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Original Article

Impact of the Advanced Awareness Program on Insight Level Regarding Occupational Hazards Prevention between Industrial Employees from Selected Private Ahmednagar Industry

Jayashree Rajesh Salvi
Ph.D Scholar (JJTU)

Abstract

Aim: The aim of the study to assess the impact of advanced awareness program on insight level regarding occupational hazards prevention between industrial employees.

Materials and Methods: The design adopted for the study is pre-experimental design with one group pre-tests and post-test design with the quantitative research approach was used to judge the impact of the advanced awareness program on insight level regarding occupational hazards prevention between industrial employees from selected private Ahmednagar industry. The sample size comprised of 300 rural health care workers fulfilling the inclusion and exclusion criteria. The non-probability convenient sampling technique was used for selection of samples. Insight level regarding occupational hazards prevention was assessed using the knowledge questioners, open-ended questions. Data were analyzed using the descriptive and inferential statistics.

Results: There is a statistically significant mean difference between pre- and post-insight level scores as the calculated *t*-value is 85.84 ($P = 0.0026$) which is more than the *t*-value of 1.08 at a level of significance of 0.05 with a degree of freedom being 281. The knowledge among the health workers has been increased after providing the awareness program on the level of insight regarding occupational hazard prevention between industrial employees.

Conclusion: The study concludes that the knowledge and the insight level among the health workers have been increased after providing the awareness program regarding occupational hazard prevention between industrial employees.

Keywords: Advance awareness program, insight, occupational hazard prevention

Introduction

Accidents, as an unexpected and unplanned event that disrupts an anticipated cycle of work, result in lost productivity, staff injury, plant and equipment disruption, and ultimately production flow interruption. Control measures are described as acts that restrict or trigger things to happen in a certain manner, such as preventing something from spreading, being out of hand, or getting worse.[1]

Occupational Health Hazard that is distinct from Occupational Safety Hazard prevalently is on the rise as the global economy becomes more industrialized. And recognizing them to avoid and monitor them is critical to the employees' well-being and health. The health as well as the well-being of a company's employees, which is its most precious commodity, cannot be taken by management. Psychosocial Health Hazard, Mechanical/Ergonomic Health Hazard, Chemical Health Hazard, Biological Health Hazard, and Physical Health Hazard are the different types of health hazards that can be cause diseases and illness.[2]

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Address for Correspondence:
Mrs. Jayashree Rajesh Salvi, Ph.D Scholar (JJTU). E-mail: jrsalvi1976@yahoo.com

Occupational health deals with all aspects of health and safety at the workplace with special emphasis on the primary prevention of hazards. The health of the workers has several determinants, including risk factors at the workplace leading to cancers, accidents, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases, stress-related disorders, communicable diseases, and others. Safety and health of workers have a positive impact on productivity and economic and social development. Prevention should form an essential part of economic activities. To ensure sustainable and fair economic growth, having the highest standards of safety and health standard are just as important as business performance, profits and bottom line. Recognizing that occupational health is closely linked to public health and health systems development, the WHO is addressing all determinants of workers' health, including risks for disease and injury in the occupational environment, social and individual factors, and access to health services. The WHO's work on occupational health is governed by the Global Plan of Action on Workers' Health 2008-2017, endorsed by the World Health Assembly in 2007. At present, only 15% of workers worldwide have access to specialized occupational health services. They mostly carry out prevention of occupational risks, health surveillance, training in safe working methods, first aid and advising employers on aspects related to occupational health and safety.[3]

Every year, the International Labour Organization (ILO) reports that 2.3 million women, as well as men, die as a result of work-related injuries or illnesses around the world; this equates to about 6000 deaths every day. Annually, there are approximately 340 million workplace injuries and 160 million victims of work-related diseases globally. The ILO reports these figures at regular intervals, and the most recent updates show a rise in accidents and illness. About 11,000 fatal workplace injuries are believed to have occurred in CIS nations, opposed to 5850 confirmed incidents (information lacking from 2 countries). Occupational injuries and illnesses, even fatal accidents, are grossly underreported, providing a misleading image of the problem's reach. The following are some of the key highlights from the ILO's most recent observational reports on workplace fatalities and illnesses, as well as work-related deaths around the world: Work-related illnesses are the leading cause of death for employees. A total of 651,279 fatalities are reported to be caused by hazardous substances each year.[4]

The figures for the country's total incidence/prevalence of workplace illness and injury are not properly collected in a user-friendly format. According to Leigh *et al*., India's annual occupational disorder occurrence ranged from 924,700 to 1,902,300, with 121,000 deaths due to occupational disease. As per a report on accident incidence in agriculture conducted by Patel and Mohan (1992) in North India, the agriculture sector alone has incidence of 17 million accidents per year (2 million minor to severe) and 53,000 deaths. Over 3 million individuals working in different forms of slate pencil industry, agate grinding, stone crushing, metal grinding, foundries, potteries, ceramics, mines, and other industries, according to a 1999 report by "National Institute of Occupational Health". These employees are subjected to free silica dust on the job and can experience silicosis as a result. In India, the most common occupational diseases and morbidities are pesticide poisoning, byssinosis, asbestosis, chronic obstructive lung diseases, coal workers' pneumoconiosis, musculoskeletal injuries, noise-induced hearing loss, and silicosis. According to census data from 2001, there was a 28% rise in male jobs and a 45% growth in female employees between 1991 and 2001. In 1991, the male-to-female working population ratio was 78:22, but in 2001, it was 68:32. This rise in the number of working women raises certain questions, like negative impacts on reproductive well-being, occupational sensitivity to hazardous substances, disorders of the musculoskeletal (is the statistics other way or women have become less). This is due to the assumption that neither the duties nor the tools they utilize are adapted to their physical characteristics. Furthermore, female employees suffer from specific stress-related diseases as a consequence of occupational inequality (like reduced pay and less decision-making powers), a double workload (at work and at home), and the possibility of sexual assault.[4]

Objectives of the study

Primary objectives (Before the intervention)

- To assess the pre-existing insight level of industrial workers regarding prevention of occupational hazards from the selected private industry of Ahmednagar
- Design and develop the advanced awareness program about the prevention of occupational hazards.

Secondary objective (After the intervention)

- Implement the advanced awareness program on the prevention of occupational hazards among the selected private industry of Ahmednagar
- Determine the effect of advanced awareness program on the prevention of occupational hazards among the selected private industry of Ahmednagar
- Compare the post-test insight scores with pre-test scores of industrial workers related to the prevention of occupational hazards
- To evaluate the association of advanced awareness program on insight level of industrial workers regarding prevention of occupational hazards with their selected sociodemographic variables
- Prepare and distribute the handbook for industrial workers regarding prevention of occupation hazards.

Hypothesis

- H01– There is an evident difference between the pre-test insight score and post-test insight scores regarding prevention of occupational hazards among industrial workers from the selected private industry of Ahmednagar
- H1– There is no evident difference between the pre-test insight score and post-test insight score regarding

prevention of occupational hazards among industrial workers from the selected private industry of Ahmednagar
- H02– There is a significant difference between the pre- and post-test scores regarding prevention of occupational hazards among industrial workers from the selected private industry of Ahmednagar with their selected socio-demographic variables
- H2– There is no significant difference between the pre- and post-test scores regarding prevention of occupational hazards among industrial workers from the selected private industry of Ahmednagar with their selected sociodemographic variables.

Materials and Methods

Research approach

The research method adopted for the present study is quantitative approach.

Research design

In the present study, in the context of a one-group post- and pre-test, the researcher followed a pre-experimental design as study design.

Setting of the study

The present study was conducted in chemical plant, Ahmednagar.

Population

Target population

In the present study, all the rural health care workers are the target population.

Accessible population

In the present study, the population includes all the rural health care workers fulfilling the exclusion and inclusion criteria.

Sample and sampling technique

In the present study, non-probability convenient sampling technique is used by the investigator.

Sample size

Total sample size for this study is 300 rural health care workers fulfilling the inclusion criteria.

Sampling criteria

Inclusion criteria

1. Chemical factory workers working in Godavari Biorefineries facility
2. Chemical factory workers who can understand and speak the language Marathi/English
3. Chemical factory workers who agreed to take part in the research
4. Chemical factory workers are accessible at the data collection time.

Exclusion criteria

1. Other professionals working in health care facilities
2. Chemical factory workers who cannot understand and speak the language Marathi/English
3. Chemical factory workers are not accessible at the data collection time
4. Chemical factory worker who is on sick leave.

Description of the tool

- Section A-It consists of the consent letter of participants in the study.

Demographic profile (a)

- Section B-This section consists of socio-demographic variables
- Section C-It consists of workers' knowledge related to safety policy, occupational health services, health habits, and health problems in workers:
  1. Knowledge related to occupational health services available in the company
  2. Industrial Workers Knowledge related to health problems
  3. Health habits present in Industrial Workers Knowledge related to safety policy
  4. Industrial Workers worker
  5. Sleeping habits of worker
  6. Use of electronic gadgets at work
  7. Workers knowledge related to health promotion programs conducted in the company

- Section D-It consists of a structured questionnaire related to the insight level of industrial workers regarding meaning, incidence, causes, risk factors, types, management, and prevention of occupational hazards:
  1. Introduction with regards to the meaning of occupational hazards
  2. Incidence of occupational hazards
  3. Explain the incidence rate of occupational hazards?
  4. According to global statistics how many deaths take place per day due to occupational hazards?
  5. Risk factors and causes of occupational hazards
  6. Types of occupational hazards
  7. Definition of Chemical hazards
  8. Clinical features of chemical hazards
  9. Routes of exposure to chemical hazards
  10. Diagnosis of chemical hazards
  11. First aid and treatment of chemical hazards

- Section E-It consists of open-ended questions with regards to the prevention and management of occupational hazards.

Statistics

Descriptive statistics

Percentage, mean, standard deviation, were used to assess the advanced awareness program regarding occupational health hazard prevention.

Inferential statistics

Paired' test was used for the comparison of pre-test and post-test level of insight score and paired "*t*" test was used. The Chi-square test was used to determine the association between knowledge goes demographic variables.

Table 1: Distribution demographic variables and information regarding staff development

Demographic variables	Frequency	Percentage
Age		
18–27	201	67
28–37	48	16
38–47	30	10
48–57	21	7
More than 57	0	0
Gender		
Male	297	99
Female	3	1
Transgender	0	0
Religion		
Hindu	180	60
Muslim	60	20
Christian	60	20
Others	0	0
Type of family		
Nuclear	180	60
Joint	60	20
Extended	60	20
Single parent	0	0
Divorced parent	0	0
Members of the family		
<2	90	30
3–5	75	25
6–8	75	25
>8	60	20
Education		
Illiterate	15	5
Primary	45	15
Secondary	60	20
Graduate	120	40
Post graduate	60	20
Others	0	0
Type of work		
Temporary	120	40
Permanent	180	60
Designation		
Officer	297	99
Assistant officer	3	1
Workers	0	0
Class 4 workers	0	0
Years of experience		
1–10	150	50
11–20	60	20
21–30	60	20
>31	30	10
Income		
5k–10k	60	20
11k–20k	90	30
21k–30k	45	15
31k–40k	45	15
41k–50k	60	20
Dietary pattern		
Vegetarian	297	99
Non vegetarian	3	1
Mixed	0	0
Immunization status		
Completed	105	35
Non completed	105	35
Not known	90	30
Sleeping pattern		
<6	90	30
6–8	120	40
>8	90	30
History of illness		
Yes	180	60
No	120	40

Table 2: Comparison between pre- and post-test by paired *t*-test paired samples statistics

Content	Mean	*n*	Std. deviation	Error mean
Pair 1				
Post total	38.20	300	5.080	0.360
Pre total	6.77	300	3.362	0.180

Results

The data were entered into a master sheet for tabulation and statistical processing the obtained data were analyzed, organized, and presented under the following headings:

Section A: This section deals with the assessment of data related to the

a. Demographic variables of the participants who participated in the study and
b. Information regarding staff development.

Section B: Comparison between pretest and posttest by paired *t*-test paired samples statistics

Section C: Association between post-insight score and demographic variables.

Section A: This section deals with the assessment of data related to the

a) Demographic variables of the participants who participated in the study.
b) Information regarding staff development.

Table 1 depicts that:

- The data show that the age group 18–27 is 67% of the population, age group 28–37 is 16% of the total population, age group 38–47 is 10% of the total population, age group 48–57 is 7% of the population and age group >57 is consist of 0% of the population. the maximum sample found in the age group of 18–27 i.e. 67%, maybe due to the company's recruitment criteria, Whereas the minimum number of the sample found in the age group of more than 57
- The maximum of the sample found in male group 297, that is, 99%, this probably because the company's policy to recruit males as chemical factory work is a strenuous job
- The maximum of the sample found in Hindu group 180, that is, 60%, whereas the minimum number of the sample found in other groups 0, that is, 0%. This is probably because it is a rural area of Maharashtra where a majority of people are from the Hindu religion
- The maximum of the sample found in nuclear family 180, that is, 60%, maybe because of modernization and lifestyle changes. Whereas the minimum number of the sample found single parent or divorced 0, that is, 0%
- The maximum sample found to be the people who have <2 members in family 90, that is, 30%, this may be because of modernization and lifestyle changes and family planning methods adopted by the families.

Table 3: Comparison between pre- and post-test by paired *t*-test

Content	Paired differences					*t*	df Si	(2-tailed)
	Mean	Std. Deviation	Std. error mean	95% CI of the difference				
				Lower	Upper			
Pair post	28.0	6.336	0.395	24.963	27.589	85.8	281	0.0026
1 total pre-total	9					45		

Table 4: Association of Demographic variables

Demographic variables	Sum of squares	df	Mean square	F	Sig.
Age					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Gender					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Religion					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Type of family					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Member in family					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Education					
Between groups	58.531	1	58.531	3.871	0.0453
Within groups	5249.256	298	15.12		
Total	5303.787	299			
Type of work					
Between groups	58.531	1	58.531	3.899	0.0434
Within groups	4472.98	298	15.01		
Total	4531.511	299			
Designation					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Type of work					
Between groups	58.531	1	58.531	3.905	0.0432
Within groups	4466.126	298	14.987		
Total	4524.657	299			
Income of worker					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Dietary pattern					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			
Immunization status					
Between groups	58.531	1	58.531	3.905	0.0445
Within groups	4466.424	298	14.988		
Total	4524.955	299			
Sleeping Pattern					
Between groups	54.531	1	54.531	3.096	0.080
Within groups	5249.256	298	17.615		
Total	5303.787	299			

Whereas the minimum number of the sample found to be the 20% people have more than 8 people in family 60, that is, 20%

- The maximum sample found to be the people who have graduated 120, that is, 40%, this may be because the criteria for the selection in the above factory is graduation.

Whereas the minimum number of the sample found to be the others 0, that is, 0%

- The population 40%of employees have a temporary job and 60% of the employees have a permanent job
- 99% employees are at officer posts, 1% employees are at assistant officer post, 0% of people are workers and 0% are class 4 workers
- 50% people have 1–10 years of experience, 20% have 11–20 years of experience, 20% have 21–30 years of experience, and 10% people have more than 30 years of experience
- 20% of the population have 5k–10k salary, 30% people have 11k–20 k salary, 15% people have 21k–30k salary,15% people have 31k–41k salary and 20% people have 41k–50K salary
- 60% people are vegetarian, 20% are non-vegetarian and 20 % have mixed type of diet
- 35% of people have completed their immunization, 35% have not completed their immunization and 30% of people are unaware of it
- 30% people sleep <6 h, 40% people sleep 6–8 h and 30% people sleep for more than 9 h
- 60% people have suffered from illness during work and 40% have not suffered from any illness
- 100% people have got shifted from one department to another and 0% have not shifted to other departments.

Section B: Comparison between pre- and post-test by paired *t*-test Paired Samples Statistics.

Paired samples test

Tables 2 and 3 comparison between pre- and post-test by paired *t*-test

Interpretation

There is a statistically significant mean difference between pre- and post-insight scores as the calculated $t = 85.84$ ($P = 0.0026$) which is more than the t-table value of 1.08 at a level of significance of 0.05 with a degree of freedom being 281. The knowledge among the health workers has been increased after providing the knowledge.

Section C: Association between post insight score and demographic variables

Table 4 depicts that there is no statistically significant mean difference between groups of gender as the calculated F value is less than the Table F value of 3.88, hence there is no association between Insight and demographic variables.

Discussion

These study findings are also supported by the conducted by Chhabra (2016) in their article titled, Health hazards among health care personnel describes biological and chemical hazards on the rise such as Needle prick injuries and radiation exposure. Furthermore, psychiatric disorders and suicides are common. Hence, health managers need to assure that health care is geared toward the assessment of hazards suffered by health care personnel, their reasons, and do everything possible for prevention.[5]

Rajini *et al*. (2012) in their article titled, preventive methods used for safety and health hazards in the hotel sector in Srilanka identified the health and safety hazards cause of those hazards and the preventive measures that can be adopted to minimize these hazards, they found cuts and burns and the electrical hazards are maximum. Inadequate safety education was identified as the most critical factor.[6]

Yuebing *et al*. (2011) in their article titled, hypothetical research on accident prevention and hazards describes the classification of hazards, accident prevention, and control model are analyzed. Investigations should be carried out to identify and monitor the direct danger, the first threat and initial risk create a comprehensive risk theory collection and increase the standard of protection and accident prevention in coal mines.[7]

Conclusion

The study concludes that the knowledge and the insight level among the health workers have been increased after providing the awareness program regarding occupational hazard prevention between industrial employees.

References

1. World Health Organization. Evaluating the Quality of Care for Severe Pregnancy Complications: The WHO Near-miss Approach for Maternal Health. Department of Reproductive Health and Research. ROL-BOOKS-NEW 1RR, MKLDM. Beyond the Numbers: Reviewing Maternal Deaths and Complications to Make Pregnancy Safer. Geneva: World Health Organization; 2011.
2. Banerjee B. Reproductive, Maternal, Newborn, Child Plus Adolescent Health (RMNCH A) Programme. India: DK Taneja's Health Policies and Programmes in India; 2017. p. 126-6.
3. World Health Organization; 2021. Available from: https://www.who.int/india/health-topics/occupational-health [Last accessed on 07 Dec 2021].
4. World Health Organization. Trends in Maternal Mortality, 1990 to 2015: Estimates by Who, Unicef, Unfpa, World Bank Groupand the United Nations Population Division. Geneva, Switzerland: World Health Organization; 2015.
5. Chhabra SA. Health hazards among health care personnel. J Mahatma Gandhi Inst Med Sci 2016;21:19-24.
6. Rajini PA, Fernando CS, Serapperuma SA. Preventive methods used for health and safety hazards in hotel industry in Sri Lanka. United States: International Council for Research and Innovation in Building and Construction; 2012. p. 294-303.
7. Yuebing Z, Kai W, Ruming Z. Theoretical research on hazards and accident prevention. Proc Eng 2011;26:16-24.

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