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A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING OCCUPATIONAL HEALTH AND SAFETY PRECAUTIONS AMONG INDUSTRIAL WORKERS AT ADOR MULTIPRODUCTS LTD, KATTUKUPPAM, PUDUCHERRY

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ABSTRACT

Occupational health is the concern of human wellbeing. The service giving resulting in workplace health problem booming workplace safety and health hazards now a days, considered as a driving force. Industrial workers are vulnerable to various diseases and accidents are common in factories. They do not have much knowledge on the various occupational health hazards and the way to preventing it. The aim of this study was to assess the effectiveness of STP on knowledge regarding occupational health and safety precautions among industrial workers at Ador Multiproducts Ltd, Kattukuppam, Puducherry. A cross sectional study was conducted among 60 industrial workers in Puducherry. The samples were selected by a convenience sampling technique.Data were collected using demographic variables, health profiles and self-administered questionnaires. A structured teaching programme (STP) was administered. After 15 days of STP, a post-test was conducted. Analysis of the study results showed that STP has significant positive impact on knowledge level regarding occupational health and safety precautions. Among 60 workers, six (10.0%) workers were having inadequate knowledge regarding occupational health &safety precautions, 43(71.7%) workers were having moderate knowledge,11(18.3%) of them were having adequate knowledge after STP. The STP was found to be highly effective in improving the knowledge level on occupational health and safety precautions among industrial workers. In this study, there was a significant association found between knowledge level of industrial workers regarding occupational health and safety precautions and their educational status of industrial workers.

KEY WORDS: STP, Occupational health, Safety precautions, Industrial workers.

INTRODUCTION

Historically, the term "health" referred to being "safe and sound" or "whole." For most people, health signifies freedom from pain, illness, and disability. Even today, many continue to hold this traditional view. However, research and life experiences have led to a shift in understanding in more developed areas of the world. According to the World Health Organization (WHO), occupational health is a multidisciplinary activity aimed at promoting and protecting workers' health by preventing and controlling occupational hazards and accidents. It also involves eliminating factors in the workplace that are harmful to health and safety. An occupational health hazard refers to any risk, harm, or danger faced in the workplace, while occupational diseases result from such exposure.

Low levels of education, inadequate knowledge of occupational health and safety precautions, and a lack of preventive measures are key reasons for the increased risks in rapidly growing industries. Work plays a central role in people's lives, with the working population accounting for half of the global population and being a major contributor to socioeconomic development. The health of workers is determined by workplace conditions, social and individual factors, and access to health services.

Industry plays a crucial role in national development, and most workers spend at least 8 hours a day at their workplace, which significantly impacts their health and safety. Workers face various hazards during work, including chemicals, biological agents, physical factors, and ergonomic issues. The primary goal of occupational health programs is to prevent workplace injuries, illnesses, and deaths, as well as the financial hardship and suffering these events can cause. Proactive management of workplace safety and health is more effective than traditional reactive approaches, which address problems only after a worker is injured or becomes sick, or after an inspection identifies an issue that needs fixing

Occupational health focuses on all aspects of health and safety in the workplace, with an emphasis on preventing hazards. Workplace risks contribute to various health issues, including cancer, accidents, musculoskeletal disorders, respiratory diseases, hearing loss, and stress-related conditions. Employment conditions in both formal and informal sectors also include factors such as working hours, workplace policies, and health promotion benefits. Ensuring worker safety has a positive impact on productivity and socioeconomic development, and prevention should be an essential part of economic activities. Globally, around 2.9 billion workers are exposed to hazardous risks at their workplaces. In developing countries, over 120 million occupational accidents and more than 200,000 deaths occur annually. Only 15% of workers globally have access to specialized occupational health services, which focus on risk prevention, health surveillance, safe working methods, and first aid (WHO, 20 The International Labour Organization (ILO) estimates that 2.3 million people die each year from work-related accidents or diseases, equating to over 6,000 deaths daily. Worldwide, there are approximately 340 million occupational accidents and 160 million cases of work-related illnesses annually. Hazardous substances alone are responsible for an estimated 651,279

deaths each year. The construction industry has a disproportionately high rate of recorded accidents, and younger and older workers are particularly vulnerable. In developed countries, an aging population means more older workers, who need special consideration (ILO, 2024).

Need for the Study

India, one of the largest developing countries, has a significant portion of its population working in industrial sectors. The industrial revolution and globalization have increased the burden of occupational hazards, changing morbidity patterns drastically. Despite this, occupational health often remains a secondary concern in health policy. Major occupational diseases in India include silicosis, musculoskeletal injuries, pneumoconiosis, chronic lung diseases, asbestosis, byssinosis, pesticide poisoning, and noise-induced hearing loss. A survey conducted in North India reported an annual incidence of 17 million injuries in the agricultural sector, with 53,000 deaths per year. Factors such as lack of education, unawareness of occupational hazards, poor sanitation, inadequate nutrition, and susceptibility to epidemics exacerbate workers' health risks.

A study by Sonam M. et al. (2020) examined knowledge about occupational health hazards among 50 factory workers in Indore. The results showed that 44% of workers had inadequate knowledge. After a structured teaching program (STP), 50% of workers demonstrated adequate knowledge. Similarly, a cross-sectional study among 120 healthcare workers in South India highlighted various physical, chemical, biological, equipment-related, and psychosocial hazards faced by workers, with incidents such as slips, falls, and needle stick injuries being common.

MATERIALS AND METHODS

Research approach: A quantitative research Approach

Research Design: One group pre test post test research Design

Sample size: A total sample of 60 Industrial workers who were working in Ador Multiproducts ltd,Kattukuppam, Puducherry

Sampling technique: A convenience sampling technique was used in this study.

Data collection procedure: A formal written permission was obtained from Principal of A.G.Padmavathi college of Nursing for conducting the main study. The main study was conducted from (01.04.2024 to 14.04.2024). A total of 60 industrial workers were selected by convenience sampling technique.The investigators established good rapport with industrial workers by an informal talk.The purpose of the study was explained to the participants to ensure their cooperation. The structured interview was conducted by the investigators to collect data regarding demographic variables and health profile.Pretest was conducted by using structured knowledge questionnaires.The structured teaching programme was conducted regarding

occupational health and safety precautions.. And finally the post test was conducted.The collected data was complied for data analysis.

RESULTS

The findings of the study revealed that the majority of the industrial workers were 26-30 years, 36 (60%) were females, 39 (65.0%) were married, 54(90%) were came from rural, 21 (35.0%) had High school education, 30 (50.0%) were in 1-5 years of experience, 33 (55.0%) got information in media,59 (98.3%) of the workers had no history of previous disease, 56 (93.3%) of the workers had taken no medication, 59 (98.3%) of the workers had no family history of cancer, 30 (50.0%) of the workers were allergic towards dust.

Among 60 workers, 58 (96.7%) of workers had inadequate knowledge, 02 (3.3%) had moderately adequate knowledge in the pretest.

About 6 (10.0%) of workers were having inadequate knowledge, 43 (71.7%) of workers were having moderately adequate knowledge, 11 (18.3%) of workers were having adequate knowledge regarding occupational health and safety precautions after STP.

STP was highly effective on improvement of knowledge regarding occupational health and safety precautions among industrial workers.

There was a significant association found between knowledge of industrial workers regarding occupational health and safety precautions with respect to educational status among workers (p=0.027) and others had no association.

TABLE 01: Frequency and Percentage distribution of demographic variables of industrial workers.

(N=60)

Demographic variables		**Frequency(n)**	**Percentage**
Age in yrs	21-25 years	07	11.7%
	26-30 years	22	36.7%
	31-35 years	19	31.7%
	Above 35 years	12	20.0%
Gender	Female	36	60.0%
	Male	24	40.0%
Marital status	Married	39	65.0%
	Unmarried/Single	17	28.3%

	Widow/Widower	04	6.7%
Residency	Urban	06	10.0%
	Rural	54	90.0%
Education	Primary school education	20	33.3%
	High school education	21	35.0%
	Higher Secondary education	08	13.3%
	Diploma	11	18.3%
Experience	1-5Years	30	50.0%
	6-10Years	25	41.7%
	11-15Years	05	8.3%
Information	Media	33	55.0%
	Relatives/friends	15	25.0%
	Healthcare Professionals	10	16.7%
	In-Service Education in Work place	02	3.3%

TABLE 02: Frequency and Percentage distribution of Health profiles of industrial workers

(N=60)

Health profiles		Frequency	Percentage
Comorbidity condition	Diabetes Mellitus	07	11.7%
	Hypertension	07	11.7%
	Hyperthyroidism	01	1.7%
	Others	07	11.7%
	None	38	63.3%
Previous	Yes	01	1.7%
	No	59	98.3%
Medication	Yes	04	6.7%
	No	56	93.3%
Family history	Yes	01	1.7%
	No	59	98.3%
Allergies	Food	18	30.0%

	None	12	20.0%

TABLE 03: Frequency and percentage distribution of level of knowledge regarding occupational health and safety precautions among industrial workers in pre test.

(N=60)

Levels of knowledge	Pre test	
	Frequency	Percentage %
Inadequate	58	97%
Moderate	02	3.3%
Adequate	0	0.0%
Total	60	100%

TABLE 04: Frequency and percentage distribution of level of knowledge regarding occupational health and safety precautions among industrial workers in post test

(N=60)

Levels of knowledge	Post test	
	Frequency	Percentage %
Inadequate	06	10.0%
Moderate	43	72%
Adequate	11	18.3%
Total	60	100%

TABLE 05: Evaluation of effectiveness of structured teaching program in pretest and post test regarding occupational health and safety precautions among industrial workers

(N=60)

Knowledge score	Mean	SD	Paired differences	Paired t-test	P-value
Pre test	6.93	3.047	9.183	17.718	0.001
Post test	16.12	2.591			

TABLE 06 : Association between pretest level of knowledge among industrial workers with demographic variables and health profiles

(N=60)

Demographic variables and health profiles		N	Knowledge score					MW/KW test	p-value
			Mean	SD	Median	Percentile 25	Percentile 75		
Age in years	21-25 years	7	6.86	2.91	7	5	9	0.529	0.913
	26-30 years	22	7	3.25	6	5	9		
	31-35 years	19	6.63	2.91	6	4	9		
	Above 35 years	12	7.33	3.28	7.5	4	9.5		
Gender	Female	36	7.03	2.8	6.5	5.5	9	0.352	0.553
	Male	24	6.79	3.44	6	4	8.5		
Marital status	Married	39	7	3.04	6	5	9	0.685	0.710
	Unmarried/Single	17	6.53	3.02	6	4	9		
	Widow/Widower	4	8	3.74	7.5	5.5	10.5		
Residence	Urban	6	8.17	4.17	10	4	11	1.141	0.286
	Rural	54	6.8	2.92	6	5	9		
Education	Primary school education	20	7.9	3.35	7	6	10	9.216	0.027*
	High school education	21	5.38	2.01	6	4	6		
	Higher Secondary education	8	7.38	3.29	7	5.5	10		
	Diploma	11	7.82	3.12	8	4	10		
Years of Experience	1-5years	30	6.43	2.57	6	5	8	1.149	0.563
	6-10years	25	7.32	3.39	7	5	9		
	11-15years	5	8	4	7	6	11		
Information	Media	33	7.18	3.31	7	4	10	1.603	0.659
	Relatives/friends	15	6.53	2.77	6	5	7		
	Healthcare Professionals	10	7.1	2.88	7	6	9		

	In-Service Education in Work place	2	5	1.41	5	4	6		
Comorbid conditions	Diabetes Mellitus	7	6.86	2.19	7	6	8	2.158	0.707
	Hypertension	7	5.71	2.93	5	4	7		
	Hyperthyroidism	1	9	---	9	9	9		
	Others	7	7.57	3.36	8	4	10		
	None	38	7	3.21	6	5	9		
Previous history of disease	Yes	1	6	---	6	6	6	0.103	0.749
	No	59	6.95	3.07	6	5	9		
Medication	Yes	4	8.5	6.19	7	4	13	0.027	0.870
	No	56	6.82	2.77	6	5	9		
Family history of cancer	Yes	1	3	---	3	3	3	2.034	0.154
	No	59	7	3.03	6	5	9		
Allergies	Dust	30	7.07	3.41	6.5	4	9	0.024	0.988
	Food	18	6.72	2.35	6	6	8		
	None	12	6.92	3.23	6.5	4.5	10		

Statistically significant-p*<0.05

DISCUSSION

The aim of the study was to assess the effectiveness of structured teaching programme on knowledge regarding occupational health and safety precautions among industrial workers.

The first objective was to assess the knowledge regarding occupational health and safety precautions among industrial workers.

Knowledge shows that among 60 industrial workers, 58(96.7%) of workers had inadequate knowledge, 2(3.3%) had moderately adequate knowledge regarding occupational health.

It means most of the industrial workers were not aware of occupational health and safety precautions and it is a welcome sign to increase the risk of complications.

It reveals that majority of industrial workers 58 (96.7%) had inadequate knowledge regarding occupational health and safety precautions.

The second objective was to evaluate the effectiveness of STP on occupational health and safety precautions among industrial workers.

After STP regarding occupational health, the post-test analyze shows that only 6 (10.0%) of workers were having inadequate knowledge about occupational health &safety precautions, 43 (71.7%) of workers were

having moderate knowledge, 11 (18.3%) of workers were having adequate knowledge regarding occupational health and safety precautions.

Hence H1 hypothesis was accepted as there was significant difference in the level of knowledge on occupational health and safety precautions between pretest and posttest.

The third objective was to find out association between knowledge with demographic variables and health profile.

It was revealed that there was significant association found between knowledge of industrial workers regarding occupational health and safety precautions with respect to educational status among workers (p=0.027).

Hence H2 hypothesis was accepted with regards to educational status among the industrial workers.

There was no statistically significant association found between knowledge of industrial workers regarding occupational health and safety precautions with respect to age, gender, marital status, residence, years of experience, source of information, comorbid condition, previous history of disease, medication, family history of cancer and history of allergies.

Hence there was an association found between the knowledge of all industrial workers with demographic variables of educational status.

Hence H2 hypothesis was rejected with regards to age, gender, marital status, educational status, residence, source of information, comorbid condition, previous history of disease, medication, family history of cancer, allergic history.

CONCLUSION

The present study was conducted among 60 industrial workers in Ador Multiproducts Ltd, Puducherry. The knowledge of Industrial workers were assessed using structured questionnaire, the study result showed that after STP, 6 (10%) had inadequate knowledge, 43 (71.7%) had moderate knowledge, 11 (18.3%) had adequate knowledge regarding Occupational health and also there was a significant association between knowledge of occupational health and safety precautions among industrial workers with demographic variables. Hence, this study proved that the knowledge regarding occupational health and safety precautions is essential to industrial workers to prevent complications.

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