important role in stress of employees. It has been opined that stress is not only an individual problem, but is also located within a framework that emphasizes the interrelationships between structural relations of power and the subjective interpretations and actions of employees [6]. Chronic exposure to stress can result in long-lasting changes in the brain's biology altering the functional states of various neurotransmitter and intraneuronal signalling systems. As a result, a person is at a high risk of undergoing subsequent episodes of depression, even without an external stressor [7].

Prevalence of diabetes was seen as 23.8%, higher compared with two recent population based studies in Chennai which had shown diabetes prevalence as 12-16%.17 Also, as hypertension was concerned, the present study (31.3%) had higher findings with that of goa [9] (8.3%). Prevalence of dyslipidaemia was 11.2% in the present study. Estari and Reddy [10] conducted a study in the adult population in Andhra Pradesh where the prevalence of dyslipidaemia was observed in 52.7% in males. The prevalence of hypertension and diabetes mellitus were seen higher in the present study as compared with the general population because the majority of workers are in the old age group and from an urban area.

There is a positive correlation between Weight (-1.943, 0.050), Body mass index (t 2.267, 0.027) and hypertension. Serum cholesterol and LDL cholesterol levels had positive correlation whereas HDL cholesterol is negatively correlated with Cholesterol and LDL cholesterol. 35 employees had BMI above normal indicating relationship between triad of hypertension, diabetes and obesity. Hence, the protective value of HDL cholesterol is statistically proved so that Diet and preventive measures can be beneficial in combatting diabetes, hypertension and other cardiovascular diseases. Also, weight reduction would prove to be an effective intervention.

Conclusion:

The variety of morbidities detected among the employees, especially the high prevalence of musculoskeletal problems, is alarming. It is high time that steps are taken for revising their wages and the other conditions related to their jobs so that they can improve their socioeconomic condition. Ergonomics can play an important role in combating with all such physical stressors at workplace. Counseling for alcohol and tobacco addiction is necessary and they must be educated regarding the prevention of common diseases and the importance of personal hygiene. Hypertension, diabetes and other non-communicable diseases are paving ways to make employees life miserable. Modifying life style and improvement in health seeking behavior can bring desired change.

Recommendations:

- 1) Weight reduction
- 2) Adequate physical activity
- 3) Stress Managements
- 4) Reduction of serum cholesterol & triglyceride level
- 5) Adequate control of hyperglycemia.
- 6) Creation of unit for recreation & programmed physical activity & periodic health check up
- 7) Customized training programs/workshop on stress management, attitudinal engineering for optional work performance, yoga and meditation & reorientation of existing health infrastructure to promote preventive health services.

Conflict of Interest: None

Funding: None

References:

- 1) Munich Personal RePEc Archive [Internet]. The influence of stress and satisfaction on productivity. 2008 [cited 2012 Jun 25]. <http://mpra.ub.uni-muenchen.de/39654/>.
- 2) Mursali, E. Basuki, S. Dharmono Relationship between noise and job stress at a private thread spinning company Univ Med, 28 (2009), pp. 8-16
- 3) Naser Hoboubi , Alireza Choobineh, Fatemeh Kamari Ghanavati , Sareh Keshavarzi , Ali Akbar Hosseini The Impact of Job Stress and Job Satisfaction on Workforce Productivity in an Iranian Petrochemical Industry
- 4) Saha A, Nag A, Nag PK. Occupational injury proneness in Indian women: A survey in fish processing industries. J Occup Med Toxicol 2006; 1:23.
- 5) Joshi TK, Menon KK, Kishore J. Musculoskeletal disorders in industrial workers of

- Delhi. *Int J Occup Environ Health* 2001; 7:217-21.
- 6) Knights D, McCabe D. Governing through teamwork: Reconstituting subjectivity in a call centre. *J Management Studies* 2003; 40:1587-619.
 - 7) Sadock BJ, Sadock VA. Kaplan and Sadock's *Comprehensive Textbook of Psychiatry*. 8th ed. Philadelphia: Lippincott Williams & Wilkins; 2005. p. 1776.
 - 8) Jeyapal DR, Bhasin SK, Kannan AT, Bhatia MS. Stress, anxiety, and depression among call handlers employed in international call centres in the national capital region of Delhi. *Indian J Public Health* 2015; 59:95-101.
 - 9) Oliveira A, Cacodcar J, Motghare DD. Morbidity among iron ore mine workers in Goa. *Indian J Public Health* 2014; 58:57-60.
 - 10) Estari M, Reddy AS. The investigation of serum lipids and prevalence of dyslipidaemia in urban adult population of Warangal district, Andhra Pradesh, India. *J Biol Med* 2009; 1: 61-5.