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Assess the Knowledge among Steel Plant Workers Regarding Physical and Chemical Hazards

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Abstract:- Working population constitutes the major portion of the Community. They determine the progress and development of the country. In other words, their health status is considered as a sensitive indicator for the development of the country. Industrial health is different from occupational health. industrial health deals with workers in industries and mines, where as occupational health is concerned with man in any occupation .So its with references to all types of employment such as mines, agriculture, forestry et...The industrial health is component of occupational health. Millions of people employed in the industries around the world are in conditions that breed ill effect of related occupational diseases injuries kill an estimated million of people worldwide each year (WHO-2002). annually an estimate of 160 million of new cases of occupational related diseases like cancers, burns injuries, occupational dermatitis occur worldwide.

➢ *Objectives*

- To assess the knowledge of industrial workers regarding physical and chemical hazards.
- To identify the utilization of safety measures among industrial workers.
- To determine the relationship between the level of knowledge with selected socio demographic variables.
- To find out the relationship between the knowledge of workers and utilization of safety measures in their working area.
- To identify the occupational related health problem of the workers during the period of data collection.

The conceptual frame work adopted of the study was panders health promotion model. The research approach adopted the study was descriptive in nature .the selection of the workers done by simple random sampling .content validity of the tool was obtained in the field of experts .the collected data was analysed by using descriptive and inferential statistics .present study reveals that positive correlation between knowledge of physical and chemical hazards with utilization of safety measures .

I. INTRODUCTION

Working population constitutes the major portion of the Community .They determine the progress and development of the country. In other words, their health status is considered as a sensitive indicator for the development of the country. Industrial health is different from occupational health .industrial health deals with workers in industries and mines, where as occupational health is concerned with man in any occupation .So its with references to all types of employment such as mines, agriculture, forestry et...The industrial health is component of occupational health .

Millions of people employed in the industries around the world are in condition that breed ill effect of related occupational diseases injuries kill an estimated million of people worldwide each year (WHO-2002).annually an estimate of 160 million of new cases of occupational related diseases like cancers ,burns injuries ,occupational dermatitis occur world wide .

- *Statement of the problem*

Assess the Knowledge among steel plant workers regarding physical and chemical Hazards.

- *Hypothesis*

H 1-There will be the association between Knowledge of workers regarding prevention of accidents.

II. RESEARCH DESIGN

The present study was designed in the form of descriptive survey method with the objective to assess the knowledge among steel plant workers regarding physical and chemical hazards.

III. POPULATION

The target population for the study was workers working the hot and cold mill. The total numbers of workers were 1028.

IV. SETTING OF THE STUDY

This study was conducted in steel plant at salem .The employees working in the steel plant is about 1,348 workers among those 316 members are executives .Working place of steel industry is dived in to cold rolling and hot rolling mill

V. SAMPLE SIZE

The investigator selected 60 workers in the hot and cold rolling mill by missing simple random sampling method (lottery method)

VI. INCLUSION CRITERIA

- Workers working in the hot and cold rolling mill Salem steel plant.
- Sample is limited with one industry.
- Only 60 workers were included for the study ,so finding cannot be generalized.

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VII. DESCRIPTION OF THE TOOL

The tool used for the data collection was semi .structured questionnaire to The questionnaire comprises of two parts including 40 items to assess the knowledge among steel plant workers regarding physical and chemical hazards

A. Socio demographic variables

Socio demographic data consists of 6 items related to workers age, sex, and educational qualification, total years of experience and participation in staff developmental programme on occupational hazard and safety measures.

B. Knowledge Factors

Part –B consists of totally 34 items related to knowledge of workers regarding physical, chemical hazards and safety measures of workers working in the steel plant .The items were distributed into 3 sections and score was 118.

- *Data collection procedure*

The permission was obtained from the concerned authority of Salem steel plant to conduct the study .

The purpose of the study was explained to the workers before conducting the study .Questionnaire were distributed to the workers and they took 15-20 minutes to fill the answers for the questions. Five to six workers were interviewed in a day .The duration of the data collection were 10 days. During the data collection session the workers were cooperative.

- *Plan for data analysis*

The collected data was entered in a master sheet .The data obtained was analysed in terms of the objective of the study by descriptive and inferential statistics .The finding of the socio demographic variables and knowledge regarding physical and chemical hazards and safety measures were represented in the forms of tables ,bar diagram and pie diagram .The socio demographic data of the knowledge of industrial workers regarding physical and chemical hazards and usage of safety measures analyzed in the forms of frequencies ,percentage ,mean ,standard deviation and chi-square test.

Socio demographic data		Number of workers	Percentage
Age in years	Less than 30 years	2	3.3
	31-40 years	19	31.7
	41-50 years	26	43.3
	More than 51 years	13	21.7
Educational qualification	Industrial training institute	23	38.3
	Diploma in engineering	26	43.3
	Degree in engineering	11	18.4
Years of Experience	Less than 5 years	1	1.7
	6-10 years	27	45.0
	11-15 years	17	28.3
	More than 15years	15	25.0
Participation in in-service education programme	Hearing conservation programme	13	21.7
	Occupational hazards and safety measures	28	46.7
	Occupational health and safety	18	30.0
	Pollution control in steel authority of India unit	1	1.6

Table 1. Frequency and percentage distribution of distribution socio demographic variables.

➢ *Knowledge of workers regarding physical and chemical hazards and usage of safety measures*

Knowledge of workers regarding physical and chemical hazards and usage of safety measures was assessed by semi structured questionnaire .Each correct answer was given a score of one.

Sl.No	Dimension	Maximum score	Mean	SD	Mean score percentage %
1	Knowledge on physical hazards	40	18.5	4.7	46
2	Knowledge on chemical hazards	30	17	5.25	56
3	Knowledge on safety measures	48	24	8.65	50
4	Over all	118	59.5	18.6	50

Table 2.

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This table reveals that overall mean knowledge score of workers regarding physical and chemical hazards and usage of safety measures was 59.5,with standard deviation about 18.6 and overall mean score percentage was 50 .The investigator classified the knowledge score in to 3 categories ,There were above average 60-70%,Average 50-60%,below average 40-50%.

The overall mean score percentage of workers regarding physical ,chemical and usage of safety measures was 50 ,so it shows that workers having average knowledge regarding physical ,chemical hazards and usage of safety measures .

Relationship between the knowledge levels of workers regarding Physical Hazards with selected socio demographic variables .

Sl. No	Variables	<_med		>_med		Total knowledge score		Chi-square		
		40	%	20	%	60	%	value	Df	Result
1	Age									
	<30-40 years	16	40	5	21	21	35			Not significant
	>41-50 year	24	60	15	75	39	65	1.3	1	
2	Educational qualification									
	Industrial training institute	32	80	17	85	49	81.7	10.49	1	Significant
	Industrial training institute& Degree in engineering	8	20	3	15	11	18.3			
3	Experience									
	< 10 years	19	47.5	9	45	28	46.6	18.6	1	Significant
	>10 years	21	52.5	11	55	32	53.4			
6	Participation in in-service educational programme									
	Occupational health hazards	32	80	9	45	41	68.3	7.6	1	Significant
	Safety measures	8	20	11	55	19	31.7			

Table 3. Association of Knowledge of workers with socio demographic variables.

Present substantive summary of chi –square analysis which is used to bring out the relationship between the knowledge of physical hazards and experience and socio demographic variables .The result shows that educational qualification ,experience and participation in in-service programme are significantly associated with the knowledge of workers at 5 % percentage level (i e P< 0.05) and age of the workers are not significantly associated with the knowledge of physical hazards (i e P>0.0.5)ITS revealed that the workers who are having good experience ,educational qualification and participation of various in in-service educational programme will have adequate knowledge regarding physical hazards .

Relationship between the knowledge levels of workers regarding chemical Hazards with selected socio demographic variables.

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Sl. No	Variables	<_med		>_med		Total knowledge score		Chi-square		
		40	%	20	%	60	%	value	Df	Result
1	Age									
	<30-40 years	18	36	3	30	21	35	7.81		Not significant
	>41-50 year	32	64	7	70	39	65		1	
2	Educational qualification									Significant
	Industrial training institute	15	30	9	90	24	40	12.49	1	
	Industrial training institute& Degree in engineering	35	70	1	10	36	60			
3	Experience									Significant
	< 10 years	26	52	2	30	28	48.4	3.89	1	
	>10 years	24	48	8	70	32	51.6			
6	Participation in in-service educational programme									
	Occupational health hazards	33	66	8	80	41	68.3	4.35	1	Significant
	Safety measures	17	34	2	20	19	31.7			

Table 4. Association of Knowledge of workers with socio demographic variables.

Present substantive summary of Chi-square analysis which is used to bring out the relationship between the knowledge of chemical hazards and socio demographic variables ,the result showed that age ,educational qualification ,experiences and publication in service programme are significantly associated with the knowledge of workers at 5 %percentage level (i e P< 0.05). this is revealed that workers having educational qualification ,experience and participation in-service programme will have adequate knowledge regarding chemical hazards .

Relationship between the knowledge levels of workers regarding usage of safety measures with selected socio demographic variables.

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Sl. No	Variables	<_med		>_med		Total knowledge score		Chi-square		
		40	%	20	%	60	%	value	Df	Result
1	Age									
	<30-40 years	14	35	7	35	21	35	0	1	Not significant
	>41-50 year	26	65	13	65	39	65			
2	Educational qualification									Significant
	Industrial training institute	32	80	17	85	49	81.7	10.49	1	
	Industrial training institute& Degree in engineering	8	20	3	15	11	18.3			
3	Experience									
	< 10 years	20	50	2	10	22	36.6	7.7	1	Significant
	>10 years	20	50	18	90	38	63.4			
6	Participation in in-service Educational programme									
	Occupational health hazards	32	80	90	45	41	68.3	7.6	1	Significant
	Safety measures	8	20	11	55	19	31.7			

Table 5. Association of Knowledge of workers with socio demographic variables.

Present substantive summary of Chi-square analysis which is used to bring out the relationship between the knowledge of safety measures and socio demographic variables ,the result showed that age ,educational qualification ,experiences and publication in service programme are significantly associated with the knowledge of workers at 5 %percentage level (i e P< 0.05).this is revealed that workers having good experience ,educational qualification and participating in various in service educational programme are having adequate knowledge regarding safety measures

Sl. NO	Co-relation co –efficient	Result
1	0.5	Significant relation

Table 6. Relationship between physical hazards and chemical hazards and safety measures

Critical value of spear man correlation r=0.5 ,which is signifying at 1%level(i e p <0.01).this result reveals that there is positive degree of correlation between knowledge of physical ,chemical hazards with safety measures.

Workers having adequate knowledge regarding physical chemical hazards will utilize the safety measures adequately to prevent the physical and chemical hazards.

VIII. IMPLICATION

- The community health nurse should educate the workers regarding physical and chemical hazards as part of their community services. so the workers can improve their knowledge regarding physical and chemical hazards and usage of safety measures.
- The curriculum of training area ITI. Diploma in engineering and any industrial training courses should have the content on occupational hazards should be implemented and reviewed periodically in order to develop the necessary knowledge and skill required by workers .

IX. RECOMMENDATION

- A quasi experimental study can be done to absorb effect in education for the industrial workers regarding physical and chemical hazards.
- Similar study can be replicated in a large scale

X. CONCLUSION

- Overall knowledge of workers regarding physical and chemical hazards were average 50%,since the present study revealed that the socio demographic variables such as educational qualification ,experience and participation in-service education had no influence on knowledge score of the workers so the health education during

training on regarding physical and chemical hazards and usage of safety measures health personal who works in the industry should take responsibility to improve the knowledge of workers in the area of physical and chemical hazards and usage of safety measures.

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