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A descriptive study to assess the knowledge regarding cold chain maintenance among B.Sc. Nursing students in Bombay Hospital College of Nursing, Indore, Madhya Pradesh

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Abstract
A descriptive study was conducted to assess the knowledge regarding cold chain maintenance among B.Sc. Nursing students in Bombay Hospital College of Nursing, Indore. Objectives are: to assess the level of knowledge regarding cold chain maintenance among B.Sc. nursing 2nd year students and to find out the association of knowledge scores regarding cold chain maintenance with their selected socio-demographic variables. 10 B.Sc. Nursing 2nd year students were selected by using probability simple random sampling technique with lottery method. Data were collected through socio-demographic variables & structured knowledge questionnaire tools. The results showed that mean score of knowledge level was 9.5 & this value indicate that B.Sc. Nursing 2nd year students were having average level of knowledge regarding cold chain maintenance and there was significant association between knowledge scores with selected socio demographic variables.

Keywords: knowledge, cold chain maintenance, B.Sc. Nursing students

Introduction

"Safe immunization, safe child ''

Over the last century, immunization has been the most powerful medical strategy to control infectious diseases. Most viral and bacterial diseases usually affecting children worldwide are now preventable by vaccines. Vaccination is estimated to save at 2 - 3 million lives every year [1].

The cold chain is a system of storage and transport of vaccines at low temperature (+2ºc to +8ºc) from the manufacturer to the actual vaccination site. The cold chain system is essential because vaccine failure may occur due to failure to store and transport under strict temperature control [2].

In India, UIP (Universal Immunization Program) was introduced since 1985. To achieving the objectives of UIP is depends on quality of vaccines used. To preserve its potency and safety, cold chain has to be maintained at all levels. Those involved in this to be skilled and equipped regarding condition of storage and transportation as well as temperature monitoring [3].

In case of mismanagement of the cold chain we may face shortage of drugs, so having products that have been rejected because of time out of refrigeration directly affects to maintain of patient's in their treatment.

Problems related to cold chain implementation & vaccine management have been reported from developed & developing countries. Such studies help to the staff nurses and student nurses, so that they understand the protocols, routine and urgent vaccine storage, handling and their responsibility in maintaining the cold chain [4].

Creating awareness among people those carrying these vaccines, about the importance of cold chain maintenance is very much essential for health care professionals, transportation workers and vaccine storage workers.

Need for the study

"Today almost 60% of vaccines are thrown away because of doubts about their potency after break in the cold chain and possible damage from exposure to high temperatures." – World Health Organization, 1996.

The current studies show that, cold chain lapses causing infant death. The death of children after immunization due to a possible breakdown in the cold chain revealed fissures in the system. The Times of India disclosed that 128 children died in 2010 due to adverse effects after immunization (AEFI). The number of death has escalated over the past three years from 111 in 2008 and 116 in 2009. According to media sources, the numbers only appear to be climbing upwards. Sources in the Logistic industry and the medical fraternity are analysing the cause of death and indicate that among other reasons, neglect of cold chain facilities could be a possible reason for such deaths [5].

Harsha kumar HN (2013) was conducted a study on cold chain maintenance and vaccine management practice in various hospitals and clinics (total 16) of Mangalore city. Most of the health care facilities (56.25%) had a thermometer in cold chain, but the temperature was not maintained at the required range (31.25%) [6].

After comprehensive literature review, the investigator identified a need to assess the knowledge regarding cold chain maintenance of B.Sc. Nursing 2nd year students.

Statement of the problem

"A descriptive study to assess the knowledge regarding cold chain maintenance among
B.Sc. Nursing students in Bombay Hospital College of Nursing, Indore .M .P."

Objectives of the study

1. To assess the level of knowledge regarding cold chain maintenance among B.Sc. nursing students.
2. To find out the association of knowledge scores regarding cold chain maintenance with selected socio-demographic variables of B.Sc. Nursing 2nd year students.

Hypotheses

At 0.05 level of significance;

H_1.There is a significant association of knowledge score with selected socio-demographic variables of B.Sc. Nursing 2nd year students regarding cold chain maintenance

Ethical Issues

For the present study, the investigator took into consideration the ethical issues. The study was accepted by the research committee. Prior permission was obtained from higher authorities of Bombay Hospital College of Nursing. The B.Sc nursing students had the freedom to participate or to ignore in this study.

Methodology

A quantitative descriptive survey research approach was used in the study, 10 B.Sc. Nursing 2nd year students of Bombay Hospital College of Nursing, Indore, were selected by using probability simple random sampling technique with lottery method, who were 18 years of age & above and willing to participate in the study. Data was collected by using socio-demographic & structured knowledge questionnaire & analysed through descriptive & inferential (Chi-square test) statistics.

Findings and discussion

- **Findings Related To Association Of Knowledge Score With Selected Socio - Demographic Variable**

- With regards to the age of 10 B.Sc Nursing students 5 (50%) belonged to the age group of 19yrs and other 5 (50%) were as the age group of 20 yrs.
- It reveals that, maximum belongs to 7 (70%) Christian religion and 3 (30%) were belonged to Hindu religion.
- Regarding educational status of parent's among 10 samples, 2 (20%) was only having High school education and 8 (80%) were having higher secondary education.
- In relation to parent's occupation 1(10%) have government job, 6 (60%) have private job, 1 (10%) parent have related medical job and other 2 (20%) parents were have other job.
- The data further reveals that, 5 (50%) B.Sc Nursing students have previous knowledge regarding cold chain maintenance while 5 (50%) are not having previous knowledge.
- Regarding source of information about cold chain maintenance depicts that, 8 (80%) B.Sc nursing students got information from teachers & health personals and 2 (20%) got information from awareness programs.

Table 1: Findings related to Assessment Of B.Sc Nursing Students Knowledge Score About Cold Chain Maintenance (n = 10)

Knowledge Score	Grade	Assessment of Knowledge Score				
		Frequency	Percentage	Mean	Median	S.D.
0 - 5	Poor	0	0	9.5	9.5	2.1
6 – 10	Average	7	70%			
11- 15	Good	3	30%			
16 - 20	Excellent	0	0			

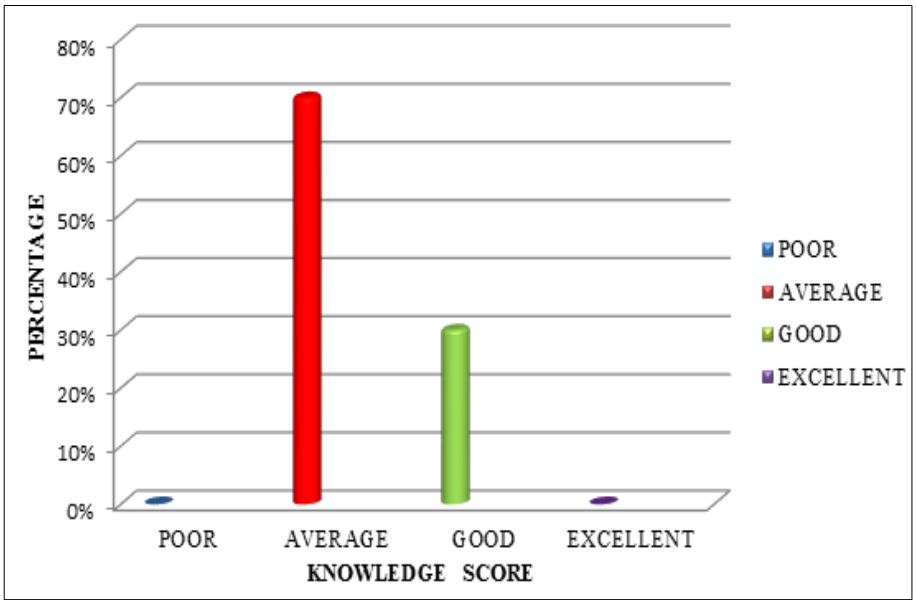

Fig 1: Bar diagram showing the frequency and percentage wise distribution of B.Sc. nursing students according to knowledge score.

This study revealed that, Majority of B.Sc. nursing students are having average knowledge 7(70%) and 3(30%) are having good knowledge regarding cold chain maintenance. Mean score of level of knowledge score regarding cold chain

maintenance among B.Sc Nursing 2nd year students was **9.5** and standard deviation was 2.1. This value indicates that B.Sc. Nursing 2nd year students were having average level of knowledge regarding cold chain maintenance. Chi-square test revealed that there is significant association of level of knowledge with their selected socio-demographic variables; hence the research hypothesis (H1) is accepted.

Conclusion

The study was to assess the level of knowledge regarding cold chain maintenance among

B.Sc. Nursing 2nd year students and find the association with their selected socio-demographic variables. After detailed analysis, the findings revealed the following results.

- The majority of B.Sc. Nursing 2nd year students in Bombay Hospital College of Nursing, Indore have an average level of knowledge. Mean score of knowledge score among B.Sc. nursing students was 9.5 and there is need to improve their knowledge in this area.
- There was significant association of level of knowledge score with selected socio-demographic variables.

The constant help and support of the guide and co-guide provided a positive reinforcement for successful completion of the study. The study was a new learning experience for the investigator.

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