A study to assess the effectiveness of planned health teaching on knowledge regarding the prevention of industrial hazards among the workers of selected industrial area in Gwalior city

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ABSTRACT

The work environment exposes many workers to health hazards that contribute to injuries, respiratory diseases, cancer, musculoskeletal disorders, reproductive disorders, cardiovascular diseases, mental and neurological illnesses, eye damage and hearing loss, as well as to communicable diseases. The current global labor force stands at about 2600 million and is growing continuously. Approximately 75% of these working people are in developing countries. The officially registered working population constitutes 60–70% of the world's adult male and 30–60% of the world's adult female population. Each year, another 40 million people join the labor force, most of them in developing countries. Workplace environmental hazards are therefore a threat to a large proportion of the world population.

Keywords— *Industrial hazards, Hazards, Occupational hazards*

1. BACK GROUND OF THE STUDY

Other than the home environment, the workplace is the setting in which many people spend the largest proportion of their time. The great variety of occupational health hazards makes quantification of their associated health risks and impacts at the global level very difficult. In addition to the specific workplace hazards discussed work and health are associated in other ways, creating possibly even greater impacts on health. Working conditions, type of work, vocational and professional status, and geographical location of the workplace and employment also have a profound impact on the social status and social well-being of workers.

2. NEED OF THE STUDY

India is one of the largest and the most important developing country of the world. Majority of the population is working in industrial sector. Industrial revolution as well as globalization is increasing the burden of occupational hazards and changing occupational morbidity drastically. Still occupational health is seen as a secondary issue while formulating health policy and health-related programmes. The major occupational diseases morbidity of concern in India include silicosis, musculoskeletal injuries, coal workers' pneumoconiosis, chronic obstructive lung diseases, asbestosis, byssinosis, pesticide poisoning and noise-induced hearing loss According to a survey of injury incidence in agriculture conducted in Northern India, an annual incidence of 17 million injuries per year 2 million moderate to serious events, and 53,000 deaths per year was estimated. Lack of education, unawareness of hazards in one's occupation, general backwardness in sanitation, poor nutrition and climatic proneness to epidemics aggravate worker's health hazards in the work environment.

3. OBJECTIVES OF THE STUDY

- To assess the pre test knowledge regarding prevention of industrial hazards among the industrial workers in selected industries in Gwalior city
- To assess the effectiveness of planned teaching on knowledge regarding the prevention of industrial hazards among the industrial workers in selected industries in Gwalior city
- To associate the demographic variables and pre test knowledge regarding prevention of industrial hazards among the industrial workers in selected industries of Gwalior city

4. HYPOTHESIS

- **RH-1**. There is a significant difference between the pre test and post test knowledge after implementation of planned teaching regarding the prevention of industrial hazards among the industrial workers.

- **RH-2**. There is a significant increase in level of knowledge after implementation of planned teaching regarding the prevention of industrial hazards among the industrial workers.
- **RH-3.** There is significant association between demographic variables and pre test knowledge of workers regarding the prevention of industrial hazards among the industrial workers.

5. REVIEW OF LITERATURE
Zontek TL, Isernhagen JC, Ogle BR.2009 conducted a study on Psychosocial factors contributing to occupational injuries among direct care workers. They analyzed that direct care workers have the highest injury rate in the United States, primarily due to work-related musculoskeletal disorders. This study examined the effect of psychosocial factors (that is stress, job satisfaction, organizational climate, safety climate, and training) on direct care workers' injuries. On the basis of divergent work characteristics of direct care workers in facilities versus private homes, injury rates were found to be significantly different between workplaces (x (2) = 4.179, df = 1, p = .041). Tenure (77% of injuries occurred after 1 year of tenure) was significantly correlated with training, satisfaction, organizational climate, and stress. Because of the chronic nature of musculoskeletal disorders, tenure was used to choose cases for injury prediction using logistic regression. When tenure was greater than 1 year, job satisfaction [Exp (B) = 0.048, p = .028] was a predictor of injury and when tenure was greater than 3 years, both job satisfaction [Exp (B) = 0.002, p = .033] and training [Exp (B) = 31.821, p = .044] were predictors of injury. Psychosocial factors and home- versus facility-based workplaces should be considered to improve injury rates and retention among direct care workers.

N. Bull, T. Riise and B. E. Moen2009 conducted a prospective study on Work-related injuries and occupational health and safety factors in smaller enterprises. The aim of this study was to determine whether any of the health, environmental and safety (HES) factors registered by visiting small mechanical enterprises in Norway at the start of the study could predict the risk of occupational injuries in subsequent years. Twelve HES factors, including injury awareness, programme for action, employee participation, training and use of personal safety devices, were registered. A questionnaire was completed by interviewing the employer and observing production. Two variables based on observation of the use of safety equipment were significantly correlated with occupational injuries. There is potential for prevention in smaller enterprises by increasing the use of personal protection devices and safety equipment on machines. Frequent inspection with feedback to the workers is probably the most effective means of attaining the desired result of reducing injuries.

6. METHODOLOGY
An evaluatory research approach and a true research design is used in the study, setting is Malanpur area of Gwalior city. The target population of the study is industrial workers of Malanpur, Gwalior Madhya Pradesh. The sample size is 60 in the study. Structured knowledge questionnaire was prepared to assess the effectiveness of structured learning.

7. DESCRIPTION OF THE TOOL
The tool consisted of two sections.

7.1 Sections A
Demographic data describes the selected sample characteristics. It comprises of 10 items for obtaining information regarding age, education, monthly income, family type, number of children, experience from where they of the knowledge regarding prevention of occupational hazards.

7.2 Section B
It consists of 30 items of occupational health definition occupational health hazards, causes protective measures, engineering solution and prevention of occupational health hazards. Reliability of the tool was found to be 0.82.

8. ORGANIZATION AND PRESENTATION OF DATA
Raw data was collected and entered in a master sheet for statistical analysis .It was interpreted using descriptive and inferential statistics. The analysis of data is organized and presented under following headings:
- Characteristics of sample object.
- Effectiveness of planned health teaching programme in terms of gain in knowledge score.
- Association between pretest knowledge score and selected demographic variables.

8.1 Section 1: Assessment of sample characteristics

Table 1: Frequency and percentage distribution of samples N=60

S no.	Demographic Variables	Frequency(f)	Percentage (%)
1	**Age in Years**		
	• Less than 6 months	00	00.00 %
	• 6 months – 1 year	33	55.00 %
	• 1 year – 5 years	19	31.66 %
	• D. 5 years or more	08	13.33 %
2	**Type of family**		
	•Nuclear	11	18.33 %
	•Extended	20	33.33 %
	•C. Joint	29	48.33 %

3	**Number of children** • 0 • 1 • 2 • 3 or more	12 12 19 17	20.00 % 20.00 % 31.66 % 28.33 %
4	**Educational Status** • Illiterate • Primary level • Middle level • High secondary or above	09 20 27 04	15.00 % 33.33 % 45.00 % 06.66 %
5	**Monthly income** • Less than 2000 Rs. • 2001-3000 Rs. • 3001-4000 Rs. • D. 4000 and above	04 22 16 18	06.66 % 36.66 % 26.66 % 30.00 %
6	**Total experience** • Less than 6 months • 6 months – 1 year • 1 year – 5 years • D. 5 years or more	00 22 25 13	00.00 % 36.66 % 41.66 % 21.66 %

8.1.1 Age: The data in table 1 shows that majority 55% of workers were in the age group of 18-30 years, 31.66% of workers were in the age group of 31-40 years, and 13.33% workers were in the age group of 41-50 years. There was a trace no. of workers in age group of 51-60 years.

8.1.2 Type of family: Overall Majority of workers (48.33%) was in the category of joint family and only18.33% workers were in the nuclear family.

8.1.3 No. of children: The data in table 1 shows that 20% workers have no child, 20% workers having one child and 31.66% and 28.66% workers are having two and three or more children respectively.

8.1.4 Educational status: Educational status of workers was, 15% were illiterate, 33.33% were in primary level, 45% were up to middle level and 6.66% were up to middle level Over all Most of the employees (45%) had educational status up to middle school while only 6.66% of them were illiterate.

8.1.5 Income: 6.6% of workers having their monthly income <2000Rs, 36.66% were having in between 2001 – 3000 Rs, 26.66% were having monthly income 3001-4000 Rs. Moreover, 30% were having monthly income between 3001- 4000Rs.

8.1.6 Working experience: Working experience of workers, 21.66% were having more than 5 years of experiences and 41.66% of workers were having working experience of 1-5 years more ever 36.66% workers were having work experience of 6 months – 1 year.

8.2 Section 2: Effectiveness of Planned Health Teaching Programme in Terms of Gain in Knowledge
This section deals with analysis and interpretation of data in order to evaluate the effectiveness of planned health teaching in terms of gain in knowledge.

Table 2: Comparison of pretest and posttest knowledge score N=60

Knowledge Score	Mean	Standard Deviation	Mean Difference	d.f.	't' value
Pre-Test	13.58	4.33	4.67	59	9.32
Post-Test	18.25	4.38			

't' = -9.32

The table shows that mean score of pre test in workers were 13.58 was and mean score of post test in workers was 18.25. Mean difference in between pre test and post test was 4.67 and S.D was 10.65.

't' value (t = 9.32) shows that there was significant difference, it indicate that there is a significant increase in knowledge of workers after the planned health teaching program.

9. CONCLUSION
After the detailed analysis, this study leads to the following conclusion:
Data presented in table 1 shows that 36% workers has poor knowledge regarding the prevention of occupational hazards while 61.66% were found average in knowledge. After the implementation of planned health teaching program, there is a significant increase in knowledge of workers regarding the prevention of occupational hazards. Which is calculated by t-test and the result was 9.32. There was significant association between knowledge on prevention of occupational hazards and educational status. Low educational attainment was a significant risk factor for occupational hazards. The hypothesis **R H₁** made by the investigator that,

there would be a significant relationship between selected demographic variable and pre test knowledge on prevention of occupational hazards was accepted with only two variables that is educational status and monthly income was accepted. Hypothesis **R H₂** made by the investigator that there is a significant increase of knowledge of the worker regarding prevention of occupational hazards was accepted.

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