

A Pre-Experimental Study to Assess the Effectiveness of Demonstration Method on Knowledge regarding Domestic Methods of Safe Drinking Water among Women in Selected Rural Areas of District Kangra, H. P

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Abstract: Safe water consumption can reduce the chances of occurrence of disease. Drinking water comes from variety of sources that need to be disinfected to prevent from various water borne disease. A Pre-experimental one group pre-test post-test design, 60 women were selected by using non probability purposive sampling technique from three selected rural areas of district Kangra, Himachal Pradesh. Demonstration method was administered after the assessment of pre-test knowledge regarding domestic methods of safe drinking water. Post-test knowledge was assessed on the 7th day of administration of demonstration method through self structured knowledge questionnaire. The result of the study showed significant difference between the mean post-test (23.07) was higher than pre-test (19.03) knowledge scores and obtained 't' value has been found to be statistically highly significant 9.595 at $p < 0.001$ level of significance. Hence it can be concluded that demonstration method was an effective strategy for improving the knowledge of women regarding domestic methods of safe drinking water which was evident in post-test knowledge score.

Keywords: Effectiveness, Demonstration Method, Knowledge, Domestic Methods, Water Purification

1. Introduction

Water is the basic need for survival for all creatures including humans. Safe water fit for consumption can reduce chances of occurrence of disease thereby reduces mortality and morbidity. Whereas polluted and infected water has opposite effect. India has made considerable progress in recent years in improving water supplies in both rural and urban settings. However, only 12% of the rural population is served by a household connection. Surveys of microbial water quality throughout India have shown extensive fecal contamination of drinking water supplies. Such practices prompt waterborne diseases like diarrhoea, cholera, typhoid etc. In India there are resources of water broadly divided into two categories: surface water and ground water. Surface water is available in river, lakes ponds, streams etc. This water is found above the ground. On other side, the ground water is the water that seeps below the earth's surface and is found in the cracks and spaces in soil and rocks.

Lack of awareness to women regarding unhygienic or pathogenic drinking water may cause much waterborne diseases. Before implementing water treatment at household level, taking a first-step assessment to determine the status of knowledge of women/caregivers on household water treatment was a prerequisite issue. Therefore, the findings of this study could be helpful for implementing water quality intervention strategies through promoting community knowledge on alternative household water treatment technologies.

2. Need for study

The Himachal Pradesh is located at the foothills of Himalayas. The ground water is used for various purposes such as drinking and agricultural practices in the Himalayan region and other hilly region including Kangra. Globally, approximately, one billion people lack access to safe drinking water and 1.59 million deaths per year are because of contaminated water, primarily in children age <5 years. WHO reported that more than 90% of diarrhoea cases can be prevented by enhancing the availability of clean water and improving the hygiene measures. Poor practices, poor attitudes, and inadequate knowledge of storing, cleaning, and drinking habits of water can cause harmful effects on the health of the population.

According to WHO/UNICEF safe drinking water is defined as water from an "improved water sources." In rural areas of INDIA is mostly derived from groundwater through hand pump, tube wells, dug wells or surface water source like river, streams, ponds and lakes which are highly contaminated and may cause various water borne disease, to prevent from various water borne disease we should adopt various domestic methods of safe drinking water such as boiling, filtration and chlorination are most reliable and easy methods.

3. Objectives

- 1) To assess the pre-test and post-test knowledge scores regarding domestic methods of safe drinking water among women in selected rural areas of district Kangra H. P.
- 2) To compare the pre-test and post-test knowledge scores regarding domestic methods of safe drinking water among women in selected rural areas of district Kangra H. P.
- 3) To find out the association of post-test knowledge scores regarding domestic methods of safe drinking water among women with their selected socio-demographic variables.

4. Methods

Research Design: A Pre-experimental: One-group pre-test-post-test design is used because it involved the manipulation of independent variable to observe the effect on dependent variable.

Population: The population of the present study was 60 women. In present study, target population was all the women. In present study, accessible population was women residing in selected rural areas of district Kangra (H. P.) Gram Panchayat Deogran, Gadiyada, and Balakrupi who will fulfill the selection criteria.

Sample and Sampling Technique:

- The sample of present study was 60 women in selected rural areas of district Kangra, H. P.
- In present study sample was selected by Non probability purposive sampling technique.

Criteria for Sample Collection:

A. Inclusion Criteria:

This study includes all women:

- Who were willing to participate in the study.
- Who were present at the time of data collection.
- Who were able to read and write hindi and english language.

B. Exclusion criteria:

This study excludes the women:

- Who were not willing to participate in the study.
- Who were not being able to read and write.

Description of Tool: The self-administered questionnaire is a structured questionnaire which consists of questions regarding demographic characteristics and knowledge. It consists of three parts:

PART-I: Socio demographic variables

PART-II: Self-structured knowledge questionnaire

PART-III: Demonstration method

Section- A: Socio demographic variables

The first part of the tool consist of some items for obtaining an information about the selected background factor such as age, gender, religion, education of women, marital status,

occupation, type of family, monthly income, history of any water borne disease.

Section B: Self structure knowledge questionnaire

Self-structured questionnaire was used to assess the previous knowledge and effectiveness of demonstration method on knowledge regarding domestic methods of safe drinking water. It consists of 30 items of multiple-choice questions and where total score is 30.

Scoring Pattern

The self-structured knowledge questionnaire consisted of 30 questions. In which right answer was documented as correct one mark and wrong were documented were as zero marks. The complete range was 0-30.

Knowledge score	%	Range
Inadequate knowledge	0%	0-10
Moderate knowledge	13.3%	11-20
Adequate knowledge	86.7%	21-30

To ensure content validity of the tool regarding the relevance of item, the tool was submitted to 10 experts of nursing field. Experts were requested to judge the items of tool for clarity, relevance, appropriateness, relatedness and meaningfulness for the purpose of the study and give their opinion and suggestion on the content, its coverage, organization. There was almost arrangement of the items in the questionnaire; however, there were few suggestions to modifying some of the questions, and they were incorporated in final draft. The developed tool was given to an English and Hindi language expert for the corrections. As per the suggestions, the modifications were implemented.

Reliability of tool was computed by test-retest by administering the tool for 6 women in Gram Panchayat Gadiyada, District Kangra, H. P. Split-half methods with Karl Pearson's Correlation Coefficient formula was used. The reliability of the self structured knowledge questionnaire was 0.87 which showed tool was reliable.

Written permission was obtained from the concerned authorities before the data collection and the investigator familiarized herself with her subjects and explained the purpose of the study to them. After giving necessary instructions to the subjects, the baseline information was collected along with knowledge. Pre-test knowledge levels were assessed by self structured knowledge questionnaire. Immediately after the pre-test, demonstration was on domestic methods of water purification was given to subject. Post-test was conducted on the 7th day using the same structured knowledge questionnaire.

5. Results

Section I: Distribution of socio-demographic variables.

This section describes the frequency (f) and percentage (%) distribution of women according to their socio demographic variables.

Table 1: Frequency and percentage distribution of selected socio-demographic variables of women N=60

S. No.	Selected Variables	Frequency (%)
1	Age (in years)	
	25-30 years	4 (6.7%)
	31-35 years	11 (18.3%)
	36-40 years	24 (40.0%)
	41 years and above	21 (35.0%)
2	Religion	
	Hindu	59 (98.3%)
	Muslim	1 (1.7%)
	Christian	00 (0.0%)
3	Education	
	Illiterate	4 (6.7%)
	Primary	19 (31.7%)
	Secondary	28 (46.7%)
4	Marital Status	
	Married	55 (91.7%)
	Divorced	00 (0.0%)
	Widow	05 (8.3%)
5	Occupation	
	House wife	41 (68.3%)
	Private job	10 (16.7%)
	Govt. Job	06 (10.0%)
6	Type of family	
	Joint	21 (35.0%)
	Nuclear	39 (65.0%)
	7	Monthly income
<10, 000		15 (25.0%)
10, 001-15, 000		31 (51.7%)
15, 001-20, 000		09 (15.0%)
8	Drinking Facility	
	Hand pump	08 (13.3%)
	Public Tap	41 (68.3%)
	Open well	07 (11.7%)
9	Disease History	
	Yes	12 (20.0%)
	No	48 (80.0%)

Section II: Pre-test and post-test knowledge scores regarding domestic methods of safe drinking water among women.

Table 2: Frequency and percentage distribution of pre test knowledge of women regarding domestic methods of safe drinking water N=60

Level of knowledge	Pre-test knowledge Score	Frequency (%)
Inadequate	0-10	00 (0%)
Moderate	11-20	39 (65%)
Adequate	21-30	21 (35%)

Maximum Score=30 Minimum Score= 00

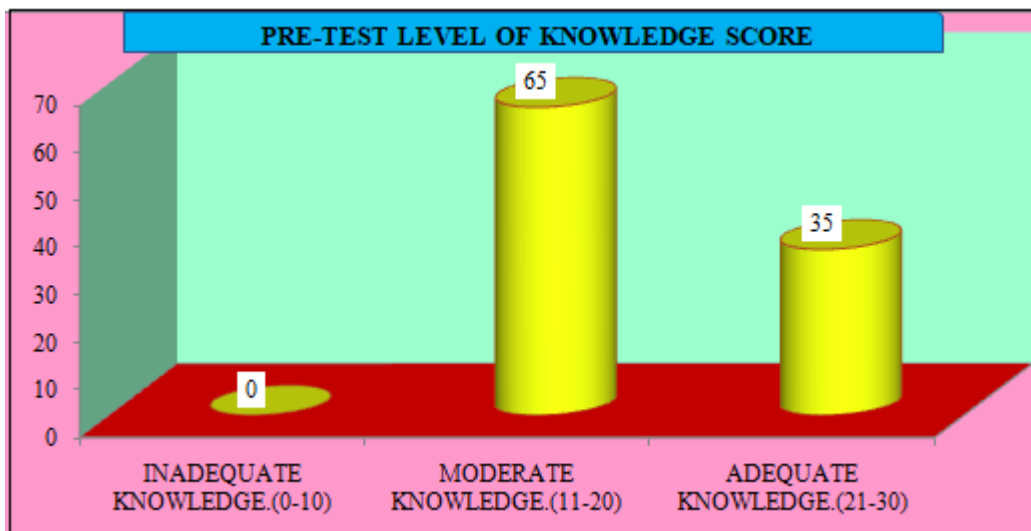
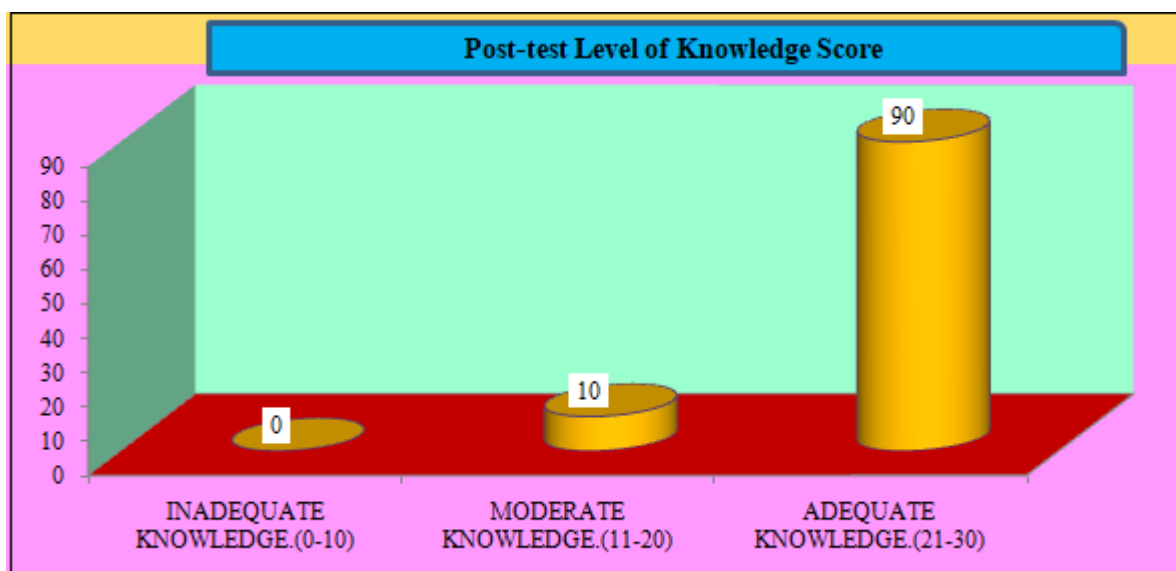


Table 3: Frequency and percentage distribution of post-test knowledge of women regarding domestic methods of safe drinking water N=60

Level of knowledge	Score	Frequency (%)
Inadequate	0-10	0 (0%)
Moderate	11-20	6 (10%)
Adequate	21-30	54 (90%)

Maximum Score= 30 Minimum Score= 00

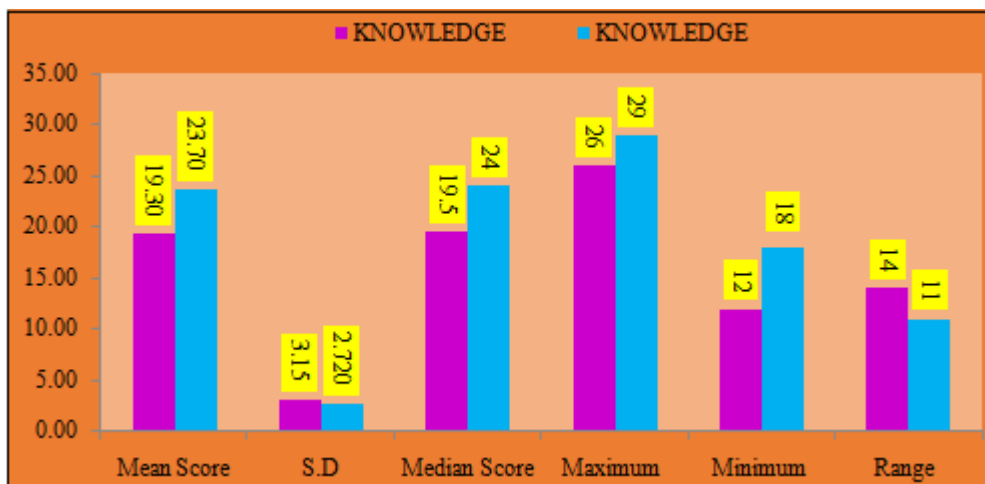


Section III: Comparison between pre-test and post-test knowledge scores of women regarding domestic methods of safe drinking water.

Table 4: Comparison between mean pre-test and post-test knowledge scores of women regarding domestic methods of safe drinking water, N=60

Level of knowledge	Mean	S. D.	Mean %	Range	Mean Diff.	t value	P Value
Pre-test knowledge	19.3	3.148	64.3	12-26	4.4	9.595*Sig	<0.001
Post-test knowledge	23.7	2.72	79	18-29			

Maximum=30 Minimum=00 **Significance Level 0.05



Section IV: Association of post-test knowledge scores among women with their selected socio demographic variables.

Table 5: Chi-square shows the association of post-test knowledge scores with the selected socio demographic variables

S. No.	Variables	Adequate knowledge	Moderate knowledge	Inadequate knowledge	χ^2	df	p-value
1.	Age				4.781	3	0.189
	25-30 years	4	0	0			
	31-35 years	9	2	0			
	36-40 years	20	4	0			
	41 years and above	21	0	0			
2.	Religion				0.113	1	0.737
	Hindu	53	6	0			
	Muslim	1	0	0			
	Christian	0	0	0			
	Sikh	0	0	0			
3.	Education				1.418	3	0.701
	Illiterate	4	0	0			
	Primary	16	3	0			
	Secondary	26	2	0			
	graduation and above	8	1	0			
4.	Marital Status				0.606	1	0.436
	Married	49	6	0			
	Divorced	0	0	0			
	Widow	5	0	0			
	Separated	0	0	0			
5.	Occupation				0.632	3	0.889
	House wife	37	4	0			
	Private job	9	1	0			
	Govt. job	5	1	0			
	Own business	3	0	0			
6.	Type of Family				0.985	1	0.321
	Joint	20	1	0			
	Nuclear	34	5	0			
7.	Monthly Income				0.757	3	0.860
	<10, 000	14	1	0			
	15, 001-20, 000	8	1	0			
	>20, 001	4	1	0			
8.	Drinking Facility				0.646	3	0.886
	Hand pump	7	1	0			
	Public Tap	37	4	0			
	Open well	6	1	0			
	River water	4	0	0			
9.	History of disease				0.046	1	0.830
	Yes	11	1	0			
	No	43	5	0			

Data depict the chi-square of socio demographic variables and the level of knowledge of women. The data revealed that there was no significant association of level of knowledge with socio demographic variable that is age, religion, education, marital status, occupation, type of family, monthly income, drinking facility and disease

history. Hence null hypothesis H_0 is accepted as research hypothesis.

6. Discussion

The purpose of present study was to determine the effect of demonstration method on knowledge regarding domestic methods of safe drinking water among women. This study finding revealed that the demonstration method is one of the effective strategy to improve the knowledge of the women. The similar study was conducted by **Simarjeet Kaur., Harpreet Kaur et. al. (2018)** conducted a cross-sectional study to assess the knowledge and practices of women regarding water purification methods in selected rural areas of district Sirmour H. P. Rural population in developing countries face water shortage as well as related health issues. cross sectional research design was used to assess the knowledge and practices regarding water purification methods among 100 women selected through purposes sampling technique residing in selected rural areas (Kheri, Bagroti, Lanabhalta, Maccher) of district Sirmour, Himachal Pradesh. Structured interview schedule was used to collect the data. The reliability of tool was 0.78. The study results revealed that mostly 54% of women store drinking water in container. 92% of women stored their water for one day Majority of women 92%, clean their water storage container daily. Most of the women (47%), using chlorination for purification of water followed by 36% women using boiling, 9% women using nothing for purification for water and only 8% use filtration method for purification for water respectively. However, the study does identify the need for educational intervention program to educate the population regarding water hygiene which will improve the quality of drinking water and prevent them from various water borne infectious disease. t-value is 1.3 ± 0.76 was found to be significant higher.

7. Conclusion

The result from this study reveals that implementation of demonstration method to assess the knowledge of the women regarding domestic methods of safe drinking water was adequate. It is an effective strategy for improving women knowledge regarding domestic methods of safe drinking water. Hence the knowledge provided to rural people was highly effective. To combat with these issues of water hygiene, there is immense need to plan the awareness campaign regarding knowledge and practices of water hygiene. It was concluded from the findings of the study that women had very less awareness and inadequate practices regarding water hygiene which emphasis to implement awareness program regarding water hygiene to promote their healthy and safe environment. In the light of the above findings and personal experience of the investigator the following recommendations are offered.

- 1) A similar study can be conducted on large sample size for better generalization.
- 2) A similar study can be conducted among mothers of under five year children.
- 3) Comparative study can be conducted to the rural area and urban area for better finding.

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