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"A study to assess the effectiveness of planned teaching program on knowledge regarding ill effects and it's preventive measures of ammonia among workers of selected cold storage of Sangli, Miraj, Kupwad corporation area."

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Abstract

Ammonia (NH3) is a chemical compound with boiling temperature at -33.0C; in a form of gas at atmospheric pressure with the characteristic of strong fume, easily dispersed (due to its light molecular weight), irritant, flammable, and high level of toxicity 7. Ammonia commonly used in chemical industries such as fertilizer, refrigerant, explosive, as it is used as a raw material, catalyst, and reagents in many chemical processes 8. About 85% of ammonia used as the main feed for manufacturing urea fertilizer, while another 15% used in the polymer and explosives, as a refrigerant in the heat exchanger and reducing agents in control of NOx emissions 7 . Rapid Human activities particularly industries that use fossil fuel material as the basis, has emerging several problems that related to resilience, environment, and also public health 9, 10. Therefore, the visions of Low carbon society pointed to the principle of reducing the carbon dioxide and anthropogenic greenhouse gas emission that cause harm towards the people and environment11, 12. Ammonia also one of the major pollutants for its major role in forming secondary inorganic compound, leading to poor air quality that raise various issues on environment 13

The present study was Quasi- experimental with one group pretest and post test design. The sample size of this study is 50 and samples are cold storage workers with this simple random sampling technique used. Result of this study, according to knowledge level, the Shows that mean value of pre-test knowledge score is 7.96 i.e. 41% and mean value Of post-test knowledge score is 10.84 i.e. 58.11%. This suggest that there is statistically significant increase in post-test score, so planned teaching program on knowledge regarding ill effects of ammonia and it's preventive measures was effective.

Introduction

Ammonia (NH) is a colorless irritant gas with a pungent order that is readily soluble in water to generate ammonium (NH) ions.[1] Ammonia is a natural by-product in the human body as an intermediate in several metabolic reactions primarily involving amino acid synthesis.[2]

It also gets produced in the human gut as a result of various enzymatic actions of bacteria.[3]However, as a result of the highly toxic nature of ammonia, it is quickly metabolized into urea in the liver by the urea cycle and excreted by the kidneys.[4,5] The blood ammonia level in a healthy adult is in a range of 15 to 45 micrograms/dL.[6] Ammonia toxicity occurs when the ammonia content in the blood supersedes the liver's capacity to eliminate it; this could be a result of either overproduction such as in congenital hyper ammonia or under-elimination such mechanisms of its toxicity.

The objectives of the study:-

1. To assess the existing knowledge regarding ill effects and it's preventive measures of ammonia.
2. To assess the post-test knowledge regarding ill effects and it's preventive Measures of ammonia.
3. To compare pre- test and post- test knowledge scores regarding ill effects and Its preventive measures of ammonia.

Material and Methods

The present study was Quasi- experimental with one group pretest and post test. The sample size was calculated by power analysis formula. The present study consisted of 50 Workers from selected cold storage with this simple random sampling technique was used to select the sample for the present study. The reliability was conducted at of 10 samples. The reliability of the tool was done by using **Split Half Method**, Pearson's correlation coefficient formula. The r value of the tool is **0.77**, which found

to be reliable. The pilot study was conducted in selected area Sangli, Miraj, Kupwad, corporation. Dist.-Sangli .The sample size was 10. The setting and samples used for pilot study are excluded from the final study. The purpose and significance of the study was explained to the participants. After that the data was analyzed with the help of statistician. It was revealed that the p value is 0.05 which is less than 0.05 and hence H1 is accepted.

TABLE NO. 1:-

FREQUENCY AND PERCENTAGE DISTRUBUTION OF DEMOGRAPHIC VARIBLES

n=50

Sr. No.	Category		Frequency	Percentage
1.	Age in Years	20-30	18	36%
		31-40	27	54%
		Above 40 years	5	10%
2.	Education			
		Primary	23	46%
		Secondary	19	38%
		No formal education	8	16%
3.	INCOME	Rs. 5,000 per month	5	10%
		Rs. 10,000 per month	32	64%
		Rs. 15,000 per month	13	26%
6.	Previous Knowledge Regarding Ammonia Toxicity	Yes	19	38%
		No	31	62%

Shows that majority of workers in between age group of 31 to 40 years i.e.54%. Maximum workers are taken primary education i.e. 46%. Majority of workers have income Rs. 10,000 per month i.e. 64% and 38% of workers have previous knowledge regarding ammonia toxicity.

TABLE NO -2

Frequency and percentage distribution of pre- test knowledge score.

n=50

Category	Frequency	Percentage
O to 6 (poor)	22	44%
7 to 12 (average)	15	30%
13 to 18 (good)	13	26%

TABLE NO.2

Shows that 22 workers have poor (0-6) knowledge score, 15 workers have average (7-12) knowledge score and 12 workers have good (13-19) knowledge score. It is evident that more efforts are necessary to improve the knowledge regarding ammonia toxicity and its Preventive measures.

TABLE NO 3:

Frequency and percentage distribution of post- test knowledge score.

n=50

Category	Frequency	Percentage
O to 6 (poor)	10	20%
7 to 12 (average)	18	36%
13 to 18 (good)	22	44%

TABLE NO.3

Shows that 22 workers have Good (13-18) Knowledge score, 18 workers have Average (7-12) knowledge score and 10 workers have Poor (0-6) knowledge score.

TABLE NO: 4

Comparison between pre-test and post-test knowledge score

n-50

	MEAN	SD	MEAN DIFFERENCE	PAIRED T TEST	P VALUE
PRE TEST	7.96	4.0	2.88	4.45	0.0002
POST TEST	10.84	3.9			

TABLE NO. 4

Shows that mean value of pre-test knowledge score is 7.96 i.e. 41% and mean value of post-test knowledge score is 10.84 i.e. 58.11%. This suggest that there is statistically Significant increase in post-test score, so planned teaching program on knowledge regarding ill Effects of ammonia and its preventive measures were effective.

Discussion:

The present study intended to find out the effectiveness of planned teaching programme on knowledge regarding ill effects and it's preventive measures of ammonia among workers of selected cold storage of Sangli, Miraj, Kupwad corporation area."

.In the study total 50 samples were included. The finding of the present study is discussed with reference to the objective, hypothesis stated findings of other similar studies.

Similar study conducted by the study setting was Two urea fertilizer producing factories in Saudi Arabia. Were the objective was: To determine the prevalence of respiratory symptoms and diseases in employees exposed to ammonia gas. Study design was A cross-sectional study involving 161 exposed subjects and 355 controls. All completed a respiratory symptoms questionnaire, with additional questions on

present and past occupations. Ammonia concentrations were measured in the different sections of the factories. At the end of the study its results that The ammonia levels in factory B were well below the threshold limit value (TLV) (range 0.02-7.0 mg/m3 of air). In factory A the range was 2.0-130.4 mg/m3. The control and exposed groups were comparable with respect to their smoking habits. The exposed subjects in factory A had significantly higher relative risks (RR) for all respiratory symptoms; the same was true for haemoptysis (RR: 4.1, 95% confidence interval: 1.63-10.28). Bronchial asthma, chronic bronchitis, and a combined diagnosis were significantly higher among those exposed to high cumulative ammonia levels.

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