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A STUDY TO ASSESS THE KNOWLEDGE AND PRACTICE REGARDING PREVENTION OF SELECTED WATER BORNE DISEASES AMONG SCHOOL CHILDREN IN SELECTED SCHOOLS AT JAIPUR, RAJASTHAN WITH A VIEW TO DEVELOP AN INFORMATION BOOKLET.

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ABSTRACT

Introduction: Access to clean water is essential for public health, particularly in countries like India where challenges related to water quality persist. This study aimed to evaluate the effectiveness of educational interventions in enhancing knowledge and promoting preventive practices related to waterborne diseases among school children in Jaipur, Rajasthan. M**ethods:** A quasi-experimental design was employed, and data were collected from selected schools in Achrol village, Jaipur. The study included 200 school children and 100 mothers, utilizing structured questionnaires administered before and after the implementation of a structured teaching program. **Result:** The findings revealed that at baseline, 64% of school children had inadequate knowledge regarding the prevention of waterborne diseases, while only 5.5% demonstrated adequate knowledge. Similarly, 50% of the children had inadequate preventive practices, with only 7.5% exhibiting adequate practices. However, post-intervention assessments showed significant improvements in both knowledge and practice scores. Following the educational interventions, the proportion of children with adequate knowledge increased to 68%, and those with adequate preventive practices rose to 72%. Moreover, a positive correlation ($r = 0.91$, $p < 0.05$) was observed between knowledge and practice scores, highlighting the importance of education in influencing health behaviors. **Conclusion:** These results underscore the critical role of educational interventions in enhancing knowledge acquisition and behavior change among school children. By promoting understanding and fostering positive practices related to waterborne disease prevention, such interventions have the potential to significantly reduce the burden of waterborne illnesses in communities.

KEYWORDS: Waterborne diseases, Educational interventions, School children, Knowledge, Practice.

INTRODUCTION

Access to clean and safe water is a cornerstone of public health, playing a pivotal role in the prevention of waterborne diseases and the promotion of overall well-being. In India, a country characterized by its vast population and diverse socioeconomic landscape, ensuring universal access to clean drinking water remains a formidable task.[1] The consequences of inadequate access to safe drinking water are far-reaching, with waterborne diseases posing a particularly acute threat to public health. These diseases, including cholera, typhoid fever, hepatitis A, and various forms of dysentery, are primarily transmitted through contaminated water sources.[2]

As per **WHO (2022)** globally, at least 1.7 billion people use a drinking water source contaminated with faeces. Microbial contamination of drinking-water as a result of contamination with faeces poses the greatest risk to drinking-water safety Unsafe water can transmit diseases such as diarrhoea, cholera, dysentery, typhoid, and polio, and is estimated to cause approximately 505,000 diarrhoeal deaths each year.[3]

Children, constituting approximately 20% of the total population, are particularly vulnerable to infections originating from various sources such as contaminated food, water, flies, fomites, and polluted environments. Given that all aspects of child care typically fall under the purview of mothers, they play a pivotal role in the prevention of waterborne diseases.[4] Young children,

with their developing immune systems and limited understanding of hygiene practices, are particularly susceptible to waterborne disease. Moreover, frequent episodes of illness can disrupt their education and hinder their overall growth and development.[5]

Access to safe drinking water, basic sanitation facilities, and proper hygiene education has the potential to avert nearly 90% of diarrheal diseases. Moreover, such interventions can lead to broader health improvements, poverty reduction, and socioeconomic development.[6] Recognizing the urgent need to address this public health challenge, numerous interventions have been proposed and implemented to improve water quality and promote hygiene practices. Educational initiatives targeting school children have emerged as a promising strategy for instilling knowledge and fostering positive behaviors related to water hygiene and sanitation. By engaging with young learners, these programs aim to cultivate lifelong habits that can mitigate the risk of waterborne diseases and contribute to healthier communities.

Present study focuses on evaluate the effectiveness of educational interventions in enhancing knowledge and promoting preventive practice. By examining the impact of these interventions on knowledge and practice, the study aims to contribute to the evidence base for designing targeted interventions aimed at reducing the burden of waterborne diseases in north India region,

METHODOLOGY

Study Design: A quasi-experimental design was employed to conduct the study.

Study Setting: The study was conducted in selected schools located in Achrol village, Jaipur, Rajasthan. Eight schools were chosen as the study sites to ensure adequate representation and diversity within the sample.

Participants: The target population comprised school children attending the selected schools in Achrol village, Jaipur (raj.). A total of 200 school children meeting the inclusion criteria were included in the study sample. Additionally, 100 mothers were also recruited to provide supplementary information regarding household practices related to waterborne disease prevention.

Sampling Technique: Stratified random sampling technique with a lottery method was utilized to select the study participants. This approach ensured the random selection of participants while also ensuring representation from different demographic strata within the population.

Data Collection: Data collection was carried out using structured questionnaires administered to both school children and mothers. The questionnaire included sections on demographic information, knowledge assessment regarding waterborne diseases, and practices related to water hygiene and sanitation. Data collection was conducted at baseline (pre-intervention) and following the implementation of the structured teaching program (post-intervention).

Intervention: The structured teaching program was designed to provide comprehensive information on the prevention of waterborne diseases, including definitions, causes, common types, and preventive measures. The program utilized various educational tools such as audiovisual aids, blackboards, charts, videos, and demonstrations to enhance engagement and understanding among the participants.

Data Analysis: Descriptive statistics were used to summarize the demographic characteristics of the study participants. Pre-test and post-test scores on knowledge and practice assessments were compared using appropriate statistical tests, such Z test. Correlation analysis was also performed to explore the relationship between knowledge and practice scores.

RESULT

Table 1: Distribution of Demographic Variables of School Children.

S/No	Demographic Variable	Frequency	%
1	*Gender*		
	A) Male	84	42
	B) Female	116	58
2	*Religion*		
	A) Hindu	138	69.0
	B) Muslim	33	16.5
	C) Christian	29	14.5
3	*Occupation of father*		
	A) Daily wages	141	70.5
	B) Personal Business	29	14.5
	C) Govt. Service	13	6.5
	D) Business man	17	8.5
4	*Educational status of Mother*		
	A) Illiterate	54	27
	B) Primary Education	84	42

	C) Secondary Education D) Senior Education E) Graduate	34 22 6	17 11 3
5	*Type of family* A) Nuclear Family B) Joint family	 131 69	 65.5 34.5
6	*Sources drinking water* A) Well water B) Tube well water C) Municipal corporation D) Others	 23 52 119 6	 11.5 26 59.5 3
7	*Toilet Facility* A) House hold latrine B) Open defecation	 139 61	 69.5 30.5
8	*Residence type* A) Urban Area B) Rural Area	 129 71	 64.5 35.5

Table 1. presents that majority of the sample were females (58%), Hindus (69%), had fathers engaged in daily wages (70.5%), mothers with primary education (42%), lived in nuclear families (65.5%), used municipal corporation water sources (59.5%), had household latrines (69.5%), and resided in urban areas (64.5%).

Table 2: Comparison between the pre-test and post-test knowledge score regarding prevention of selected water borne disease among school children.

N=200

Level of knowledge	Pretest		Post test	
	F	%	F	%
Adequate	55	5.5	136	68
Moderate adequate	61	30.5	64	32
Inadequate	128	64	-	-
Total	200	100	200	100

Table.2 show that before the intervention, 5.5% of the participants had adequate knowledge, 30.5% had moderate adequate knowledge, and 64% had inadequate knowledge. After the intervention, the percentage of children with adequate knowledge increased to 68%.

Table 3: Comparison between the pre-test and post-test practice score regarding prevention of selected water borne disease among school children.

N= 200

Practice	Pretest		Post test	
	f	%	f	%
Adequate	15	7.5	144	72
Moderate adequate	85	42.5	56	28
Inadequate	100	50	-	-
Total*	200	100	200	100

Table 3 shows before the intervention, 7.5% of the participants had adequate practice, 42.5% had moderate adequate practice, and 50% had inadequate practice. After the intervention, the percentage of children with adequate practice increased to 72%.

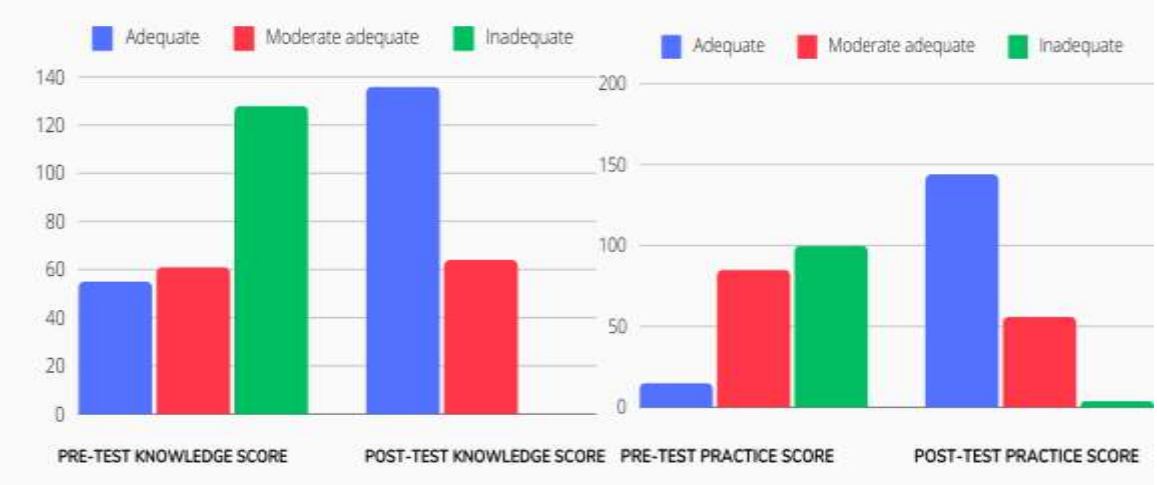

Figure 1: Comparison of Pretest and Post-Test Knowledge and Practice Scores among School Children.

Table 4: Comparison of Pretest and Post-Test Knowledge and Practice Scores among School Children.

Variable	Pretest (Mean ± SD)	Post test (Mean ± SD)	Z Value
Knowledge	8.98 ± 4.6	19.36 ± 3.9	25.31*
Practice	6.86 ± 3.32	11.72 ± 2.86	16.2*

Note: df = 199 (P < 0.05) for all statistical comparisons.
*** = significant**

Table 4 shows that mean pre-test knowledge score was 8.98 (± 4.6), while the mean post-test knowledge score increased to 19.36 (± 3.9), with a significant Z value of 25.31 where as regarding practice mean pre-test practice score was 6.68± 3.32), while the mean post-test practice score increased to 11.72 (± 2.86), with a significant Z value of 16.2. These findings underscore the effectiveness of the educational intervention in enhancing understanding and promoting preventive behaviors regarding waterborne diseases.

Table 5: Correlation Between The Mean Post-Test Knowledge And Practice Score Among School Children.

N= 200

S/No	Variable	Mean score	Co efficient of correlation	Table value
1	Knowledge	19.36	0.91	0.1946
2	Practice	11.72		

Note: df = 198 (P < 0.05) for all statistical comparisons.

Table 5 illustrates a positive correlation between the mean post-test knowledge and practice scores among the 200 school children. The mean knowledge score was 19.36, while the practice score was 11.72, both indicating a significant relationship with a correlation coefficient of 0.91. This suggests a strong association between the acquired knowledge and the demonstrated practices regarding waterborne disease prevention.

DISCUSSION

Children represent a vulnerable group susceptible to preventable diseases, making it imperative to safeguard their health and well-being. The findings of the present study highlight concerning trends, indicating that a majority of school children exhibit average practice scores and inadequate knowledge regarding the prevention of waterborne diseases. Our study's findings resonate with those of previous research conducted by Mourad et al., which similarly identified a prevalent lack of knowledge among children regarding the prevention of waterborne diseases.[7] This consistency shows that the widespread nature of the issue and underscores the critical importance of addressing it through comprehensive education initiatives.

Present study was supported by additional research conducted by Munguntuul et al., which corroborates our findings regarding practice scores among children.[8] Their study similarly revealed that a significant portion of the sample exhibited average scores in terms of waterborne disease prevention practices. This findings of study underscores the urgent need for concerted efforts to improve both knowledge and practice among children to mitigate the risk of waterborne diseases effectively.

The results of our study demonstrate the effectiveness of educational interventions in increasing both knowledge and practice levels among school children regarding the prevention of waterborne diseases. This finding is consistent with previous research conducted by Jennyfer et al. and Duarte et al., which also highlighted the importance of educational interventions in promoting health literacy and behavior change among children.[9,10]

The positive correlation observed between knowledge and practice scores in our study further emphasizes the importance of education in influencing health behaviors. Specifically, our findings indicate that children who possess greater knowledge about the prevention of waterborne diseases are more likely to engage in positive practices related to water hygiene and sanitation. This underscores the interconnectedness of knowledge and behavior and suggests that improving one can lead to improvements in the other. The presence of a positive correlation aligns with theoretical frameworks such as the Health Belief Model,[11] which posits that individuals are more likely to engage in health-promoting behaviors if they perceive themselves to be susceptible to a health threat, understand the severity of the threat, believe that the recommended actions will reduce the threat, and perceive the benefits of taking action to outweigh the barriers. This positive correlation also align with study conducted by Srilaxmi et al and Manthankumar et al.[12,13]

CONCLUSION

Our study underscores the importance of educational interventions in promoting both knowledge acquisition and behavior change among school children. By enhancing understanding and fostering positive practices related to waterborne disease prevention, such interventions have the potential to significantly reduce the burden of waterborne illnesses in communities. Moving forward, continued investment in educational initiatives aimed at children can play a crucial role in improving public health outcomes and building healthier, more resilient communities.

REFERENCES

1. Misra P, Paunikar VM. Healthy Drinking Water as a Necessity in Developing Countries Like India: A Narrative review. Cureus [Internet], 2023 Oct [cited 2024 Apr 10]; 15(10). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10654688/
2. Cabral JPS. Water Microbiology. Bacterial Pathogens and Water. Int J Environ Res Public Health, Oct. 2010; 7(10): 3657–703.
3. Drinking-water [Internet]. [cited 2024 Apr 10]. Available from: https://www.who.int/news-room/fact-sheets/detail/drinking-water
4. Kumar P, Srivastava S, Banerjee A, Banerjee S. Prevalence and predictors of water-borne diseases among elderly people in India: evidence from Longitudinal Ageing Study in India, 2017–18. BMC Public Health, May 17, 2022; 22(1): 993.
5. Mshida HA, Kassim N, Mpolya E, Kimanya M. Water, Sanitation, and Hygiene Practices Associated with Nutritional Status of Under-Five Children in Semi-Pastoral Communities Tanzania. Am J Trop Med Hyg, May, 2018; 98(5): 1242–9.
6. Nwokoro UU, Ugwa O, Onwuliri CD, Obi IF, Ngozi MO, Agunwa C. Water, sanitation and hygiene risk factors associated with diarrhoea morbidity in a rural community of Enugu, South East Nigeria. Pan Afr Med J., Oct 2, 2020; 37: 115.
7. Mourad KA, Habumugisha V, Sule BF. Assessing Students' Knowledge on WASH-Related Diseases. International Journal of Environmental Research and Public Health, Jan. 2019; 16(11): 2052.
8. Enkhbat M, Togoobaatar G, Erdenee O, Katsumata AT. Handwashing Practice among Elementary Schoolchildren in Urban Setting, Mongolia: A School-Based Cross-Sectional Survey. Journal of Environmental and Public Health, Sep. 16, 2022; 2022: e3103241.
9. Luz RMD, Marinho DC de B, Lima APE, Coriolano-Marinus MWL. Educational interventions in child development and health literacy assumptions: an integrative review. Rev Bras Enferm, 76(1): e20220116.
10. Wolf J, Hubbard S, Brauer M, Ambelu A, Arnold BF, Bain R, et al. Effectiveness of interventions to improve drinking water, sanitation, and handwashing with soap on risk of diarrhoeal disease in children in low-income and middle-income settings: a systematic review and meta-analysis. Lancet, Jul. 2, 2022; 400(10345): 27–40.
11. Jones CL, Jensen JD, Scherr CL, Brown NR, Christy K, Weaver J. The Health Belief Model as an Explanatory Framework in Communication Research: Exploring Parallel, Serial, and Moderated Mediation. Health Commun, 2015; 30(6): 566–76.
12. NRI College of Nursing, Chinakakani, Guntur (Andhra Pradesh), Srilaxmi N. Knowledge and Practices of Mothers of under Five Children on Prevention of Selected Water Borne Diseases At Israelpet, Guntur (Dt.), A.P. jmscr [Internet], 2017 Nov 15 [cited 2024 Mar 14]; 5(11). Available from: http://jmscr.igmpublication.org/v5-i11/184%20jmscr.pdf
13. Kapadiya MN. A Descriptive Study to Assess the Knowledge regarding Prevention and Management of Water Borne Diseases among mothers of under five Children in selected areas of Mehsana. Asian Journal of Nursing Education and Research, Jul. 1, 2021; 11(3): 381–3.