



A study to assess the effectiveness of self instructional module (SIM) on knowledge regarding selected water borne diseases and its prevention among mothers of under five children in selected area at Jaipur

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doi: 10.48047/ecb/2023.12.si7.556

INTRODUCTION

Water is essential for all dimensions of life. Over the past few decades, the use of water has increased, and in many places water availability is falling to crisis levels. Adequate supply of fresh and clean drinking water is a basic need for all human beings on the earth, yet it has been observed that millions of people worldwide are deprived of this. Industrial growth, urbanization and the increasing use of synthetic organic substances have serious and adverse impacts on freshwater bodies. Many areas of groundwater and surface water are now contaminated with heavy metals, POPs (persistent organic pollutants), and nutrients that have an adverse affect on health.

Most intestinal (enteric) diseases are infectious and are transmitted through faecal waste. Pathogens which include virus, bacteria, protozoa, and parasitic worms are disease-producing agents found in the faeces of infected persons. These pathogens travel through water sources and interfuses directly through persons handling food and water. Hepatitis, cholera, dysentery, and typhoid are the most common waterborne diseases that affect large populations in the tropical regions. Waterborne epidemics and health hazards are mainly due to improper management of water resources.

Cholera

Water contaminated with *Vibrio cholera* bacteria causes cholera. People living in poverty, residing in crowded areas without adequate sanitation are more susceptible to cholera. Cholera vaccine offers protection.

The cause for Cholera

Cholera is caused by the bacterium *Vibrio cholerae*. water that has been contaminated by the faeces of infected persons. Raw or undercooked seafood may be a source of infection in areas where cholera is prevalent and sanitation is poor.

Hepatitis A and E

Hepatitis means inflammation of the liver. Different viruses such as hepatitis A, B, C, D, E and F cause the disease. Both Hepatitis virus A and E are water-borne diseases. Consumption of water or food contaminated by the HAV or HEV infected person causes hepatitis.

The cause of Hepatitis

Hepatitis A and E viruses, while unrelated to one another, are both transmitted via the faecal-oral route, most often through contaminated water and from person to person.

Typhoid

Fluctuating high fever, exhaustion, sleepiness, diarrhoea etc are the signs of typhoid. The infection spreads through contaminated food and water or through close contact with an infected person. Typhoid vaccine is available for protection against the disease.

Measures To Control And Prevent Water Borne Diseases Are:

- Health Education
- House hold Hygiene And Disinfection
- Adequate and Clean water Supply
- Control of Spread
- Safe Food Preparation and Storage
- Vaccination
- Hand washing — this is the most vital component of personal hygiene in disease prevention
- Avoid contacting soil that may be contaminated with human
- faeces
- Do not defecate outdoors.
- Dispose diapers properly

When travelling to countries where sanitation and hygiene are poor, avoid water or food that may be contaminated.

Wash, peel or cook all raw vegetables and fruits before eating.

- Hands should be washed with soap after defecation and after cleaning and disposing of an infant's feces or after handling any contaminated material.
- Infected individuals (and domestic animals) should be treated with medicine to reduce disease transmission.

NEED FOR THE STUDY

The burden of waterborne diseases is paramount in the globe. In 2020, death rate for Rajasthan was 5.6 deaths per 1000 inhabitants due to diarrhoea and other water born disease. About 4% of the global burden of diseases is attributable to water, sanitation and hygiene. Nearly 2.2 million people die every year due to diarrhoeal diseases globally. Of these, 1.8 million deaths occur alone in low-income countries. One of the tenth leading causes of death is attributable to diarrhea and other water born diseases. In Rajasthan, every year more than one hundred thousand under-five children die due to diarrhoea related diseases. Research indicates that more than half of acute illnesses are attributable to contaminated water, sanitation and hygiene-related across all age groups.

OBJECTIVES

1. To assess the level of knowledge on selected water borne diseases and its prevention among mothers of under five children before administration of SIM
2. To assess the level of knowledge on selected water borne diseases and its prevention among mothers of under five children after administration of SIM
3. To evaluate the effectiveness of self instructional module regarding knowledge of water borne disease and its prevention among mothers of under five children.
4. To find the association between the level of knowledge of mothers of under five children with selected demographic variables.

HYPOTHESES

- The mean score of post test will be higher than mean score of pre test of the mothers regarding water borne diseases and its preventive measures.
- There will be a significant difference between the knowledge of Mothers with the selected variables

REVIEW OF RELATED LITERATURE

- Studies related to prevalence and incidence of water borne diseases Diarrhea, Typhoid and Hepatitis A
- Studies related to mortality and morbidity of acute diarrhoeal diseases, Typhoid, Hepatitis A
- Studies related to risk factors of Diarrhea, Typhoid and Hepatitis A
- Studies related to prevention of Water borne diseases

MATERIALS AND METHODS

Research approach:Quantitative research approach was used.

Research design: Pre experimental research design was used for present study.

Setting of the study: Sanganer Jaipur and Madrampura Jaipur.

Population: Mothers having under five years children, residing at Sanganer Jaipur and Madrampura Jaipur

Sample and sample size: Sample consist a total number of 100 Mothers who were having children below 5 years of age residing in Sanganer Jaipur and Madrampura Jaipur

Sampling technique: Convenient Sampling technique was used for the present study.

Study variables:

Independent variable: Self instructional module.

Dependent variable: Knowledge Levels of the Mother

Extraneous variables: Age, education, occupation, monthly income, type of latrine facility, dietary pattern, and type of water, drainage facility available in their house..

Inclusion criteria

- Mothers of under five children from Sanganer Jaipur and Madrampura Jaipur
- Mothers who are willing to participate in the study
- Mothers who are available at the time of data collection.

Exclusion criteria

- Mothers who are having children more than five years of age.
- Mothers who are not willing to participate in the study

Data collection instruments & techniques:

Section A – Demographic variable: It consists of age, education, occupation, monthly income, type of latrine facility, dietary pattern, and type of water, drainage facility available in their house.

Section B – Structured Questionnaire: It had 30 questions with multiple options, It had questions related to the meaning, causes, treatment modalities and preventive measures of water borne diseases.

Data collection procedure:

The plan of data collection for the proposed study is as follows:

- Permission has obtained from the medical officer, of Sanganer Jaipur and Madrampura Jaipur
- Survey was conducted in the areas. Samples were drawn using convenient sampling technique.
- Data collection procedure was done for a period of four weeks and the time taken for each subjects was 30 – 40 minutes. Pre assessment was done using structured knowledge questionnaire followed by self instructional module given on same day for 45 minutes.
- On the seventh day post assessment was conducted using same structured knowledge questionnaire.

Based on the criteria 6 – 8 subjects were selected each day. The subjects were explained about the purpose of the study and were assured of confidentiality of the data collected.

RESULTS

Table 1: Pre test and Post test level of knowledge on water borne Diseases and Its Prevention

Level of knowledge	Pretest		Post test	
	No. of mothers	%	No. of mothers	%
Inadequate	40	40.0%	0	0.0%
Moderate	58	58.0%	20	20.0%
Adequate	02	02.0%	80	80.0%
Total	100	100.0%	100	100.0%

Table 1 assesses the pre-test knowledge on selected water borne diseases and its prevention among mothers of under five children. In pre test 40.0% of the mothers had inadequate knowledge, 58.0% of them had moderately adequate knowledge and 02.0% of them had adequate knowledge whereas in post test none of the mothers had inadequate knowledge, 20.0% of them had moderate knowledge and 80% of them had adequate knowledge

Table 2: Comparison of overall knowledge score

	No. of women	Mean± SD	Student's paired t-test
Pretest	100	7.38±2.15	t=25.16 P=0.05*
posttest	100	11.84±1.57	Significant

*significant at $P \leq 0.05$

Table 2 depicted the comparison of overall knowledge score between pre test and post test. On an average in pre test, mothers are having 7.38 score and in post test, mothers are having 11.84 score. Difference is 4.46 score. The t value is 25.16 at 0.05 level of significance. The difference between pre test and post test knowledge score is large and it is statistically significant ($P \leq 0.001$) in student's paired t-test.

Table 3: Overall knowledge gain score

Maximum score	Mean knowledge score	Mean Difference in knowledge with 95% Confidence interval	Percentage of knowledge gain with 95% Confidence interval

Pretest	30	7.38	4.46 (4.08–4.84)	31.9% (29.1%–34.6%)
Posttest	30	11.84		

Table 3 shows the comparison of overall knowledge score between pre test and post test. In pre test the mean knowledge score is 7.38, In post test the mean knowledge score is 11.84. On an average, After self instructional module mothers are gained 31.9% of the knowledge than pre test. Differences between pre test and post test score was analysed using proportion with 95% CI and mean difference with 95% CI.

Table 4: Effectiveness of computer assisted planned teaching

	Maximumscore	Mean knowledge score	% of score	Gain score
Pretest	30	7.38	24.6%	31.9%
Posttest	30	11.84	39.46%	

Table 4 evaluate the effectiveness of self instructional module regarding knowledge of water borne disease and its prevention among mothers of under five children. On an average, Afterself instructional module mothers are gained 31.9% of the knowledge than pre test. This is net benefit of self instructional module.

DISCUSSION

The first objective was to assess the level of knowledge on selected water borne diseases and its prevention among mothers of under five children before administration of SIM

In assessing the pre-test level of knowledge on water borne diseases among mothers of under five children (40.0%) of the mothers had inadequate knowledge, (58.0%) of them had moderately adequate knowledge and (02.0%) of them had adequate knowledge .

The second objective was to assess the level of knowledge on selected water borne diseases and its prevention among mothers of under five children after administration of SIM

In assessing the post test level of knowledge none of the mothers had inadequate knowledge (20.0%) of them had moderate knowledge and (80%) of them had adequate knowledge.

The third objective was to evaluate the effectiveness of self instructional module regarding knowledge of water borne disease and its prevention among mothers of under five children

It shows that there is significant improvement in the level of knowledge, after the self instructional module, The pretest mean knowledge score is (24.6%) and post test mean knowledge score is (39.46%) On an average, mothers are gained 31.9% of the knowledge than pretest.

The fourth objective was to find the association between the level of knowledge of mothers of under five children with selected demographic variables

After self instructional module, mothers are gained 31.9% of the knowledge than pre test. Differences

between pre test and post test score was analysed using proportion with 95% CI and mean difference with 95% CI. According to the association between level of knowledge gain and their demographic variables the highlights that post test knowledge score has significant association with the age of the mother ($\chi^2=8.53$) ($P=0.04$), Family income ($\chi^2=7.76$) ($P=0.05$) and Educational status ($\chi^2=9.71$) ($P=0.02$). Statistical significance was calculated using chi square test

CONCLUSION

Mothers of under five children's are having decreased level of knowledge, regarding waterborne diseases, its causes, and its preventive measures and also they don't know the effective way of maintaining their water hygiene and practices regarding good toileting and environmental sanitation. This study shows a significant knowledge gain among the mothers of under five children regarding water borne diseases.

Financial support: Nil

Conflicts of interests: No conflicts of interests.

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