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Assess The Effectiveness Of Information Booklet On Knowledge Regarding Ill Effects Of Ammonia Among Workers Of Selected Ice Factories And Cold Storage Plants In Udaipur City (Raj.)

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ABSTRACT

Background

Occupational health interviews and physical examinations should be performed at regular intervals during the employment period, as mandated by any applicable Federal, State, or local standard. Where no standard exists and the hazard is minimal, evaluations should be conducted every 3 to 5 years or as frequently as recommended by an experienced occupational health physician. Whereas chemical exploration one of the most dangerous issue in now days. Additional examinations may be necessary of a worker develops symptoms attributable to ammonia exposure. Ammonia ill effects are posing a great threat globally, it is an increasing trend globally and India is not an exemption. Ammonia (NH_3) is a common upper airway tract irritant. It is a highly soluble alkaline gas that is widely used in industry as a refrigerant and in the manufacture of fertilizers, explosives and plastics. It attacks the skin, the conjunctiva and the mucous membranes of the upper respiratory tract. Edema of the larynx and pulmonary edema can occur with exposure to high concentrations and can cause death. In 2012, the Alaska Department of Environmental Conservation reported 32 Extremely Hazardous Substance (EHS) releases 72% of the releases involved anhydrous ammonia. The highest number of releases occurred in the ice factories 50% followed by Cold storages 33% agriculture 13% and others 9%.

Objectives

1. *To assess the pre test knowledge scores regarding ill effects of ammonia among workers of selected ice factories and cold storages of Udaipur city.*
2. *To prepare and administer an information booklet regarding ill effects of ammonia among workers of selected ice factories and cold storages of Udaipur city.*
3. *To determine the effectiveness of an information booklet on knowledge regarding ill effects of ammonia among workers of selected ice factories and cold storages of Udaipur city.*
4. *To find out the association between mean pretest knowledge scores and selected socio demographic variables.*

Hypothesis

H_1: *There will be A significant difference between the mean pre test and post test knowledge scores regarding ill effects of ammonia among workers of ice factories and cold storage.*

H_2: *There will be significant association between mean pre test knowledge of workers regarding ill effects of ammonia with selected socio demographic variables.*

Method

The approach adopted for the present study was evaluative approach. The conceptual framework for the study was developed on the basis of Health Promotion Model, proposed by Nola J.Pender, Murdagh C.L, Parsons M.A identifies factors that enhance or decrease health promotion Behaviour. The setting areas of the study were Udaipur cold storage and Mewar sheath grah in Udaipur city. In this study 80 literate workers samples were drawn by using simple random method. The pre- test knowledge was collected by using structured knowledge close ended questionnaire after this information booklet was administered than after 7 days post- test was taken. The data was analyzed using descriptive and statistical analysis.

Results

The knowledge of ill effects of ammonia among workers was assessed. The mean post- test knowledge score is 21.18(84.08. %) which was greater than the mean pre- test knowledge score 11.04 (45.17%).and the enhancement in the knowledge of respondents is 9.58 (48.5%).The post- test knowledge score was significantly

higher than the mean pre-test knowledge score with 't' value of 26.28,df 79 at 0.05 level of significance. This indicated that there was difference in pre- test and post- test knowledge score of respondents and information booklet was effective in improving the knowledge score of workers regarding ill effects of ammonia and its prevention. There was a significant association between pre -test knowledge scores and socio demographic variables like age in years, ,educational status, area of residence, previous knowledge about ill effects of ammonia and their prevention & whereas no association was found with, gender, source of information.

Conclusion

This study concluded that there is improvement in the level of knowledge of workers which indicated that the information booklet was effective. The demographic variables like age, educational status, gender, previous knowledge about ill effects of ammonia and their prevention of workers significantly associated with the pre - test knowledge score. Hence this kind of teaching should be conducted from time to time in the vulnerable community so that their knowledge can be increased which will be helpful in reducing the hazards burden of chemical exposures as always prevention better than cure.

Key Words: *Assess, Knowledge, Workers, effectiveness, Ill effects of ammonia, Information booklet.*

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I. INTRODUCTION

The joint ILO/WHO committee on occupational health at its first meeting in 1950 formulated their occupational health should aim at the promotion and maintenance of the highest degree of physical mental and social well being of workers in all occupations; the prevention among workers of departures from health caused by their working conditions, the protection of workers and their employment from risks resulting from factors adverse to health, the placing and maintenance of the worker in an occupational environment adopted to his physiological and psychological ability, and to summaries, the adaptation of work to man and of each man to his job. Occupational health interviews and physical examinations should be performed at regular intervals during the employment period, as mandated by any applicable Federal, State, or local standard. Where no standard exists and the hazard is minimal, evaluations should be conducted every 3 to 5 years or as frequently as recommended by an experienced occupational health physician. Additional examinations may be necessary of a worker develops symptoms attributable to ammonia exposure. Ammonia (NH_3): a common upper airway tract irritant. It is a highly soluble alkaline gas that is widely used in industry as a refrigerant and in the manufacture of fertilizers, explosives and plastics. It attacks the skin, the conjunctiva and the mucous membranes of the upper respiratory tract. Oedema of the larynx and pulmonary oedema can occur with exposure to high concentrations and can cause death. The Ministry has initiated the development of on GIS based Emergency Planning and Response, web-enabled system on Chemical Accident with the technical support of National Informatics Centre (NIC). After independence the rapidly growing industrialization have created a lot of industrial health problems affecting the employer and the government. The India Factory act has been amended three times after independence that is in 1948, 1976, and 1987 to improve the health, safety and welfare of the workers. The act extends to the whole of India expect Jammu and Kashmir. Thus researcher felt a need to educate regarding ill effects of ammonia among workers of selected ice factories and cold storage plants.

II. RESEARCH ELABORATION

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of information booklet on knowledge regarding ill effects of ammonia among workers of selected ice factories and cold storages plant in Udaipur city (Raj.).

OBJECTIVES

1. To assess the pre test knowledge scores regarding ill effects of ammonia among workers of selected ice factories and cold storages of Udaipur city.
2. To prepare and administer an information booklet regarding ill effects of ammonia among workers of selected ice factories and cold storages of Udaipur city.
3. To determine the effectiveness of an information booklet on knowledge regarding ill effects of ammonia among workers of selected ice factories and cold storages of Udaipur city .
4. To find out the association between mean pretest knowledge scores and selected socio demographic variables.

HYPOTHESIS

H_1: There will be A significant difference between the mean pre test and post test knowledge scores regarding ill effects of ammonia among workers of ice factories and cold storage.

H_2: There will be significant association between mean pre test knowledge of workers regarding ill effects of ammonia with selected socio demographic variables.

III. MATERIAL AND METHODS

Population – Workers of ice factories.
Sample – Workers of selected ice factories and cold storage in Udaipur city.
Sample size- 80 workers of selected ice factories and cold storage in Udaipur city.
Setting- Mewar sheath grah Kaladwas and cold storage plants Sukher in Udaipur city.
The conceptual framework for the study was developed on the bases of Health Promotion Model.

RESEARCH DESIGN

The research design selected for the present study was a pre experimental one group pre-test post-test research design.

ETHICAL CONSIDERATION

After obtaining permission from research committee of RNT Medical College Udaipur, prior permission was obtained from the authorities of selected cold storage and ice factories of Udaipur city. Consent was taken from each participant who had participated in the study.

DECRIPTION OF THE TOOL

The structured knowledge questionnaire consisted of two parts i.e. Part – I & II.

Part - I: consisted of 7 items on socio- demographic data such as age in years, gender, educational status, area of residence, working experience and sources of information.

Part - II: consisted of close ended questionnaire on ill effects of ammonia and its prevention among workers. This section consists of 26 items on selected aspects, which are Introduction and properties of Ammonia, Uses of ammonia, Incidence of ammonia leakage, Ill effects of ammonia, Complication of ammonia exposure, Prevention and Management of ammonia ill effects.

SCORING

Each items had only one correct response and each correct response was scored one and incorrect or not attempt was scored zero. The total possible score of the structured knowledge questionnaire was 26. The same questionnaire was used for the assessment of knowledge level in pre-test and post- test.

Percentage	Interpretation
0-35.5%	Inadequate
35.5-67%	Moderately Adequate
67-100%	Adequate

An answer key was prepared for scoring answer to the structured knowledge questionnaire.

DATA COLLECTION AND DATA ANALYSIS

The data was presented under the following sections
Section-I: Description of socio-demographic variables of the respondents.
Section-II: Comparison of mean pre and post-test knowledge scores
Section-III: Association between pre-test knowledge scores and selected socio-demographic variables.

IV. RESULT

Section-I: Description of socio-demographic variables of the respondents.

Table 1: The frequency and percentage of sample distribution according to the selected socio-demographic variables.

Age in years	Frequency	Percentage
20-30	14	17.50%
31-40	17	21.25%
41-50	29	36.25%
51-60	20	25.0%
Total	**80**	**100.0**
Gender		
Male	52	65%
Female	28	35%
Total	**80**	**100%**
Working Experience in years		
0-5 years	38	47.50%

5-10 years	20	25.00%
10-15 years	14	17.50%
15 years and above	08	10.00%
Total	**80**	**100%**
Educational Status		
Primary	15	18.75%
secondary	55	68.75%
Sr.secondary	5	6.25%
Graduation . &Above.	5	6.25%
Total	**80**	**100%**
Area of Residence		
Rural	51	63.75
Urban	29	36.25
Total	**80**	**100%**
Previous Knowledge Regarding Ill Effects of Ammonia		
Yes	15	18.75%
No	65	81.25%
Total	**80**	**100%**
Source of Information		
Health personal	13	16.25%
Electronic media	16	20.00%
Friends and relatives	08	10.00%
Print media	43	53.75%
Total	**80**	**100%**

Section-II: Comparison of mean pre and post-test knowledge scores

Table 2: Area Wise Pre-Test Knowledge Scores

N = 80

Area	Mean	Mean Percentage	Standard Deviation
Introduction	2.61	43.5%	1.44
Uses	2.25	37.5%	1.26
Causes and ill effects of ammonia	0.93	46.0%	0.69
Prevention and management of ammonia exposure	3.09	38.62%	1.51

Table 2 revealed that the mean pre-test knowledge on causes and ill effects of ammonia was highest 0.93 with SD 0.69 and mean percentage was found to be 46.00%.The mean pre-test knowledge scores on Introduction of Ammoniawas 2.61 with SD 1.44; mean percentage was found to be 43.50% .The mean pre-test knowledge scores on prevention and management of Ammonia was 3.09 with SD 1.51 and mean percentage was found to be 43.62%& least mean pre test scores was in the area of uses of Ammonia exposures was 2.25 with SD 1.26& mean percentage was found to be 37.50%.

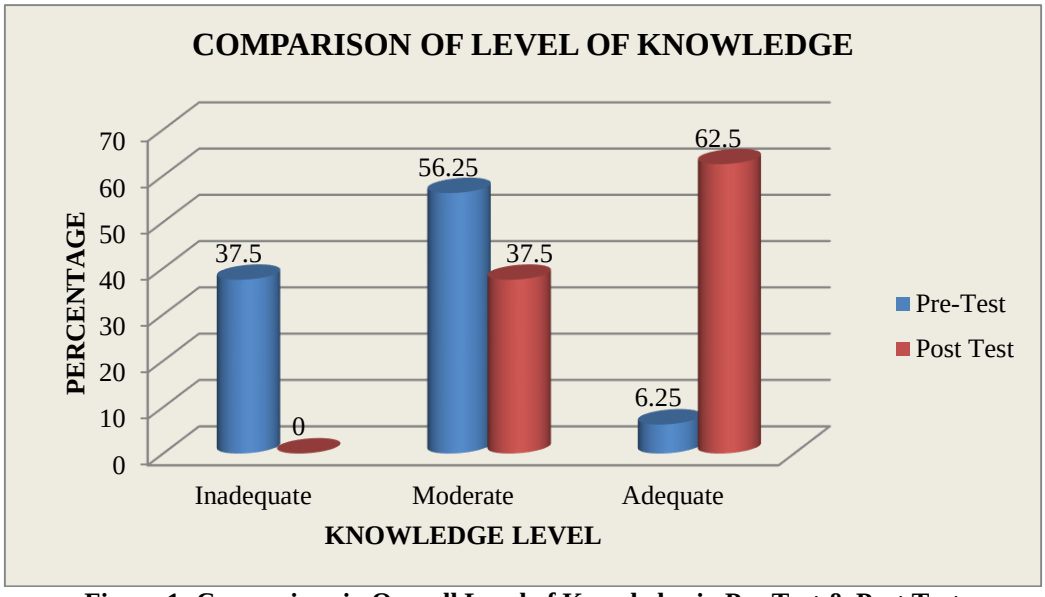

Figure 1: Comparison in Overall Level of Knowledge in Pre Test & Post Test

Figure 1 depicted comparison of mean pre and post-test level of knowledge among respondents regarding Ammonia. In the pre- test most of the respondents had no adequate knowledge on Ammonia, 37.50% respondents had inadequate knowledge, 56.25% had moderately adequate knowledge & 6.25% adequate knowledge level while in post- test 37.50% respondents had adequate knowledge, 62.50%% had moderately adequate knowledge & no one had inadequate knowledge level regarding Ammonia and its prevention.

Table 3: Effectiveness of information booklet by Comparing Mean Pre-Test and Post-Test Knowledge Scores. N=80

	Mean	Mean Percentage (%)	SD	Enhancement	Enhancement Percentage (%)	Df	T-Value	Result
Pre-Test	8.07	44.17%	2.82	6.4	24.61	79	20.57	S
Post Test	14.43	84.08%	3.74					

* S- Significant at P< 0.05 level

Analysis depicts that the enhancement in the knowledge of respondents is 9.58 (47.5%).The post- test knowledge score was significantly higher than the mean pre-test knowledge score with 't' value of 20.57, df 79 at 0.05 level of significance. This indicated that there was significant difference in mean pre -test and mean post- test knowledge score of respondents and information booklet was effective in improving the knowledge score of workers regarding Ill effects of Ammonia therefore H_1 state that there is a significant difference between mean pre -test and post- test knowledge score of workers regarding ill effects of Ammonia and its prevention was accepted.

Section-III: Association between pre-test knowledge scores and selected socio-demographic variables.

Table 4: Association between pre-test knowledge scores and selected socio-demographic variables

Age in Years	Median		Total	χ^2 value	Df	Result
	≤median(8)	>median(8)				
20-30	6	8	14	1.36	3	NS
30-40	6	11	17			
40-50	15	14	29			
Above 50	8	12	20			
Total	**35**	**45**	**80**			
Gender						
Male	32	20	52	0.782	1	NS
Female	20	8	28			
Total	**52**	**28**	**80**			
Educational status						
Primary	9	5	14	9.95	3	S
Secondary	20	9	29			
Sr. Secondary	5	12	17			
Graduation & above	7	13	20			
Total	**41**	**29**	**80**			
Area of residence						
Rural	28	23	51	1.52	1	S
Urban	20	9	29			
Total	48	32	80			
Previous knowledge about ill effects of Ammonia						
Yes	5	10	15	10.77	1	S
No	50	15	65			
Total	**55**	**25**	**80**			
Working experience						
0-5 years	9	30	39	24.21	3	S
5-10 years	18	3	21			
10-15 years	5	7	12			
15 years and above	6	2	8			
Total	**38**	**42**	**80**			
Source of Information						
Health personal	7	6	13	1.3	3	NS
Electronic media	10	6	16			
Friends and relative	4	4	8			
Print media	20	23	43			
Total	**41**	**39**	**80**			

* NS- Not Significant at P> 0.05 level

Table 4 shows that there is a significant association between pre test knowledge of respondents with the demographic variables of educational status, area of residents, previous knowledge about ill effects of ammonia

and the working experience. Whereas the significant association between pre test knowledge of respondents with the demographic variables of age in years, gender and source of information was not found at the level of P > 0.05. Hence H_2 stated that there will be significant association between mean pre-test knowledge scores and selected demographic variables was accepted with some variables and rejected with some variables Hence H_2 is partially accepted.

V. CONCLUSION

The knowledge of the workers regarding prevention of ill effects of ammonia before the administration of the information booklet was very low. The information booklet significantly increased the knowledge of workers regarding prevention of ill effects of ammonia and its prevention. The knowledge of workers were not influenced by selected socio- demographic variables such as age, gender, area of residence, educational qualification, working experience , previous knowledge of ammonia sources of information .Hence it can be concluded that kind of teachings should be conducted from time to time to educate the community and the risk people like workers so that their knowledge regarding prevention of ill effects of ammonia can be enhanced and which will reduce mortality and morbidity associated with ill effects of ammonia and also reduce hospital burden.

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