

Impact of educational programme regarding ORS therapy on the level of knowledge of mothers aged 18–35 years of under 5-year children

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ABSTRACT

Context: Diarrhoea is the most prevalent cause of morbidity and mortality among children aged under five years. To address this, an education programme is administered. **Aim:** To assess the effectiveness of a structured educational programme over knowledge of ORS. **Methods and Material:** 60 mothers aged (18–35 years) of under five-year children were enrolled in this experimental quantitative study by non-probability purposive sampling method. A pre-test and post-test questionnaire administered to a group of mothers. Statistical analysis Paired t-test & Chi-Square test were applied whereas applicable. **Results:** This study showed a mean improvement of 7.36 (36.85%) in the score of pre-test and post-test as the mean score of the pre-test is 9.37 ± 4.96 , and the mean score of post-test is 16.73 ± 2.97 , respectively, which reveals that there is a significant improvement in the knowledge of the mothers after the structured educational program on ORS therapy. **Conclusion:** It is drawn from this study that a structured teaching programme was effective significantly in improving mothers' knowledge regarding oral rehydration therapy.

Keywords: 5-year children, diarrhoea, knowledge of mothers, ORS therapy

Introduction

Diarrhea is one of the most prevalent causes of mortality as well as morbidity among under 5 children, accounting for 1.5 million deaths globally.^[1] As per UNICEF report 2018, 8% death of under 5 children worldwide is due to diarrhea, whereas this percentage becomes 9% in India.^[2] ORS is the only effective therapy to prevent the morbidity and mortality caused by diarrhea in children. But many studies have shown that this knowledge is lacking among mothers of under 5 children. As per the National

Family Health Survey (NFHS) in India, only 48% of children receive ORS during diarrheal episodes.^[3] Shah *et al.*^[4] done a study in urban slums of Aligarh found that only 46.5% of the mothers knew about ORS and only 29.8% knew the correct way to make it. Home-based fluids that can be used in diarrhea are known to only 38.7% of mothers. Moreover, Josh *et al.*^[5] done similar study in urban slums of Tamil Nadu found that 73% heard about ORS out of which 92.9% had heard it from medical workers. Abolurin *et al.*^[6] done a survey in Nigeria including 400 mothers of under 5 years of age children to address reasons for under-utilization of ORS in diarrhea by a questionnaire-based study. 15.3% participants were not aware of ORS and only 22.1% prepared it rightly when asked to do so. Andanigoudar *et al.*^[7] also done a study in June to July 2018 on 203 caregivers of under 5 years children at the urban area of Hubballi. This study concluded that only 78.8% of the caregivers were having knowledge of ORS but

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only 73% actually used ORS when needed. These further stressed about some intervention to be done at this level of community by educating them about ORS.

Quantitative research is the research dealing with collecting and analyzing numerical data obtained from a study. In quantitative research, reliability and validity of the dependent variables can be tested such as changes in knowledge, skills, or attitude after an intervention by any of the medical education techniques.^[8] It can be observational or experimental. Observational predominantly deals with data collected from surveys, it can be used to find correlations between variables collected. Experimental studies are having a crucial role in medical education or research. It deals with testing impact of teaching methods used as intervention in the research. Experimental studies can include either two experiment groups as control and comparison or can test the impact by administering questionnaires as pre or post-test in the same group. The selection of appropriate methodology is based on research question or hypothesis to be tested. Pre-test/post-test evaluation is very concise and reasonable tool to know about the effect of interventions made in the research. It has proved good tool in medical education technologies.^[9] It has also proved important in knowing the effect of any intervention done at community level on knowledge, attitude and practices before and after teaching programmes. So, this study was planned to know the impact of educational programme on knowledge of mothers of under 5 year children about ORS therapy.

Aims and Objectives

To assess the effectiveness of educational programme about ORS therapy among mothers (18–35 years) of under 5 year children.

Methodology

It was an experimental quantitative study with pre-test and post-test questionnaire administered to a group of mother of under 5 year children. The age of mothers were between 18-35 years. This was done in rural setting in Chandandih village of Raipur. Mothers who can understand and speak English/Hindi were included. All mothers with hearing or visual impairments were excluded. A sample size of 60 mothers were taken by non-probability purposive sampling method. The methodology is depicted in the flow chart in Figure 1. Schematic representation of research methodology.

Independent variable

In this study teaching programme on oral rehydration therapy to mother is the independent variable.

Dependent variable

In this study, the knowledge of mother regarding oral rehydration therapy is the dependent variable.

Description of tool

The tool was developed and used by researcher for the study.

A questionnaire comprising of 20 questions for the assessment of knowledge of mother was used. Each question had four choices, out of which only one is the correct choice. Each correct choice carried one score and incorrect choice was scored zero. Percentage of correct choices was calculated. Score above 75% was good knowledge, below 25% was poor, and between 50-75% or 25-50% were average or little knowledge.

Development of self-structured programme

Keeping in the mind, the objective, the literature review, the opinion of the experts, self-structured questionnaire was developed. The structured educational programme was prepared to enhance the knowledge regarding oral rehydration therapy.

Validity of tool content

The demographic proforma, self-structured questionnaire on knowledge and structured programme along with the statement of problem, objective, hypotheses, operational definition, tool and criteria checklist were submitted to experts to establish content validity. They gave the opinion concerning the relevancy, appropriateness, and usefulness of items of the tool and structured programme. There was 100% agreement for the demographic characteristics. In the self-structured questionnaire out of 20 items 100% agreements was there. Both the tools and structured programme were prepared in English and Hindi. There was 100% agreement regarding the validity of structured educational programme.

Pilot study

A pilot study was conducted to find out the feasibility of the study. Ten mothers having the same parameter as in the main study were included from rural area Chandandih. by purposive sampling. The questionnaire was found feasible. The pilot study also assisted to select methods for statistical analysis.

Data collection procedure

The study was then initiated after obtaining institute ethical clearance. A written and informed consent from each participant in the study was taken. The introduction about group member was given. The data was collected. The data was collected from 60 participants in February 2018 after pretest, structured teaching programme was conducted. Then again after 7 days of teaching programme, post-test was done on all participants.

Statistical analysis

Paired t-test was applied to assess the effectiveness of a structured educational programme. The Chi-Square test was applied to know the association between demographic variables and post-test scores.

Results

Table 1 reveals the difference in scores of knowledge of mothers before and after the teaching intervention. In pre-test below-average knowledge (scores below 50%) was seen in 21 mothers out of 60 mothers which becomes zero in post-test.

Further, there is increase in percentage of knowledge scores in grading between 75-100%, which is graded as good knowledge to 80% in post-test from 16.66% in the pre-test. This significantly shows an enhancement in the knowledge of the mothers after the teaching intervention on ORS therapy.

Figure 2 shows the difference between pre-test and post-test percentages after educational intervention. In the post-test, no mothers have poor and little knowledge, out of 60 mothers have

Table 1: Frequency and percentage distribution of pretest and post-test scores of knowledge about ORS therapy among mothers of under 5 year children

Knowledge	Poor knowledge (<25%)		Little knowledge (25-50%)		Average knowledge (50-75%)		Good knowledge (75-100%)	
	No.	%	No.	%	No.	%	No.	%
Pre Test	12	20.0	19	31.67	19	31.67	10	16.66
Post Test	0	0	0	0	12	20.0	48	80.0

n=60

Table 2: Comparison of pre-test and post-test level of knowledge about ORS therapy among of under 5 years children

Knowledge	Mean	S.D	Mean improvement	Paired 't'
Pre Test	9.37	4.96	7.36 (36.85%)	t=12.914,
Post Test	16.73	2.97		P=0.0001, S***

***S-Significant, n=60

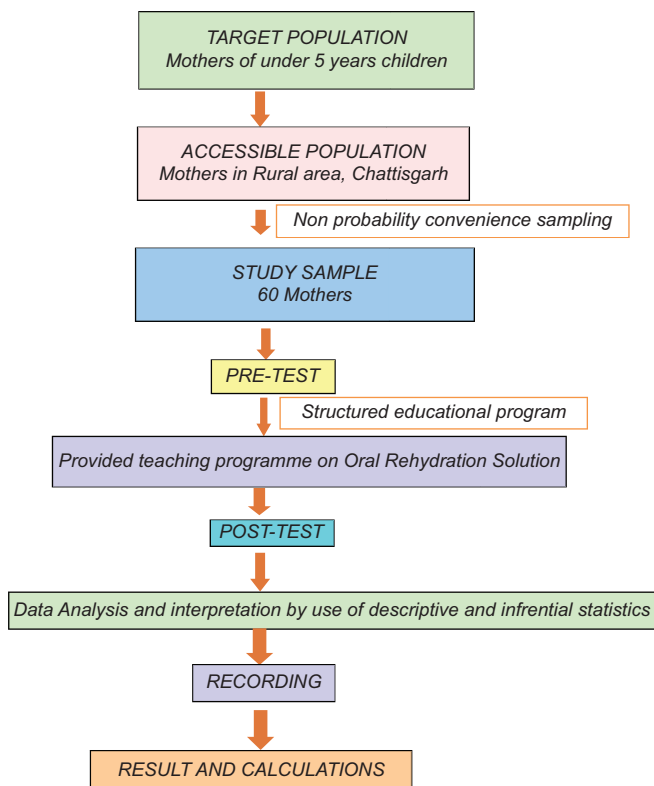


Figure 1: Schematic representation of research methodology

gained average knowledge (20.0%) and out of 60 mothers have good knowledge (80.0%) of the total data.

Table 2 illustrates that there is a mean improvement of 7.36 (36.85%) in the score of pre-test and post-test as the mean score of pretest is 9.37 with the SD is 4.96 and the mean score of post-test is 16.73 with the SD of 2.97, respectively, which reveals that there is a significant improvement in the knowledge of the mothers after the educational programme on ORS therapy.

Figure 3 shows that the pre-test score is 9.37, and the post-test score is 16.73.

In this Table 3, cross-tabulation was used effectively and the result of Chi-square analysis was observed as follows and the post-test knowledge of mothers was categorized in average (50-75%) and good knowledge (75%–100%), respectively.

It is clear from the above table that there is no relationship between post-test level of knowledge about ORS therapy among mothers of under 5-year children with their demographic variables.

Discussion

A cross-sectional survey by Naseem *et al.*^[10] done on 300 mothers of under 5 children who were attending hospital, they were given a pre-validated questionnaire to collect their knowledge about definition of loose motion, how to use ORS, what diet should be given in diarrhea and beliefs and practices. They found that only 31.97% mothers had knowledge about diarrhea can result in dehydration. Only 45.96% mothers knew that rice-based diet to be given in diarrhea whereas, only 35.26% will give extra fluids to a child with diarrhea. However, 89.5% mothers had knowledge about ORS. Home-based ORS was known to 66% but only 22% knew how to make it correctly. This study differs than our study as our study has collected information about the degree of knowledge about ORS by

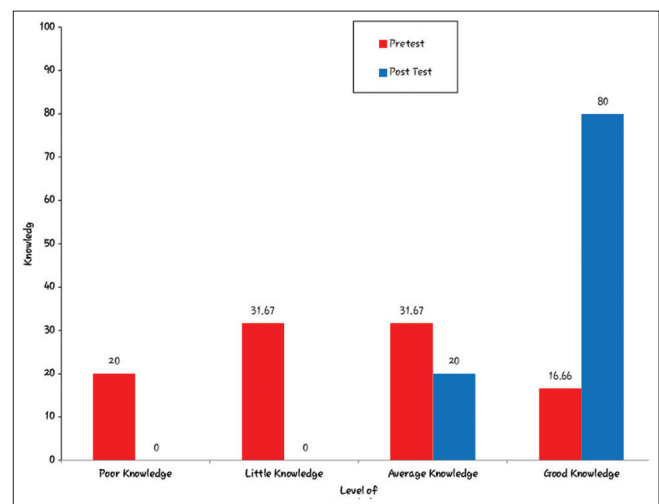


Figure 2: Percentage distribution of pre-test and post-test level of knowledge about ORS therapy among mothers of under 5-year children

Table 3: Association of post-test level of knowledge about ORS therapy among mothers of under 5 year children with their demographic variables

Demographic Variables	Average knowledge (50-75%)		Good knowledge (75-100%)		Chi-Square Value
	No.	%	No.	%	
Age					$\chi^2=0.477$ d.f=3 P=0.924 N.S
18-20 years	1	1.7	4	6.7	
21-25 years	5	8.3	17	28.3	
26-30 years	4	6.7	21	35.0	
31-35 years	2	3.3	6	10.0	
Educational status					$\chi^2=6.667$ d.f=3 P=0.083 N.S
Illiterate	4	6.7	4	6.7	
Primary	6	10.0	39	65.0	
High school	2	3.3	4	6.7	
Graduate/Post graduate	0	0	1	1.7	
Religion					-
Hindu	12	20.0	48	80.0	
Muslim	-	-	-	-	
Christian	-	-	-	-	
Sikh	-	-	-	-	
Others	-	-	-	-	
Occupation					$\chi^2=1.250$ d.f=3 P=0.741 N.S
Government job	0	0	2	3.3	
Private job	4	6.7	12	20.0	
Housewife	8	13.3	32	53.3	
Self-employed	0	0	2	3.3	
Number of children					$\chi^2=2.076$ d.f=3 P=0.557 N.S
One children	6	10.0	15	25.0	
Two children	3	5.0	21	35.0	
Three children	3	5.0	11	18.3	
More than three children	0	0	1	1.7	
Monthly income					$\chi^2=1.049$ d.f=3 P=0.789 N.S
1000-3000	7	11.7	28	46.7	
3001-5000	3	5.0	7	11.7	
5001-10000	1	1.7	7	11.7	
Above 10000	1	1.7	6	10.0	
Type of house					$\chi^2=0.268$ d.f=2 P=0.875 N.S
Kucha house	9	15.0	36	60.0	
Pucca house	3	5.0	11	18.3	
Mixed house	0	0	1	1.7	
Source of water supply					$\chi^2=4.466$ d.f=2 P=0.107 N.S
Municipal	5	8.3	27	45.0	
Hand pump	5	8.3	7	11.7	
Borewell	2	3.3	14	23.3	
Any illness in mother					$\chi^2=0.517$ d.f=1 P=0.472 N.S
No	12	20.0	46	76.7	
Yes	0	0	2	3.3	

n=60. N.S - Not Significant

having a validated scoring questionnaire. Our study showed only 16.66% had good knowledge about ORS falling in range of 75-100%. Ansari *et al.*^[11] study was done to assess knowledge, attitude and practice related to diarrhea after having successive educational intervention. This was interventional study done on 630 participants using multistage random approach. The result showed a significant increase in knowledge, attitude and practice after the educational intervention at follow-ups done up to 3rd visit. Repeated interventions done in this study at subsequent follow-up and further more interventions strengthen

the correlation between knowledge, attitude and practice. This study differs from our study as they stressed the importance of repeated interventions on follow-up which improves the score of post-test serially. Pahwa *et al.*^[12] enrolled 370 mothers having children, aged >12-71 months, by a door-to-door survey from a large urban slum in Delhi and imparted education for nine months. They made 2 groups, that is, control and intervention. They first collected baseline knowledge about ORT, ORS, and other practices done during diarrhea through a pretested questionnaire. They imparted education by two methods

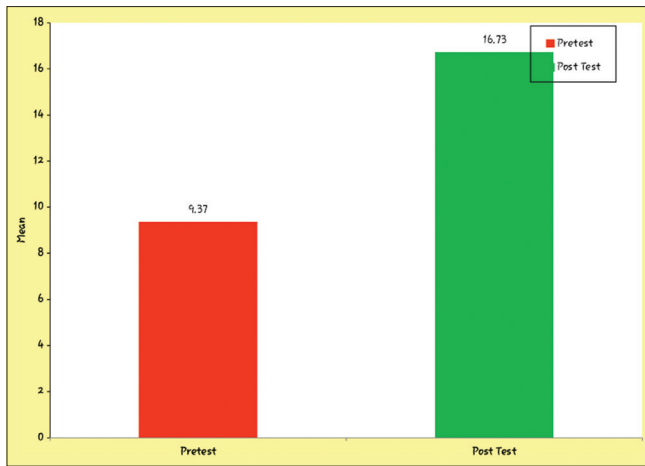


Figure 3: Comparison of pre-test and post-test level of knowledge about ORS therapy among mothers of under 5-year children

which were personal discussion sessions and lane approach in intervention group whereas control group received no education. Personal discussions were given in groups of 15–20 mothers at community center at slum areas in 30–45-min sessions. After personal discussion, at interval of 15 days they visited jhuggis and imparted education in groups of 6–7 mothers living in a lane with each session of 15–20 min and revising main message given at personal discussions. These sessions were done twice in a month. They found that the reported usage of ORS packets and sugar-salt solution improved significantly from 12% to 65% ($P = 0.000$) and 12% to 75% ($P = 0.005$), respectively. This study further enforces the importance of role of primary care physicians to conduct educational sessions at their areas time and again so that it can improve the knowledge and attitude of ORS usage in diarrhoeal disease of under 5 children. This study differs from our study as they done a follow-up teaching sessions that increase the impact of education further.

Conclusion

Prior to carrying out of structured educational programme for mothers regarding oral rehydration therapy, they had inadequate knowledge whereas after implementation of structured educational programme, the mothers had improved knowledge regarding oral rehydration therapy. So, this study concluded that structured education programme was effective significantly in enhancing knowledge of mothers regarding oral rehydration therapy.

Key Message: Structured teaching programme at level of community by primary care physicians can improve the mortality and morbidity associated with preventable cause like childhood diarrhea.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients

understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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