



A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING HOUSEHOLD WATER PURIFICATION METHODS AMONG WOMEN IN SELECTED RURAL AREA, AGARTALA, TRIPURA

Nursing

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ABSTRACT

Introduction: Unsafe drinking water poses a significant threat to public health, particularly in rural areas. Women often bear the primary responsibility for household water management, making them key targets for interventions aimed at improving water quality. Access to safe drinking water is essential for health and well-being. However, in many rural areas, water sources are often contaminated with pathogens, which can cause waterborne diseases. Women play a crucial role in household water management, including fetching water, storing it, and preparing it for consumption. Improving their knowledge of water purification methods is therefore critical for improving household water quality. **Aims and Objective of the Study:** This study aimed to assess the effectiveness of a structured teaching programme on the knowledge of household water purification methods among women in a rural area of Agartala, Tripura. **Methodology:** The study employed a quantitative research approach utilizing a one-group pre-test-post-test design among a sample of 60 women residing in selected rural areas. Participants were selected using a non-probability purposive sampling technique. On Day 1, participants completed a structured knowledge questionnaire followed by a structured teaching program on the same day. On Day 7, a post-test assessment was administered. Data analysis involved descriptive statistics (frequency, mean, standard deviation, percentage) and inferential techniques including paired t-tests and chi-square tests to evaluate the effectiveness of the intervention. **Results:** The paired samples t-test revealed a significant increase in participants' knowledge of water purification following a structured teaching intervention (pre-test mean = 8.20, post-test mean = 27.30; $t(59) = -56.58$, $p = .000$, 95% CI). The intervention significantly improved awareness among rural women ($p = .047$, 95% CI), indicating increased responsibility towards family health. **Conclusion:** Structured teaching programmes are a promising intervention for improving household water purification practices and reducing the risk of waterborne diseases among women in rural areas. By providing women with the knowledge and skills to purify water effectively, these programmes can contribute to improved public health outcomes.

KEYWORDS

Water purification, Structured teaching, Rural women, Knowledge improvement, Health awareness

INTRODUCTION

Access to safe and clean water is fundamental to public health, particularly in rural areas where waterborne diseases remain a significant concern. In Agartala, Tripura, like many regions, women play a pivotal role in household water management. However, gaps in knowledge regarding effective water purification methods persist, potentially compromising community health. This study aims to assess the impact of a structured teaching program on enhancing women's knowledge of household water purification methods in selected rural areas. The significance of this study lies in addressing critical health issues related to water quality and empowering women with practical knowledge to safeguard their families against waterborne illnesses. According to recent surveys, a substantial percentage of households in rural areas lack adequate knowledge of water purification techniques, highlighting the urgent need for targeted educational interventions. This research seeks to bridge this knowledge gap and contribute to sustainable health promotion strategies in underserved rural communities.

The need for this study arises from the pressing public health challenges related to waterborne diseases in rural areas of Agartala, Tripura, where access to safe drinking water remains a significant concern.

In Agartala, Tripura, waterborne diseases contribute significantly to morbidity and mortality rates among rural populations. Studies indicate that diarrhea, a common waterborne illness, is a leading cause of morbidity, particularly affecting children under five years old. Furthermore, mortality rates related to waterborne diseases highlight the severity of the problem, with a considerable number of deaths occurring annually due to preventable water-related illnesses.

Objectives Of The Study

1. To assess the level of knowledge regarding water purification methods among the women in selected rural area.
2. To evaluate the effectiveness of structured teaching programme regarding water purification methods among women.
3. To find the association between the pretest level of knowledge regarding water purification methods among rural women with their selected demographic variables.

HYPOTHESIS

H₁: The mean posttest knowledge score of the woman on household water purification methods will significantly higher than the mean pre-test knowledge score after the exposure to structured teaching programme as evidence from structured knowledge questionnaire at 0.05 level of significance.

H₂: There will be significant association between the pre-test knowledge score of woman on household water purification method with the demographic variable at level of 0.05 significant.

Research

Research Approach: A quantitative approach was used.

Research Design: The research design involved a pre-experimental one-group pre-test and post-test design.

Variables Under Study: The independent variable was the structured teaching program, while the dependent variable was the knowledge regarding household water purification methods.

Setting of the Study: The study setting was selected based on criteria including administrative approval, sample availability, feasibility, and cooperation of participants. The pilot study was conducted in Gandhigram, Narsinghar, Agartala, followed by the main study in Belbari area, Jirania RD Block, West Tripura.

Population, Sample, Sampling Technique: The target population comprised women in selected rural areas. The sample consisted of 60 women selected using non-probability purposive sampling based on inclusion criteria.

Sampling Criteria: Inclusion criteria for participants included willingness to participate, literacy in Bengali, and availability during data collection.

Selection and Development of Tools: Tools developed for the study included a demographic data performa and a structured knowledge questionnaire. Content validity of the tools was ensured through expert review, and reliability testing yielded a high reliability coefficient ($r=0.96$).

Pilot Study: A pilot study was conducted to test feasibility and effectiveness, showing a significant increase in post-test knowledge scores compared to pre-test scores.

Data Collection Procedure: Data collection involved administering

the structured knowledge questionnaire before and after the structured teaching program. The teaching program was conducted using audio-visual aids, and data collection was carried out in three phases: pre-test, teaching program administration, and post-test.

Plan for Data Analysis: Data analysis involved coding and transforming data, calculating frequency distributions for demographic variables, and using descriptive and inferential statistics (mean, standard deviation, paired t-test) to analyze differences in pre-test and post-test knowledge scores and associations between knowledge levels and demographic factors.

Ethical Consideration: Formal administrative permissions were obtained, and participants were informed about the study's purpose and confidentiality. Informed consent was obtained from participants before data collection.

RESULTS:

Demographic Key Findings of the Study:

The demographic results indicate that the surveyed rural women had a mean age of 38 years, with most respondents falling within the age groups of 29-38 (36.67%) and 39-48 (35%). Education levels varied, with 45% having primary education and 30% with Madhyamik level education. All respondents were married (100%), and religiously, 55% were Christian and 45% were Hindu. In terms of occupation, 38% were housewives, 25% were in government service, 20% were in business, and 17% were laborers. Regarding water sources, 70% relied on tube wells, and 100% used water filtration as their water purification method.

Table 1 Range, Mean, Median, Standard Deviation Of Pre-test And Post-test Knowledge Score Of The Rural Women In Regard To Water Purification

Assessment of Knowledge	Range	Mean	Median	SD
Pre-test	3-17	8.2	8	2.612
Post-test	21-30	27.3	28	2.115

The table summarizes pre-test and post-test knowledge scores among rural women on water purification. Pre-test scores ranged from 3 to 17 (mean = 8.2, median = 8, SD = 2.612), while post-test scores ranged from 21 to 30 (mean = 27.3, median = 28, SD = 2.115), indicating substantial improvement post-intervention.

Table 2: Represents Paired T Test Between Total Pre-test Knowledge Score And Total Post-test Knowledge Score.

Pretest and Posttest	Paired Differences		t	df	Sig. (2-tailed)
	Mean	SD			
	19.1	2.61	56.58	59	0.00

Table 2 presents the results of a paired t-test comparing total pre-test and post-test knowledge scores. The mean difference between pre-test and post-test scores was -19.1, with a standard deviation (SD) of 2.61. The t-value was -56.58 with 59 degrees of freedom (df). The p-value (Sig. 2-tailed) was 0.00, indicating a statistically significant difference between pre-test and post-test knowledge scores at a 95% confidence level.

Regarding the Correlations between total pre-test and post-test knowledge scores ($r = 0.414$, $p = 0.001$, $N = 60$). The positive correlation indicates a moderate relationship, suggesting that pre-test knowledge influences post-test outcomes. This relationship is statistically significant at a 99% confidence level.

Regarding the relationship between pre-test knowledge scores and demographic variables. ANOVA results show a highly significant effect ($F = 8.160$, $p < .001$) of demographic predictors (age, education, and source of water) on pre-test knowledge scores. Specifically, formal education ($Beta = .576$, $p < .001$) significantly influences pre-test knowledge, whereas age ($p = .443$) and source of water ($p = .719$) do not.

Table 9 illustrates a regression model ($R^2 = .342$) where formal education ($Beta = .617$, $p < .001$) significantly predicts post-test knowledge scores, reinforcing its importance. Conversely, age ($p = .519$) and source of water ($p = .627$) show no significant relationship.

The influence of family size on knowledge scores. The ANOVA results reveal that post-test knowledge scores are significantly affected by family size ($F = 3.216$, $p = .047$), indicating an increase in knowledge after structured teaching. However, pre-test scores show no significant

association with family size ($p = .163$). The formal education emerges as a crucial predictor of knowledge enhancement in rural women regarding water purification methods. These findings underscore the importance of educational interventions in improving health awareness and hygiene practices among rural populations.

CONCLUSION

This study underscores the critical need for increased awareness of water purification methods among rural women. The findings highlight the effectiveness of structured teaching programs in imparting this essential knowledge, which could significantly reduce waterborne diseases in rural communities. Education emerges as a key determinant, with formal education positively influencing knowledge levels. Therefore, efforts should focus on improving educational opportunities from primary through higher levels to empower rural women with vital health information. Additionally, promoting family planning and providing training in family management can enhance women's roles and responsibilities, contributing to overall community well-being. Government and relevant authorities should prioritize these interventions to foster health awareness and improve living standards in rural areas.

Future Recommendations Based on this Study Include:

1. Continued Educational Initiatives: Implement sustained educational programs focused on water purification and hygiene in rural areas. These initiatives should target various educational levels, from primary to higher education, to ensure comprehensive awareness among rural women.
2. Community Engagement and Support: Foster community involvement and support for health initiatives through local leadership and grassroots organizations. Encouraging community participation in health promotion activities can enhance sustainability and effectiveness.
3. Integrated Family Health Services: Integrate family planning and health management services within rural communities. Providing accessible and comprehensive family health programs can empower women and families to adopt healthier practices and improve overall well-being.

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