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Research Article

A Study to assess the Effectiveness of Information Booklet on Knowledge of Mothers regarding Use of Zinc Supplementation in Managing Diarrhoea among Under Five Children in a selected Rural Community in Bhopal

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I N F O

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A B S T R A C T

Background: Zinc supplementation is suggested in all intense bowel issues in kids from non-industrial nations. We planned to survey whether zinc supplementation would be similarly compelling against every one of the normal life forms related to intense looseness of the bowels.

Method: A semi-exploratory one gathering, pre-test post-test configuration was utilised for the examination. Purposive testing procedure was used to choose 40 mothers. The specialist evaluated the information with respect to the advantages of zinc utilising organised information survey. On the seventh day, a post-test was conducted. The gathered information was examined using graphic and inferential measurements.

Result: The mean post-test information score (20.33) was higher than the mean pre-test knowledge score (11.95). The mean contrast between post-test and pre-test knowledge score was profoundly huge. The obtained 't' value (13.60) was higher than the table value. There was no significant relationship between knowledge score and chosen demographic variables like age, number of kids, occupation, family, income, religion with the exception of educational status of mothers.

Interpretation and Conclusion: The post-test knowledge score being higher than the pre-test knowledge score leads to the conclusion that the information booklet is a very useful method of improving the information of the mothers regarding zinc supplementation in managing diarrhoea among under-five children.

Keywords: Effectiveness, Information Booklet, Knowledge, Zinc Supplementation

Introduction

Every child is a different kind of flower and all together they make this world a beautiful garden

In India, 39% of the population are children. According to the National policy, children have been considered an integral part of national development. They are loved globally as they have a special place in the lives of the people but a large number of children become a cause of sorrow because of illness and untimely death. Children all over the world suffer from diarrhoeal diseases but in thickly populated countries like India and China, they may have potentially life-threatening consequences and may be a leading cause of death among children.[1]

Diarrhoea is a major problem among kids around the world, accounting for 9% of all deaths among children under 5 years of age. This translates to over 1400 young children dying each day, or about 5,26,000 children every year, despite the availability of simple and effective treatment.[4] Over 60% of these deaths occur in 10 countries, namely, Bangladesh, the Democratic Republic of Congo, Ethiopia, India, Kenya, Niger, Nigeria, Pakistan, Tanzania, and Uganda. Only a few children receive the recommended treatment for diarrhoea - ORS and zinc. In fact, just two in five children with diarrhoea receive ORS and the median coverage of zinc is only 1% in 49 countries with available data.[6]

In 2004, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommended a proposal in a joint articulation of intense looseness of the bowels in non-industrial nations which depended on solid organic and epidemiological proof and stated that zinc supplementation can altogether diminish stool volume and recurrence.

Be that as it may, there exists huge heterogeneity in the effect of zinc on stool volume and frequency seen across distributed randomised controlled trials. The mechanisms resulting in such heterogeneity are not well understood. There is some proof to recommend that the gainful impact of zinc is influenced by the type of causative organism. Roy et al. had first exhibited that the degree to which mucosal porousness is influenced in various bowel issues relies upon the causative creature. As a rule, the motions brought about by intrusive life forms show higher penetrability. Similarly, Canani et al. saw that zinc included advancement of particle ingestion across the gut is obvious because of the particle emission brought about by Vibrio cholera poison yet not the Escherichia coli heat-stable enterotoxin. Surjawidjaja et al. also showed that in spite of the fact that zinc sulphate can restrain the development of enteric microorganisms in vitro. LD50 is specific to an organism and can vary considerably. Subsequently, it is conceivable that the gainful impact of zinc supplementation seen in a trial may rely upon the range of the causative life forms. Utilising microbiological and clinical information from a three-arm randomised controlled trial of zinc supplementation, we accordingly decided if differential life forms can mostly add to the impact of zinc.[7]

Methods

Research Approach: An evaluative research approach has been adopted for this study.

Research Design: quasi-experimental one group pre-test, post-test design.

Study Duration: One and a half months

Study Setting: The study was conducted in Kalapani Community which comes under Kolar Primary Health Centre, Bhopal.

Variables

Dependent variable: In this study, it refers to the level of knowledge of mothers of under-five children on zinc supplementation in managing diarrhoea.

Independent variable: In this study, it refers to the age, number of children, education, occupation, family income, religion, and any information about zinc supplementation.

Sample: 40 mothers residing at Kalapani rural community which comes under Kolar PHC, Bhopal.

Sampling Technique: Purposive sampling technique was used to select the sample.

Inclusion Criteria

- Mothers who had children below 5 years of age
- Mothers who were able to read and write in Hindi
- Mothers who were willing to participate in the study
- Mothers who were present at home during the time of data collection

Exclusion Criteria

- Mothers who were not willing to participate in the study
- Mothers who were from the medical profession

Data Collection Tool: A structured knowledge questionnaire was used in this study.

Data Collection Method

Formal permission was taken from the Block Medical Officer, Kolar, for data collection. Written consent was taken from each mother. Appropriate orientation was given to mothers about the aim of the study, and nature of the questionnaire, and adequate care was taken for maintaining confidentiality, security, and identity.

The sample was selected using purposive sampling technique. Data were collected from 10-15 mothers per day. Mothers were met in their houses. The purpose of

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the study was explained to them, and their consent was obtained. A pre-test was conducted with the structured knowledge questionnaire regarding zinc supplementation in managing diarrhoea. The computer-assisted teaching was administered following the pre-test. Post-test was conducted after 25 days using the same structured knowledge questionnaire. The respondents cooperated well with the investigator during the data collection. The mothers understood the content of the video. The data collection process was terminated after thanking the respondents for their cooperation and prompt responses. The data was compiled for analysis.

Plan for Data Analysis

Data was planned to be analysed on the basis of objectives.

1. Demographic data would be analysed in terms of frequency and percentage.
1. Knowledge level of mothers regarding zinc supplementation in managing diarrhoea before and after introducing computer-assisted teaching would be analysed in terms of frequency, percentage, mean, median, standard deviation, and would be presented in the form of tables.
3. The significant difference between the mean pre-test knowledge score and post-test knowledge score would be determined by paired 't' test.
4. Chi-square test will be used to find the association between pre-test knowledge score and demographic variables.

Result

The pre-test and post-test knowledge score of mothers ranged from 3-22 and 11-25 respectively. The mean post-test knowledge score (x2 = 20.33) was higher than the mean pre-test knowledge score (x1 = 11.95). The computed 't' value (13.60) was greater than the table value (t39 = 1.68, $p < 0.05$). The findings showed a significant difference between pre-test and post-test knowledge scores. There was no association between pre-test knowledge score and selected demographic variables.

Table 1.Frequency and Percentage Distribution of the Sample

N = 40

S. No.	Variable	Frequency	Percentage
1.	**Age (in years)**		
	18-23	2	5.0
	24-29	21	52.5
	30-35	13	32.5
	Above 36	4	10.0
2.	**Number of children**		
	One	20	50.0
	Two	16	40.0
	Three	3	7.5
	More than three	1	2.5
3	**Education**		
	Primary	12	30.0
	High school	9	22.5
	Pre-University	8	20.0
	Diploma/ Graduate and above	11	27.5
4.	**Occupation**		
	Homemaker	29	72.5
	Unskilled workers	2	5.0
	Skilled worker	3	7.5
	Professionals	6	15.0
5.	**Income per month (INR)**		
	5000-10000	26	65.0
	10001-15000	2	5.0

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	15001-20000	7	17.5
	20001	5	12.5
6.	Religion		
	Hindu	20	50.0
	Muslim	16	40.0
	Christian	4	10.0
7.	**Awareness regarding effects of zinc**		
	Yes	20	50.0
	No	20	50.0

Table 2.Frequency and Percentage Distribution of Sample according to their Level of Knowledge

N = 40

Grading of Knowledge Range		Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
Inadequate	0-8	11	27.5	0	0.0
Moderate	9-17	22	55.0	7	17.5
Adequate	18-26	7	17.5	33	82.5

Maximum score = 26

Table 3.Range, Mean, SD, and Mean Percentage of Pre and Post-test Knowledge Scores

N = 40

Area	Range	Mean	SD	Mean percentage	Mean difference
Pre-test	3-22	11.95	5.01	45.96	
Post-test	11-25	20.33	3.05	78.2	8.38

Maximum score = 26

The finding of the study proved that the information booklet was effective in improving the knowledge of mothers regarding the use of zinc supplementation in managing diarrhoea among under-five children.

Discussion

Section I: Demographic Characteristics

1. The study revealed that most of the mothers (52.5%) were in the age group 24-29 years, 32.5% were in the age group 30-35 years, 10% were above 36 years, and 5% were in the age group of 18-23 years.
2. Most of the mothers (50%) had one child, 40% of the mothers had two children, 7.5% had three children, and 2.5% had more than 3 children.
3. Most of the mothers (32%) had primary education, 27.5% were graduate and above, 22.5% had high school education, and only 20% had pre-university education.
4. Most of the mothers (72.5%) were housewives, 15% were professionals, 7.5% were skilled workers, and 5% were unskilled workers.
5. More than half (65%) of the mothers had a monthly family income of INR 5000-10000, 17.5% had a monthly family income of INR 15001-20000, 12.5% had a monthly income of more than INR 20001, and 5% had a monthly family income of INR 10001-15000.
6. Half of the mothers (50%) were Hindu, 40% were Muslim, and 10% were Christian. Half of the mothers (50%) had some awareness regarding zinc while the remaining were unaware.

Section II: Knowledge Level of Mothers regarding Zinc Supplementation

The mean post-test knowledge score (x2 = 20.33) was higher than the mean pre-test knowledge score (x1 = 11.95).

This finding is consistent with the findings of a study conducted in Bangalore to assess the effectiveness of a self-instructional module on home management of diarrhoea among the mothers of under-five children. The sample included 40 mothers of under-five children. The study results revealed that the post-test mean knowledge score was higher (72.6%) with a standard deviation of ± 10.2 when compared with the pre-test mean knowledge score value which was (46.8%) with a standard deviation of ± 17.3. The post-test mean knowledge difference was

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25.8% with a paired 't' value of 15.69. The study implied that the intervention on 'home management of diarrhoea' was found to be effective in terms of increasing knowledge.

Section III: Effectiveness of Information Booklet

The finding of the study showed a significant increase in the post-test knowledge score and the computed 't' value (13.60) was higher than the table value ($t39 = 1.64$, $p < 0.05$). These findings are consistent with the finding of other studies.

Similar results were revealed by a previous study conducted to evaluate the effectiveness of information booklet on the knowledge of mothers regarding home management of selected common illness in children and to find out the association between the post-test scores with selected demographic variables. The study was conducted among 60 mothers conveniently selected from a modar village at Vadodara. The results of the study showed that in pre-test, mothers on average had 44.26% knowledge regarding the selected common illness of children and the mean score was 15.05 ± 5.19, in post-test, mothers had 75.88% knowledge and the mean score was 25.8 ± 3.96. The post-test mean knowledge score was significantly greater than the pre-test mean knowledge score and was statistically significant [$t59 = 1.67$, $p < 0.05$]. This study concluded that the information booklet was highly effective in improving the knowledge of mothers.

Section IV: Association between the Pre-test Knowledge Score of Mothers and Selected Variables

The findings of the study showed that there is no significant association between knowledge level and selected variables such as age, number of children, occupation, family income, and religion except education status.

The finding is consistent with the finding of another study conducted to assess the effectiveness of structured teaching programme regarding diarrhoea on the knowledge of mothers of an urban area of Jaipur. The sample included 30 mothers who had children less than five years of age. Purposive sampling technique was done for the selection of sample. Descriptive and inferential statistics were used for analysis. The analyses indicated that there was a highly significant difference between pre-test and post-test knowledge scores ($t39 = 15.41$, $p < 0.05$). The data showed that computed Chi-square value had a significant association between pre-test knowledge score and occupation of mothers, but no association was found between pre-test knowledge score and selected demographic variables such as age of mothers, education, and family income.

Conclusion

Diarrhoea causes significant mortality in children under five years of age and thus is an important public health problem in India. It leads to excessive zinc loss in stool, which accompanied by low energy intake, leads to zinc deficiency which further worsens diarrhoea. It is one of the most common manifestations of illness in infants and children. It is characterised by an increase in fluidity, frequency, volume as well as possible changes in the colour of faeces in comparison with the usual stool pattern of an individual. Diarrhoea is a symptom of a variety of conditions, and it constitutes one of the main causes of morbidity and mortality among infants and children throughout the world.

Zinc and low osmolarity ORS have been shown to be acceptable to both children and caregivers. They are inexpensive, safe, and easy to use, and have the potential to significantly lower diarrhoea morbidity and mortality. In Bangladesh and India, large-scale programmes have demonstrated that together they can decrease the unnecessary use of antibiotics, reinvigorate community management of diarrhoea while keeping costs low and treatment acceptable to both children and caregivers and most importantly save lives. The treatments available today are safe, effective and inexpensive. It is evident that community-based diarrhoea management should be a top global health priority.

Nurses have a unique opportunity to help the mothers examine their children for danger signs, recognise the risk and potential measures for prevention, advise on a focused individualised plan, facilitate convalescence and reduce morbidity and mortality.

Conflict of Interest: None

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