…"A STUDY TO EVALUATE EFFECTIVENESS OF PLANNED TEACHING PROGRAMME ON KNOWELEDGE REGARDING PREVENTION OF WATERBORNE DISEASE AMONG MOTHER OF CHILDREN AGE GROUP 11 TO 13 YEARS IN ADAMPUR, KOTRA, BHOPAL, [M.P]"

MRS. DEEPIKA

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[COMMUNITY HEALTH NURSING]

Abstract: A experimental research design conduct on among 30 mothers of children age group 11 to 13 years by purposive sampling technique at selected Adampur, Kotra of Bhopal M.P, the main aim of the study was to assess the knowledge of mothers of children aged group 11 to 13 years regarding prevention of water borne disease . The finding of the study revealed that about Pre test score of 9.6 & post test score of 18.6 ,level difference of 9 .In this mean value of Pre-test score is 9.6& SD is 10.55 & the mean value in the post test score is 18.6 ,the over all t Test is 5.016,P value is <0.001 that is statiscally significant.The study indicated that the effectiveness of Planned Teaching Programme,in increasing the knowledge of Mothers regardind prevention of Waterborne disease in children.

BACKGROUND:

Water-borne diseases represent a major burden on human health worldwide. By the United Nations in 2010. Every year, 1.8 million people die from diarrhea diseases, of which 1.5 million are children aged 11 to 13 years affected by hepatitis E. Access to safe drinking water, basic sanitation and proper hygiene education could not only prevent water-borne diseases by nearly 90% but furthermore lead to improved health, poverty reduction and socio-economic development

A descriptive study was conducted by Arun kumar **[2010]** to survey typhoid fever prevalence in five Asian countries. The overall incidence was 170.8 cases per 1,00,000 people, ranging from 24.2 to 493.5 for the sites in Vietnam and India, respectively. The rates were significantly higher in the India and Pakistan, than in the Vietnam, Indonesia and China. The prevalence of typhoid-positive blood cultures among 5–15 year-olds was 24.7 per 1000 febrile episodes, and ranged from 4.7 to 61.4 per 1000. The researcher concluded that contaminated tap water supply is the major cause of the problems

MATERIAL AND METHODS

The present study was conducted at Adampur Nagar, Bhopal. This Nagar was the adopted urban slum by the V.V.M College of Nursing, for educat purpose. It was situated 12 kms away from V.V.M College of Nursing. Total population of this area was 2168. A sample is a subset of a populat selected to participate in the research study **(Polit and Hungler 1999)**.

In the present study purposive sampling technique was used to select the sample. Purposive sampling is a type of non-probability sampli The limited time and availability of the subjects as per the sampling criteria made the investigator to adopt the present sampling technique.

In the present study, the sample consisted of 30 mothers who had children aged 11 to 13 years of age, living in Adampur Nagar,

RESULT

Pre-test most of the mothers 20 (66.67%) had average knowledge score, 10 (33.33%) subjects had poor knowledge score a no one had good knowledge regarding prevention of waterborne disease in children aged 11 to 13 years. In post t 23(76.67%) had good knowledge, 7(23.33%) had average knowledge score and there was none with poor knowled regarding prevention of waterborne diseases in children

CONCLUSION-

The aim of the study was to evaluate the effectiveness of structured teaching program regarding the prevention of waterbor disease among the mothers of children aged 11 to 13 years. 30 mothers of toddlers were selected. Structured teaching was given and p test was taken after seven days.

KEY WORDS Planned Teaching Programme, association knowledge, water borne diseases, Mothers of children.

I INTRODUCTION

Let us put our minds together and see what life we can make for our children."

-Sitting Bull quotes

Water-borne diseases are among the most emerging and re-emerging infectious diseases

Through out the world. Waterborne diseases are an ever-present threat to the health of nearly one billion people worldwide.

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.

Today, 37.7 million Indians are affected by waterborne diseases annually; 1.5 million children are estimated to die of diarrhea alone. Neither until the 10th Five Year Plan, Neither the State itself, nor in partnership with private players has made it a priority to deliver safe drinking water to the country's 700 million rural population. Water-borne diseases are caused by ingestion of contaminated water from pathogens contained in human or animal excreta. SSA"s population suffers markedly from water-borne infections due to lack of safe and sanitary water supply and disposal.

Water-related infectious diseases into two categories. Waterborne infectious diseases, such as hepatitis E, are linked to poor sanitation, inadequate hygiene, ingestion of and contact with unsafe water, and lack of access to adequate amounts of safe water. Water-associated vector-borne diseases, such as malaria and dengue fever, require water to propagate insect vectors (e.g., mosquitoes, black flies) that transmit pathogenic microbes when taking a blood meal from a human. Another kind of water-associated disease, schistosomiasis, is caused by a worm or blood fluke whose life cycle involves particular aquatic snails and human contact with infected water. Habitat requirements of such insect and snail vectors are species-specific and can include large and small water bodies and channels (e.g., lakes, lagoons, rivers, ditches, culverts, sewers), poorly drained soils, and containers (e.g., pots, tires, leaves, tree stumps). Many water-related infectious diseases have been referred to as the "neglected diseases of neglected populations," because they receive little attention and disproportionately affect poor people in developing nations.

II .MATERIAL AND METHODS

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SAMPLE-

A sample is a subset of a population selected to participate in the research study **(Polit and Hungler 1999)**.

SAMPLING TECHNIQUE-

In the present study purposive sampling technique was used to select the sample. Purposive sampling is a type of non-probability sampling

The limited time and availability of the subjects as per the sampling criteria made the investigator to adopt the present sampling technique.

SAMPLE SIZE

In the present study, the sample consisted of 30 mothers who had children aged 11 to 13 years of age, living in Adampur Nagar, Bhopal.

SAMPLE SELECTION CRITERIA

The sample frame structured by the researcher included the following criteria:

Inclusion criteria -

(a) Mothers who had children with 11 to 13 years of age.

(b) Mothers who were willing to participate in the study

(c) Mothers who could understand and respond in Hindi .

(d) Mothers who were present in Adampur Nagar, during data collection.

Exclusion criteria

(a) Mothers who had any chronic psychiatric problem.

(b) Mothers who were not willing to participate in the study.

RESEARCH METHODOLOGY **Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. The present study aimed to assess the effectiveness of structured teaching program me on the knowledge regarding prevention of water-borne among mothers of children aged 11 to 13 years.**

The chapter dealt with the research approach, research design, variables under study, population and sample, sampling technique, criteria for sample selection, and description of tools, pilot study, data collection process and plan for data analysis.

RESEARCH APPROACH-

A research approach tells the researcher as to what data to collect and how to analyze them. It is the overall plan or blueprint chosen to carryout the study. It also suggests the possible conclusion to be drawn from the data.

Pre experimental research approach (which is a subject of quasi-experimental Research) using the one group pre-test, post-test design was adopted for the study. In this one group pre-test and post-test design was used. Only one group was observed before and after the manipulation or intervention.

In this study the investigator aimed at finding the effectiveness of structured teaching on the knowledge regarding prevention of waterborne diseases among mothers of children aged 11 to 13 years at selected area adampur kotra bhopal.
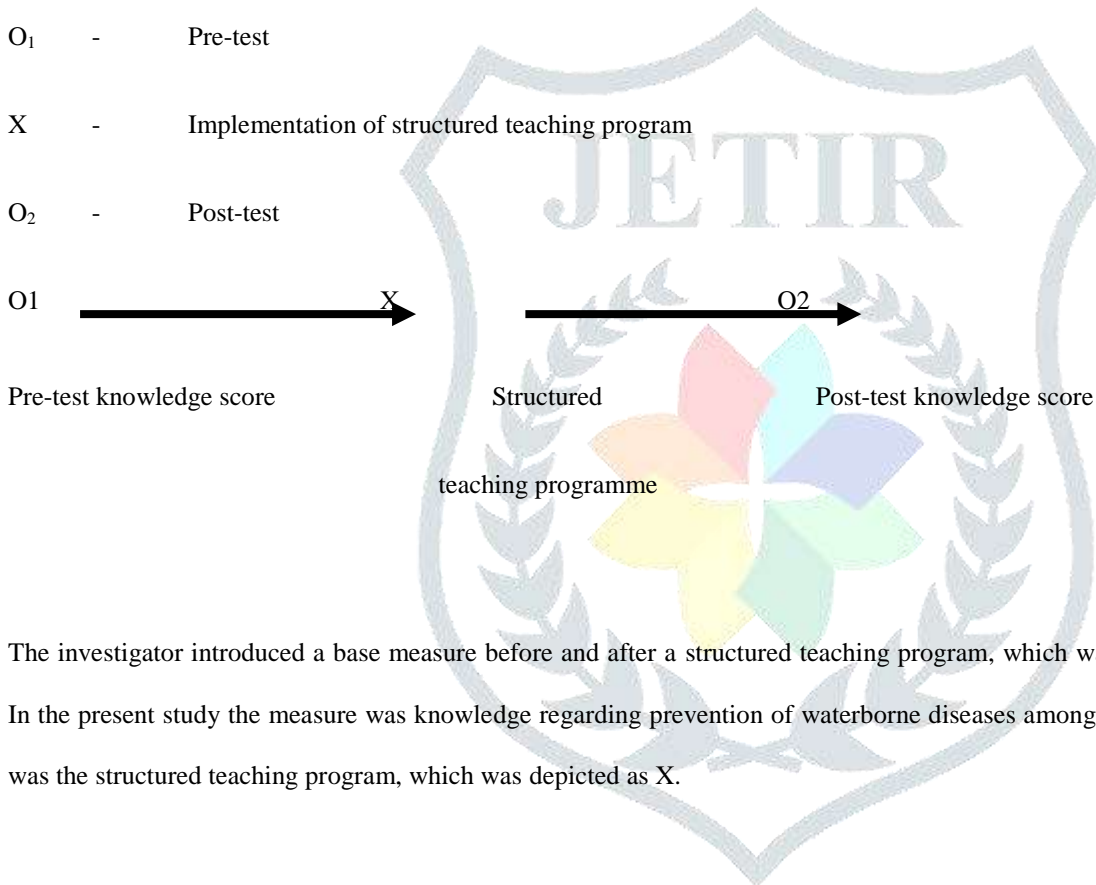
RESEARCH DESIGN

"A research design is the arrangement of conditions for the collection and analysis of data in a

Manner that aims to combine relevance to the research purpose with economy in procedure."

(**Kothari. C.R. 2006**)[3].

The research design (**Figure-2**) selected for this study was one group pre-test post-test design to measure the gain in knowledge scores among mothers of children who were given structured teaching program. So this was represented as-

O_1 -   Pre-test

X   -   Implementation of structured teaching program

O_2 -   Post-test

O1   →   X   →   O2

Pre-test knowledge score   Structured   Post-test knowledge score

teaching programme

The investigator introduced a base measure before and after a structured teaching program, which was depicted as O_1 and O_2 respectively. In the present study the measure was knowledge regarding prevention of waterborne diseases among mothers of children. The intervention was the structured teaching program, which was depicted as X.
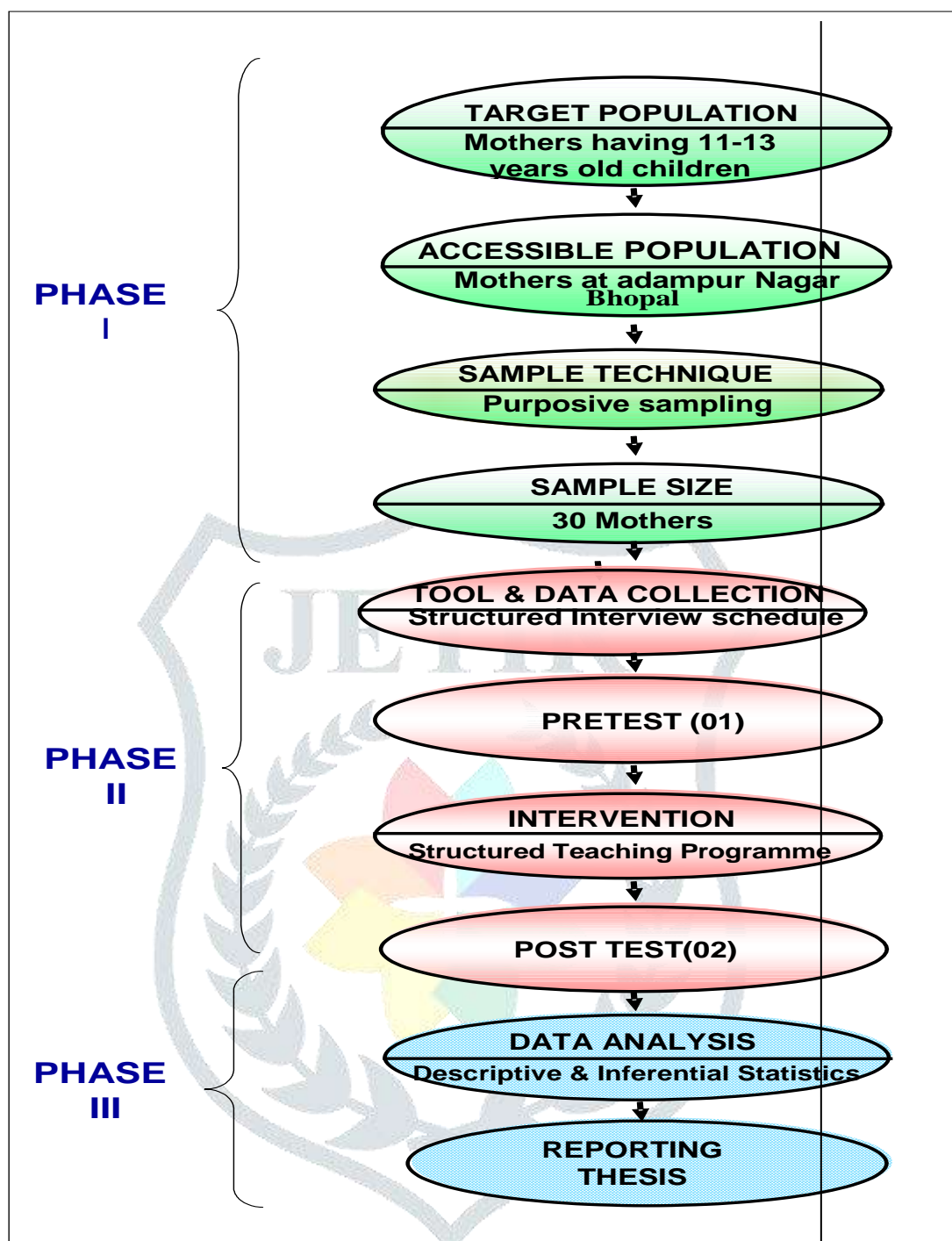
Figure -3 Schematic Representation of Research Design

The schematic representation of the study design presented showed that the study was conducted in three phases.

Phase-1

The target population selected for this study was mothers of toddlers living in urban slums. The accessible population for the study was mothers of toddlers at selected urban slum of adampur kotra Bhopal . By purposive sampling technique 30 mothers were selected and structured interview schedule was prepared to assess knowledge of mothers. Lesson plan was made based on the review of literature, personal experience of investigator and existing need of teaching on prevention of waterborne diseases.

Knowledge questionnaire and content of structured teaching program were prepared based on blue print. Tool was validated by experts a

reliability was established by Split half method.

Phase-II

Pre- test was conducted by administration of structured interview schedule to measure the knowledge of mothers of children on first d

regarding prevention of waterborne diseases. Implementation or administration of structured teaching was done just after the pre- test on first d

itself. Structured teaching on prevention of waterborne diseases was discussed and explained to the mothers with the help of charts. Post -test v

conducted using the same tool on the seventh day.

Phase-III

Analysis and interpretation of collected data, was done to find association of pre-test knowledge scores with the sample characteristics a

compare the pre–test knowledge score with the post - test.. Reporting of the thesis. **(Figure -3)**

VARIABLES UNDER STUDY

A concept which can take on different quantitative values is called variable (**Kothari. C.R. 2006**)[3].

Two types of variables were identified in this study.

- Independent variables
- Dependent variable

Independent variable - The independent variable is manipulated by the researcher. The independent variable is the presumed cause for the resulti

effect on the dependent variable. In the present study the independent variables were age, type of family, educational status, monthly family incom

occupation of mother, number of children, type of water supply , type of latrine, type of the house and refuse disposal .

Dependent variables- The dependent variable usually is the variable that the researcher is interested in understanding, explaining or predicting. I

the outcome variable, which is measured or observed following the intervention of the independent variable. In the present study, gain in knowled

regarding prevention of waterborne disease among mothers of children was dependent variable.

SETTING OF THE STUDY-

Settings are the physical location and conditions in which the data collection takes place in a study. **(Polit and Hungler 1999)**[6].

The present study was conducted at Adampur Nagar, Bhopal. This Nagar was the adopted urban slum by the V.V.M College of Nursing,

education purpose. It was situated 12 kms away from V.V.M College of Nursing. Total population of this area was 2168.

THE POPULATION

A population is the aggregation of elements showing some common set of criteria. **(Basavanthappa, B.T 2003)**[1.]

Target Population:

In the present study the target population was mothers, who had children from 11 to 13 years of age, living in urban slums of Bhopal.

Accessible Population:

The accessible population was mothers, who had children from 11 to 13 years of age, living in Adampur Nagar of Bhopal.

SAMPLE-

A sample is a subset of a population selected to participate in the research study **(Polit and Hungler 1999)**.

SAMPLING TECHNIQUE-

In the present study purposive sampling technique was used to select the sample. Purposive sampling is a type of non-probability sampling

The limited time and availability of the subjects as per the sampling criteria made the investigator to adopt the present sampling technique.

SAMPLE SIZE

In the present study, the sample consisted of 30 mothers who had children aged 11 to 13 years of age, living in Adampur Nagar, Bhopal.

SAMPLE SELECTION CRITERIA

The sample frame structured by the researcher included the following criteria:

Inclusion criteria -

(a) Mothers who had children with 11 to 13 years of age.

(b) Mothers who were willing to participate in the study

(c) Mothers who could understand and respond in Hindi .

(d) Mothers who were present in Adampur Nagar, during data collection.

Exclusion criteria

     (c)   Mothers who had any chronic psychiatric problem.

     (d)   Mothers who were not willing to participate in the study.

PILOT STUDY-

A small scale version, or trial run, done in preparation for a major study (**Polit and Hungler. 1999**)[6.]

Pilot study was conducted in adampur Nagar, urban slum of bhopal from 8.8.2014 to 13.8.2014.

The purpose of the study was explained to the respondents and confidentiality was assured. Tool was administered to six mothers who fulfilled the sample criteria. The time taken to complete the questionnaire was 15-20 minutes. After giving structured teaching through charts, on the seventh day post- test was conducted with the same tool to assess the gain in knowledge scores. The tool and the structured teaching were found to be feasible and practicable. Data analysis was done using descriptive and inferential statistics. No further changes were made in the tool after the pilot study.

The analysis of the pilot study revealed that objectives of study could be fulfilled. Based on the information, the investigator proceeded with the actual data collection for the main study.

DATA ANALYSIS AND INTERPRETATION

This Chapter dealt with the analysis and interpretation of data collected from 30 mothers to determine the effectiveness of structured teaching on the knowledge regarding prevention of waterborne diseases in children.

Analysis of data can be defined as the systematic organization and synthesis of research and testing of research hypothesis using those data that has been analyzed and interpreted in the light of objectives and hypothesis of the study by using descriptive and inferential statistics (paired 't' test and chi square test).

OBJECTIVES-

1)   To assess the knowledge of mothers of children aged 11 to 13 years regarding prevention of waterborne diseases.

2)   To find association between pretest knowledge scores and selected demographic variables.

3)   To evaluate the effectiveness of structured teaching program regarding the prevention of waterborne disease among the mothers of children aged 11 to 13 years.

HYPOTHESES

H_1 There will be significant association between pretest knowledge scores and selected demographic variables at the level of $p < 0.05$.

H2   The mean posttest knowledge score of the mothers of children will be significantly higher than the mean pre test knowledge score after the administration of structured teaching program at the level of p < 0.

III RESULT SECTION I   SOCIO-DEMOGRAPHIC VARIABLES

Table-1 (a)-Frequency and Percentage distribution of selected demographic variables

N=30

Selected demographic variables	Frequency (n)	Percentage (%)
1. Age of mother in years:		
a < 20	1	3.33
b 21-30	29	96.67
c 31-40	0	0
d >40	0	0
2. Type of family:		
a Nuclear.	4	13.33
b Joint**.**	26	86.67
3. Educational Status:		
a Illiterate.	4	13.33
b Primary Education.	2	6.67
c Higher Education.	23	76.67
d Graduate and above	1	3.33
4. Monthly family Income in rupees:		
a <2500.	15	50
b 2501-5000.	11	36.67
c 5001-7500.	3	10
d >7500	1	3.33
5. Occupation of mother:		
a Housewife.	26	86.67
b Employed	1	3.33
c Self Employed	3	10
d Laborer/Housemaid	0	0

Data presented in Table 1(a) revealed that in this study maximum mothers 29 (96.67 %) belonged to the age group of 21-30 years and no one was above 30 years **(Fig-4)**. Out of 30 mothers, 26 (86.67%) belonged to joint family and 4 (13.33%) belonged to nuclear family **(Fig-5)**. Most of mothers 23 (76.67%) had education up to high school, 4 (13.33%) were illiterate, 2 (6.67%) had primary education and only 1 (3.33%) was graduate and above **(Fig-6)**. The monthly income of 15 (50%) families was <2500 Rs/month, 11(36.67%) had between 2501-5000, 3 (10%) had between 5001-7500 and 1 (3.33%) had >7500 **(Fig-7)**. 6 (86.67%) of mothers were housewives, 3 (10%) were self-employed and 1 (3.33%) were employed **(Fig-8)**.
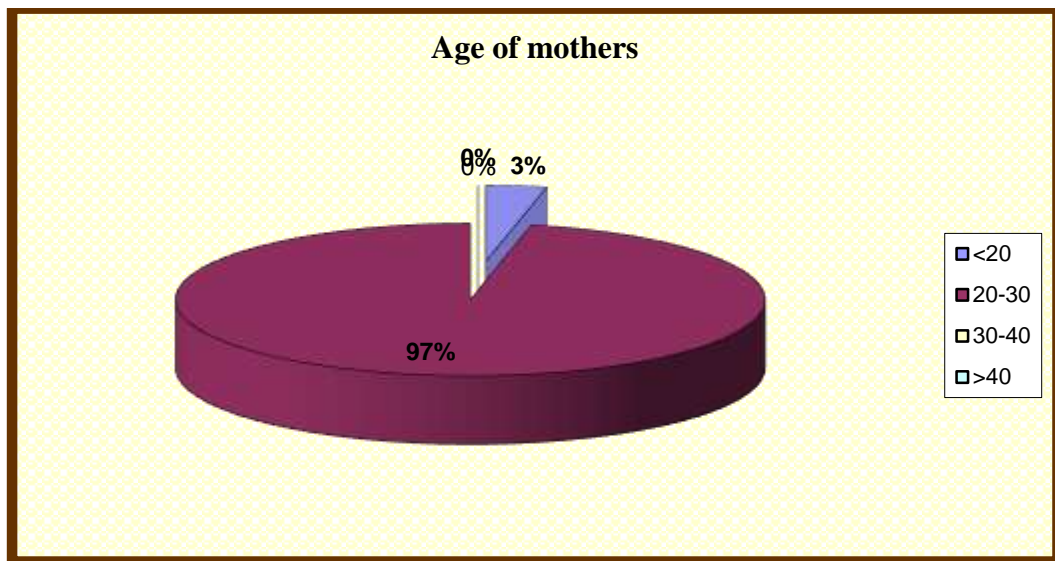
Age of mothers

Figure No. 4– Pie diagram showing percentage distribution according to the age of mothers
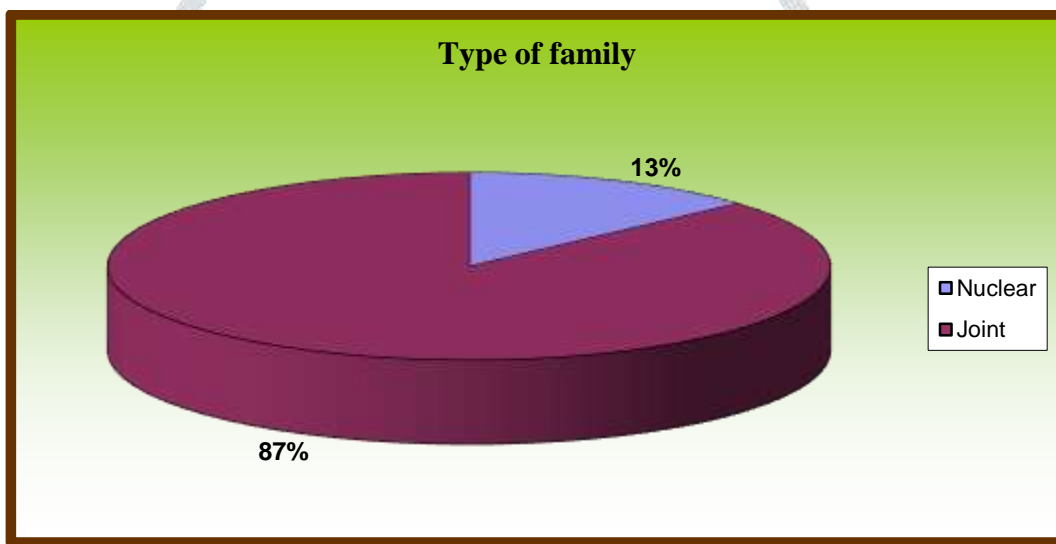
Type of family

Figure No. 5 – Pie diagram showing percentage distribution according to the type of family.
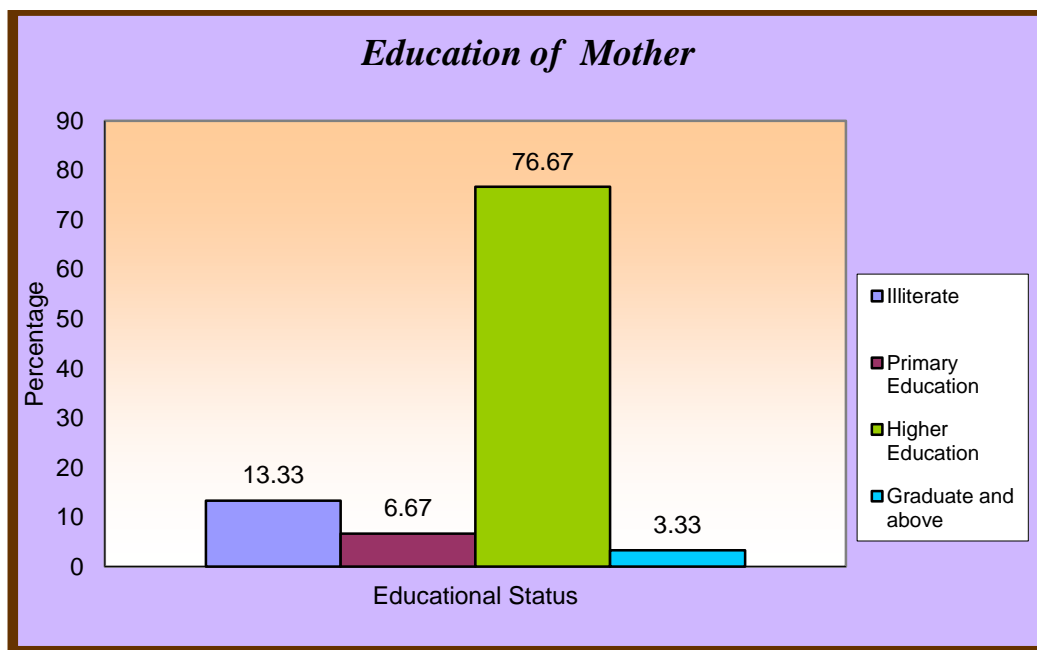
Figure No. 6 –Bar diagram showing percentage distribution according to the educational status
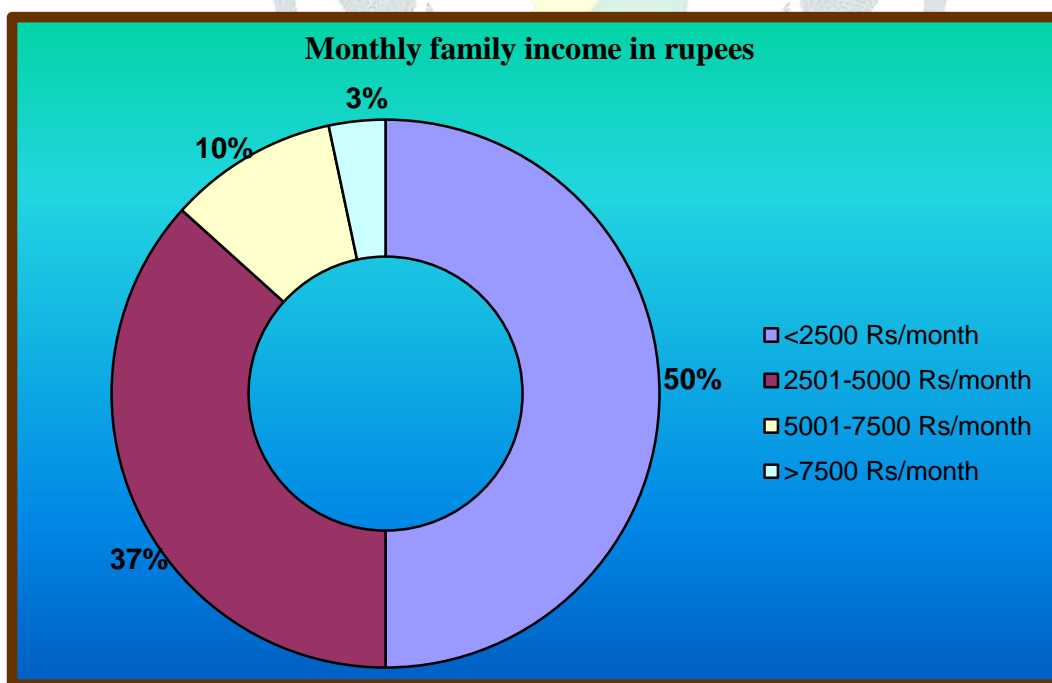

Figure No. 7 –Doughnut showing percentage distribution according to the monthly family income in rupees
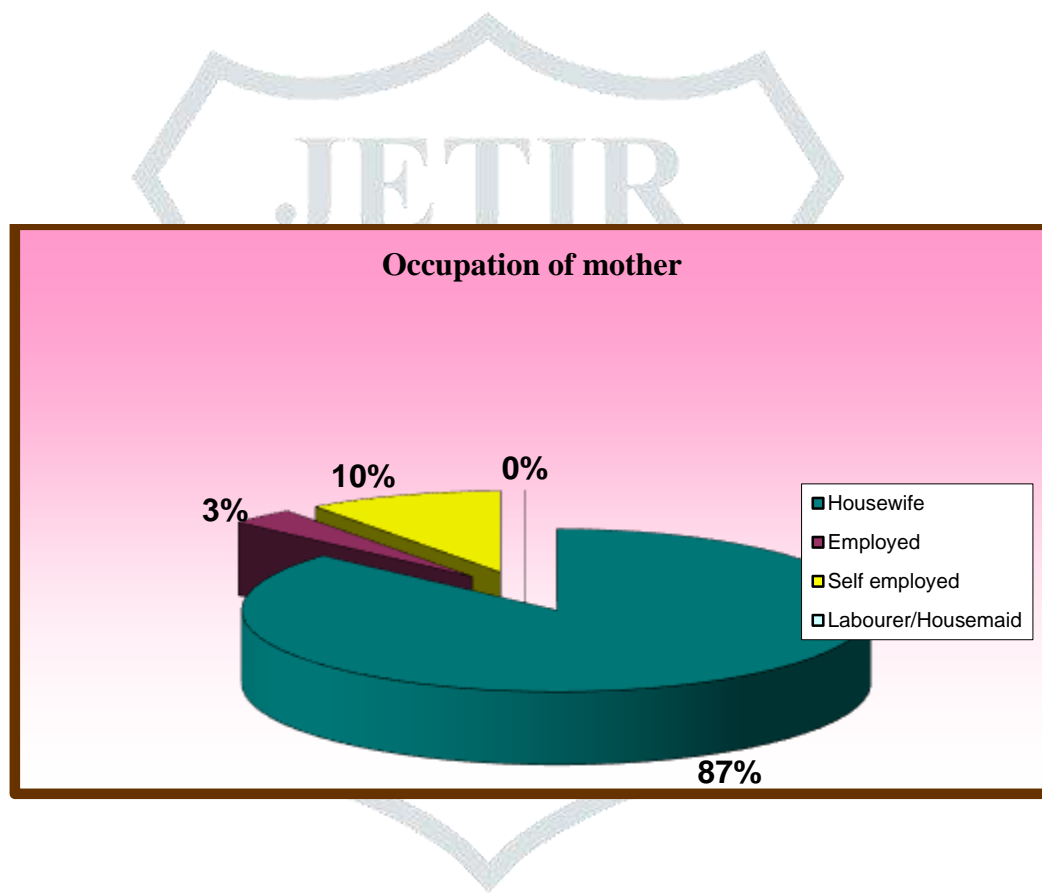
Figure No. 8 –Pie diagram showing percentage distribution according to the occupation of mother

Table-1 (b) - Frequency and Percentage distribution of selected demographic variables

N=30

Selected demographic variables	Frequency	Percentage (%)
1. **No. Of Children:**		
a) 01.	10	33.33
b) 02.	16	53.33
c) 03	3	10
d) 3	1	3.33
2. **Water supply in the houses through which system:**		
a) Municipal corporation pipeline	1	3.33
b) Hand pump	4	13.33
c) Stagnant water like pond	14	46.67
d) Tanker supply	11	36.67
3. **Type of latrine**		
a) Dug well		
b) Western style	0	0
c) field	0	0
d) Indian style	27	90
e) Bore hole	1	3.33
	2	6.67

Above table 1 (b) showed that 16 (53.33%) of mothers had 2 children, 10 (33.33%) of mothers had 1 child, 3 (10%) of mothers had 3 children and 1 (3.33%) of mothers had >3 children **(Fig-9)**. Most of them 14 (46.67%) had stagnant water like pond, 11 (36.67%) had tanker supply, 4 (13.33) had hand pump and only 1(3.33%) had municipal corporation **(Fig-10)** .12(40%) of them had municipal van, 8(26.67%) are composting, 6(20%) are burning and 4(13.33%) are dumping **(Fig-11)**. 15(50%) of them had kuchcha-pucca house, 12(40%) had pucca house and 3(10%) had kuccha house **(Fig-12)**. Almost 27 (90%) go to field, 2(6.67%) used bore hole and 1(3.33%) used Indian style for defecation in their houses **(Fig-13)**.
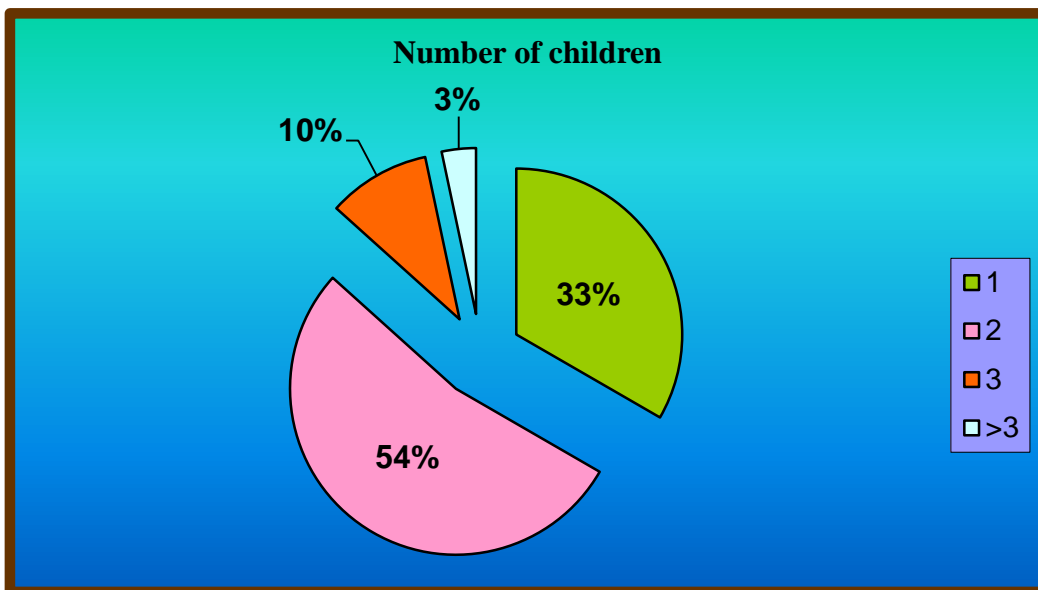
Figure No. 9 –Pie diagram showing percentage distribution according to the number of children
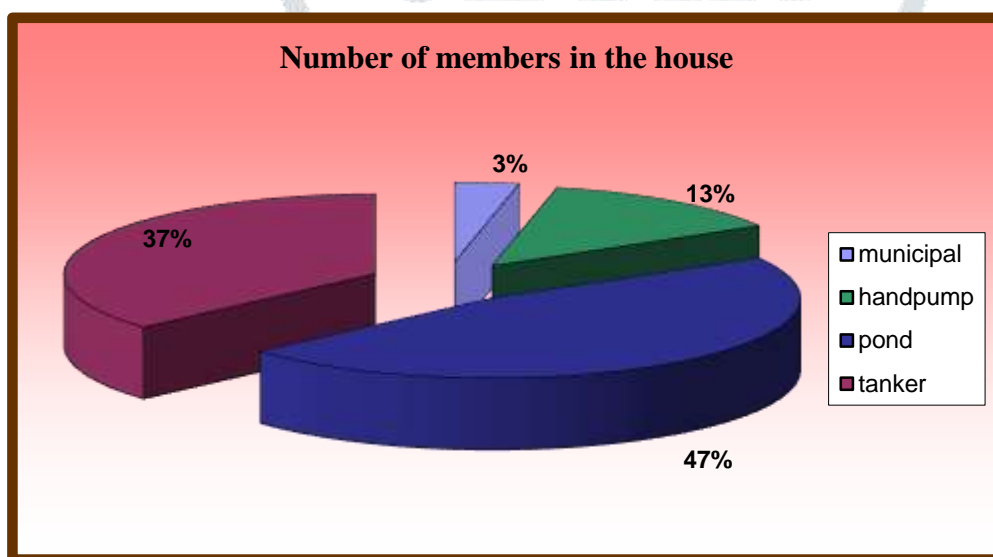

Figure No. 10 – Pie diagram showing percentage distribution of mothers according to water supply in the house.

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Figure No. 11 -Bar diagram showing percentage distribution according to the number of rooms in the house

Types of laterine

7%   0%

0%

3%

dug well
western style
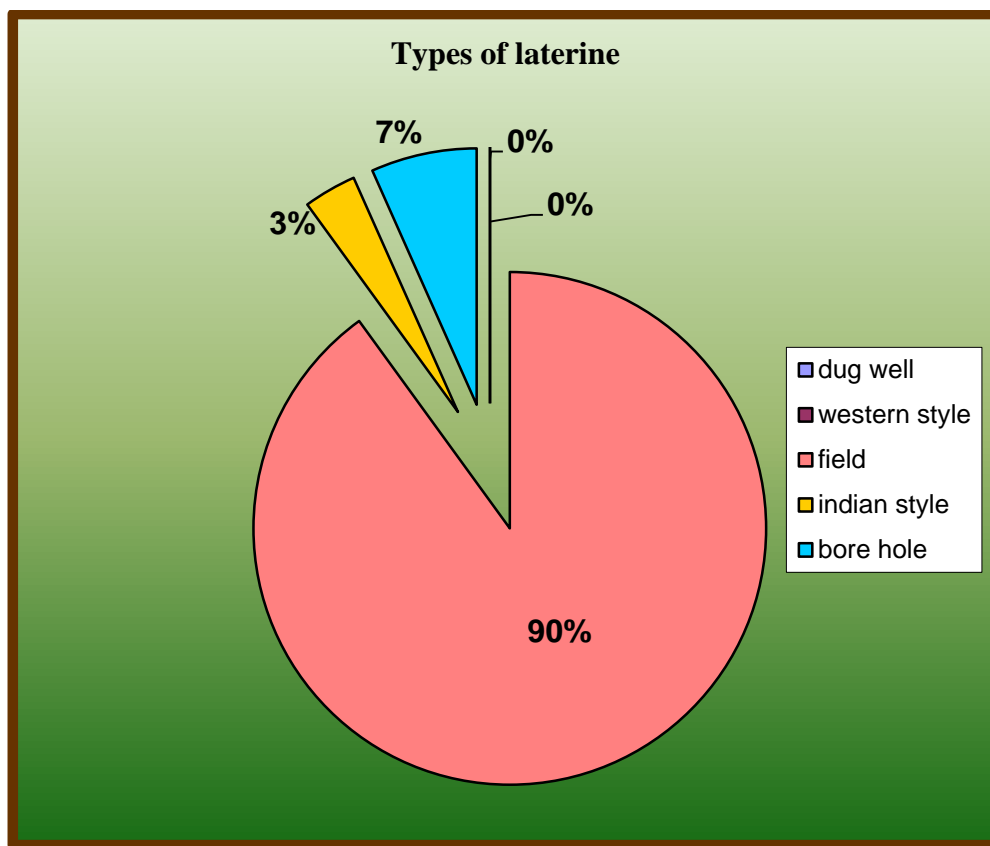field
indian style
bore hole

90%

Figure No. 13 – Pie diagram showing percentage distribution of mothers according to types of latrine in the house

4.2 SECTION II

ASSOCIATION BETWEEN PRETEST KNOWLEDGE SCORES AND SELECTED VARIABLES

Table No. 2(a): Association between pretest knowledge scores regarding prevention of waterborne diseases and selected variable   N=30

Selected demographic variables	Pre –test knowledge score			df	χ^2 value
	Poor	Average	**Good**		
1. Age of mother in years:					
a. < 20					
b. 20-30	00	01	0		
c. 30-40	10	19	0	6	0.50
d. >40	00	00	0		NS
	00	00	0		
2. Type of family:					
a. Nuclear.					
b. Joint.	02	02	0	2	1.37
	08	18	0		NS
3. Educational Status:					
a Illiterate.					
b Primary Education.	04	00	0		
c Higher Secondary.	02	00	0	6	12.63*
d Graduate and above	04	19	0		**S**
	00	01	0		
4. Monthly family Income (in rupees):					
a <2500.					
b 2501-5000.	06	09	0		
c 5001-7500.	04	07	0	6	3.36
d >7500.	00	03	0		NS
	00	01	0		
5. Occupation of mother:					
a Housewife.					
b Employed	08	18	0		
c. Self employed	01	00	0	6	3.11
d. Labourer/Housemaid	01	02	0		NS
	00	00	0		

P<0.05*   P <0.01**   P < 0.001***

NS - Not Significant   S – Significant

TABLE No. 2(b) :Association between level of pretest knowledge scores regarding prevention of burns and selected variables.   N=30

Selected demographic variables	Pre-test knowledge score			df	χ^2 value
	Poor	Average	Good		
1. No of children:					
a) 1.	3	07	0		
b) 2.	4	12	0	6	4.07
c) 3	2	01	0		NS
d) 3	1	00	0		
2. Water supply in the houses through which system:					
a) Municipal corporation pipeline	0	01	0		
b) Hand pump	2	02	0	6	2.21
c) Stagnant water like pond	5	09	0		S
d) Tanker supply	3	08	0		
4. Type of latrine					
a) Dug well	0	00	0		
b) Western style	0	00	0	8	
c) field	9	18	0		3.03
d) Indian style	1	00	0		S
e) Bore hole	0	02	0		

$P<0.05^\star$ $P <0.01^{\star\star}$ $P < 0.001^{\star\star\star}$ NS - Not Significant   S - Significant

The data in Table 2(a) and 2(b) depicted that the computed chi-square values between the pretest knowledge scores and t

selected variables only the educational status of mothers got significant association with the knowledge of mothers. Oth

selected variables like age of mother, type of family, monthly family income, occupation of mother, number of childre

water supply, type of latrine, type of the house and refuse disposal.

4.2 SECTION III

Pre test knowledge level and Post test knowledge level of mothers

This section dealt with the pretest knowledge level and post-test knowledge level of mothers regarding prevention o

waterborne diseases among children. It was also been analyzed in terms of frequency and percentage.

Table-3 Grading of sample based on pre-test and post test knowledge score.

N=30

SCORE	PRE-TEST	POST-TEST
0-8 (Poor)	10 (33.33%)	0(0%)
9-16 (Average)	20 (66.67%)	7(23.33%)
17-24 (Good)	0(0%)	23(76.67%)

Maximum score -24

Data in the table -3 showed that in pre-test most of the mothers 20 (66.67%) had average knowledge score, (33.33%) subjects had poor knowledge score and no one had good knowledge regarding prevention of waterborne disease children aged 11 to 13 years. In post test 23(76.67%) had good knowledge, 7(23.33%) had average knowledge score a there was none with poor knowledge regarding prevention of waterborne diseases in children as shown in **Figure 14.**
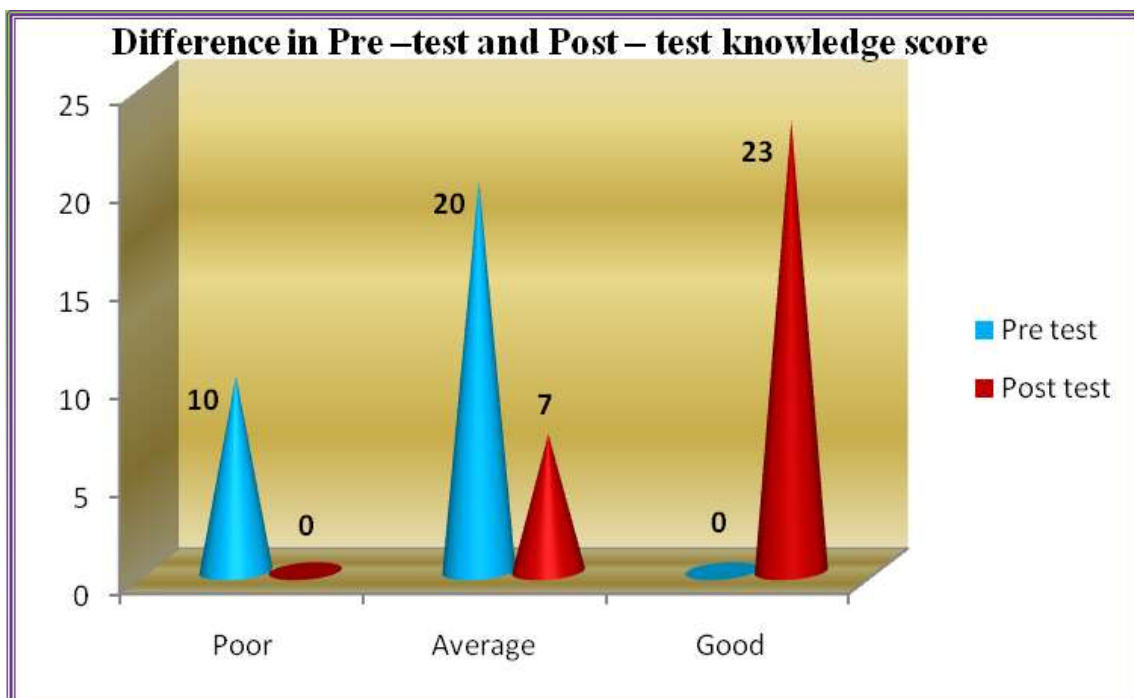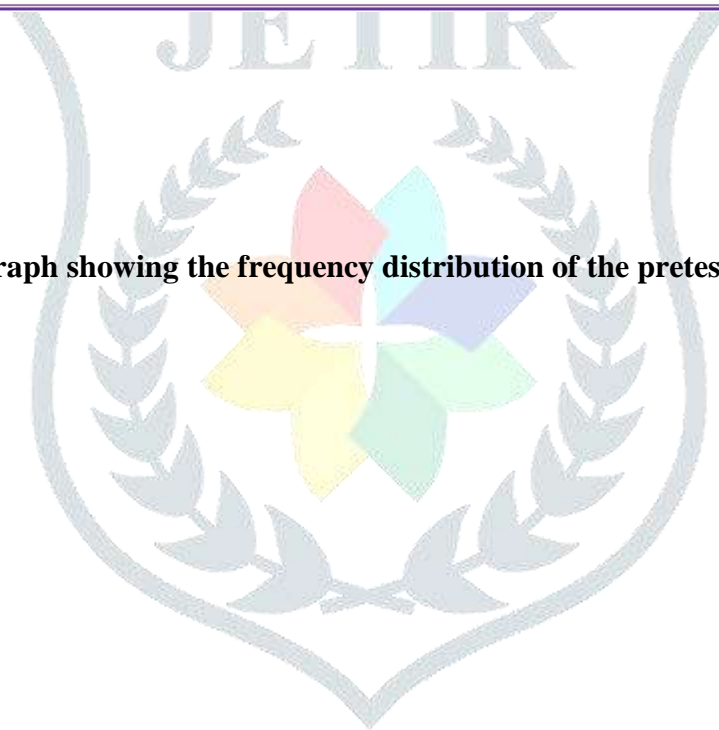
Figure No. 14 –Bar graph showing the frequency distribution of the pretest knowledge level of mothers.

4.3 SECTION IV

EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME

Table No 4: Difference between pretest and post test knowledge scores.

N=30

| Test or Knowledge Score	Mean	Mean percentage	SD	Mean difference	't' Value
Pretest	9.6	40%	10.55	9	5.016 ***
Post test	18.6	77.5%			

Maximum score- 24

P<0.05★   P <0.01★★   P < 0.001★★★

This table - depicted that mean post-test score was 18.6 (77.5%) which was higher than pre-test score 9.6 (40%), a computed 't' value (t_{29}=5.016) was more at the level of p< 0.001, thus indicated highly significant difference a effectiveness of structured teaching programme, in increasing the knowledge of mothers regarding prevention of waterbor disease in children **(Fig-15).**
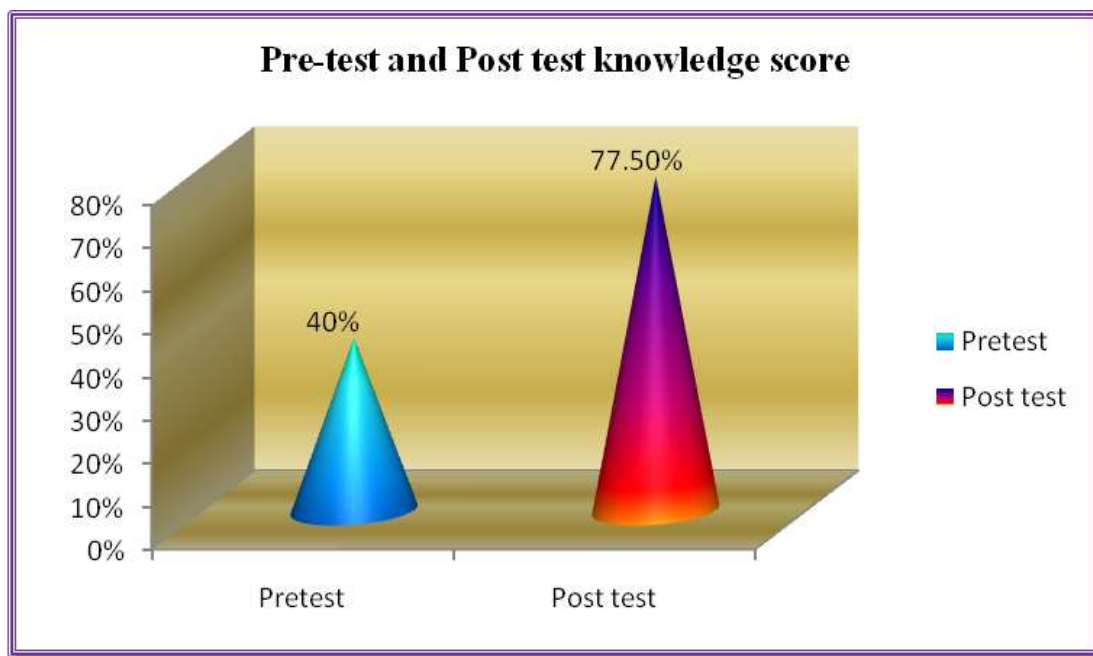
Figure No 15 – Pyramid diagram showing difference between pre –test and post – test knowledge score

IV   DISCUSSION

In this chapter major findings of the study were discussed in line with the objectives, hypothesis, review of literature in relation to simi studies conducted by other researchers and conceptual framework.

The main aim of this study was to assess the effectiveness of structured teaching program regarding prevention of waterborne diseases children aged 11 to 13 years.

OBJECTIVES OF THE STUDY

1) To assess the knowledge of mothers of children regarding prevention of waterborne diseases.

2) To find association between pretest knowledge scores and selected demographic variables.

3) To evaluate the effectiveness of structured teaching program regarding the prevention of waterborne diseases among the mothers of children.

Discussion of the assessment of the knowledge regarding prevention of waterborne diseases among mothers of children aged 11 to 13 years.

Total 30 sample were taken for the study .Out of 30, 20 (66.67%) had average knowledge score, 10 (33.33%) subjects had poor knowledge score and no one had good knowledge regarding prevention of waterborne disease in children in pre-test **(Table-3)**.

Discussion of association between pretest knowledge score and selected demographic variables

In order to find the relationship between pretest knowledge and selected demographic variables chi-square test was used. The findings revealed that among the selected variables only the educational status of mother had got significant association with the pre-test knowledge score of mothers. Other selected variables like age of mother, type of family, monthly family income, occupation of mother, number of children, water supply, refuse disposal, type of the house and type of latrine were not associated with pre test knowledge score.

There was significant association $\chi^2 = 12.63$ **[P<0.05]** between the educational status of mother and pre-test knowledge score of mother **(Table-2a)**.

Tran, Tuan, Anh. Nate, Hongkrailert. Santhat, Sermsri (2007) conducted a A study was conducted in Dhaka to improve the practice on storing water and handling water from storage containers at home. They given the instruction to used Na DCC tab. In the 100 households while storing water. One half houses given for health education another half not given how to used the Na DCC tab. After 4 month the post test was done in the both group and the storage water was tested. The water quality from first group was free from E. coli bacteria and second group water was present for E. coli bacteria. Results indicated that second group not having any idea how much and how to used the NaDCC tab. This was supported by insignificant improvements in the microbiological water quality. So the researcher revealed that through health education can improved the practices for storing and handling water quality

Besides it was supported by the study conducted by **Kakourou T, Bakoula C (2010)** A study conducted a study on Knowledge of water quality and water borne disease in rural Kathmandu Valley, Nepal. We tested the drinking water used by the communities and their knowledge of water quality and water borne diseases. The results show that the physical and chemical parameters of the sample water of different water sources lie within the World Health Organization guideline values. The values of the bacteriological parameters such as Coliform bacteria and Escherichia coli are such that the drinking water is not potable in terms of bacteriological point of view. We found that communities are unaware of the contaminants in their drinking water. Incidence of water borne diseases appears to be the common health problem among the sample households in the study area. It is found to be more serious during the dry season. The local communities have been made aware of solar disinfection for water disinfection

Discussion on the effectiveness of structured teaching programmed on knowledge regarding prevention of waterborne disease in children aged 11 to 13 years.

Pre-test knowledge score of 30 mothers regarding prevention of waterborne disease in children were 20 (66.67 %) mothers obtain average knowledge score and 10 (33.33 %) had poor knowledge score and no one out of 30 had good knowledge score. In post-test 23 (76.67%) had good knowledge score, 7(23.33%) mothers obtained average knowledge score and 0 (0%) had poor knowledge score. The mean posttest knowledge score 18.6 (77.5%) higher than the mean pretest score 9.6 (40 %).

The above results clearly indicated that the structured teaching was effective in increasing the knowledge score among mothers.

Further to know the statistical significance between pretest and posttest knowledge score't' test was computed. The't' test value (t_{29}=5.016 p<0.001 level) showed that there was a highly significant difference between pre-test and post- test knowledge score (**Table-4**). The above finding was supported by the study conducted by **Geller AC et al (2003)** in which the Environmental Protection Agency's Sun Wise School Program, a national environmental and health education program on Solar disinfection of drinking water protects against cholera in children under 6 years of age in an area of Kenya . There were 131 households in the trial area, of which 67 had been randomised to solar disinfection. There was no significant difference in the risk of cholera in adults or in older children in households randomized to solar disinfection; however, there were only three cases of cholera in the 155 children aged under 6 years drinking solar disinfected water compared with 20 of 144 controls. Results confirm the usefulness of solar disinfection in reducing risk of water borne disease in children. Point of consumption solar disinfection can be done with minimal resources, which are readily available, and may be an important first line response to cholera outbreaks. Its potential in chorine resistant cholera merits further investigationr.

The conceptual framework was based on king's goal attainment theory with perception transaction and goal attainment (**Fig-1**). In this study perception of researcher was lack of knowledge regarding prevention of waterborne diseases among mothers of children and the goal was to improve the knowledge of the mothers and during the action phase, the investigator prepared the structured interview schedule on prevention of waterborne diseases in children to assess the knowledge and structured teaching program to provide knowledge. During interaction between investigator and mothers the investigator administered structured interview schedule to assess the knowledge of mother on prevention of waterborne diseases in children. After the pre-test the investigator administered structured-teaching progamme for the mothers .Then a post-test was taken with the same tool after seven days. Transaction, in the present study, was gain in adequate knowledge and that was helpful for mother to maintain safety life style of their children.

The findings of the study showed that mothers had average knowledge regarding prevention of waterborne diseases in children in pre-test score. In order to improve knowledge of mothers on prevention of waterborne diseases in children, structured teaching was developed and administered to mothers of children aged 11 to 13 years, which was found to be an effective educative media in terms of gain in knowledge of mothers regarding prevention of waterborne diseases in children.

Further it was found that in the pre-test 26 mothers were in the favor of using household water purification method. There was a need felt for purification devices to be administered to the needful families.

This was supported by the study conducted by **Sznajder, M et al (2003)** A study on Hand washing programmes in kindergarten shows the effectiveness of structured programme on hand washing which has taken into account of the developmental stage of children. The sample size of the Intervention group was 15, who received the structured education to programme on hand washing addition to their existing curriculum. The sample size of the control group was also 15 who received only the teaching content of their curriculum. The programme contains five teaching sessions delivered on weekly basis: story telling, health education, games, experiment and hands- on activities are planned. Outcome evaluations include the knowledge level and behaviors on hand washing. After the education programme, knowledge level of students in both groups increased, but significant improvement in hand washing practice was observed only in intervention groups ($P < 0.001$).

Hypothesis formulated by the researcher that there would be significant association between selected demographic variables and pre-test knowledge scores of mothers regarding prevention of waterborne diseases in children aged 11 to 13 years in the present study, found that there was indeed a significant association between educational status of mothers and pre-test knowledge score of mothers regarding prevention of waterborne diseases in children. And this hypothesis was finally accepted.

Another hypothesis was there would be significant difference in the pre-test and post test knowledge score of mothers regarding prevention of waterborne diseases in children and it was found that post knowledge score was significantly higher than the pre-test knowledge score regarding prevention of waterborne disease in children . And hence this hypothesis was also accepted.

V.   CONCLUSION-

The aim of the study was to evaluate the effectiveness of structured teaching program regarding the prevention of waterborne disease among the mothers of children aged 11 to 13 years. 30 mothers of toddlers were selected. Structured teaching was given and post test was taken after seven days.

After detailed analysis the findings revealed the following –

✓ Pretest mean knowledge score of mothers on prevention of waterborne diseases in children was 9.6 (40%) and posttest mean knowledge score was 18.6 (77.5%).

✓ Structured teaching program was an effective method to increase the gain in knowledge of mothers.

✓ There was significant association between pretest knowledge score and educational status of mother. Therefore it could be concluded that structured teaching program helped in improving the knowledge of mothers and could be used in various settings.

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