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EFFECT OF HEALTH EDUCATION INTERVENTION ON ATTITUDE TOWARDS WATER SANITATION AMONG RURAL WOMEN IN NIGER STATE, NIGERIA

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Abstract

This study assessed the "Effect of Health Education Intervention on Attitude towards water sanitation among rural women in Niger State". To achieve the purpose of the study, the null hypothesis was formulated and tested at 0.05 significant level. The study adopts a quasi-experimental design. The population of this study comprised rural women in Niger state, Nigeria with a total population of one million four hundred and ninety-three thousand two hundred and fifty one (1,493,251) and targeted aged eighteen (18) years and above totalling seven hundred and sixty-one thousand five hundred and fifty-eight (761,558) with 100 respondents. The instrument used in data collection was a close-ended questionnaire developed by the researcher. This instrument has a reliability index of 0.78. The descriptive statistics of frequencies and percentage was used to analyse participants' bio-data, while mean and standard deviation was used to answer the research question and the hypothesis was tested using a paired sample t-test at 0.05 alpha level of significance. The result revealed that there was a significant effect of Health education intervention on attitude toward water sanitation among rural women in Niger state ($P = .000 < \alpha = 0.05$). It was concluded that health education intervention enhances rural women's attitudes toward water sanitation. However, it was recommended that health educators in their ongoing efforts in health education should focus on sustaining and reinforcing these positive changes through continuous education, and community engagement, by sensitizing communities using culturally sensitive messaging to ensure long-term attitudinal and behavioural change in the rural communities.

Keywords: Health Education, Water, Sanitation, Attitude, Intervention, Rural women.

Introduction

Water, a vital necessity for existence and a fundamental human right serves as a crucial factor in advancing optimal health and welfare. Nonetheless, the issue of secure and uncontaminated water accessibility continues to pose a substantial obstacle for numerous global communities, particularly impacting those in developing nations. The importance of any water sanitation initiative cannot be overstated in preventing the risks associated with poor water sources, such as diarrhoea, cholera, and typhoid, among other illnesses.

Water sanitation, also known as water purification or treatment, involves the removal of unwanted chemical compounds, organic and inorganic materials, and biological contaminants from water. This process aims to decrease the levels of contaminants like suspended particles, parasites, bacteria, viruses, and fungi that can lead to diseases and potentially fatal consequences for humans. Globally, an estimated 1.7 million people die each year due to waterborne diseases resulting from inadequate water quality and the absence of fundamental water sanitation practices (Thomas et al., 2020). Children under the age of five, particularly in developing nations, are the most vulnerable to diarrheal diseases, as reported by the (World Health Organization (WHO) 2017). The impact of waterborne diseases is most strongly felt in African countries, especially in tropical regions like Nigeria and Kenya (Abdulbaqi et al., 2019). While cases of diseases such as diarrhoea, cholera, and typhoid are prevalent across many tropical African nations, the International Organization for Migration (IOM) highlighted in 2019 that access to clean, purified water is a fundamental human right that remains unfulfilled for a significant portion of the population in developing countries, particularly in rural areas. Disturbing global statistics reveal that over 1.1 billion individuals lack access to safe drinking water sources and purification services (WHO & United Nations International Children Fund, UNICEF, 2017). Lack of sanitation water is an even larger problem; an estimated 2.6 billion individuals live without improved water sanitation services (Akorede et al., 2019; WHO, 2017). Additionally, about eighty per cent (80%) of the world is covered with water and yet millions around the world suffer from water shortages, and lack access to safe water, leading to disease, and death (WHO, 2017).

Sridhar, Okareh, and Mustapha (2020) conducted a study on the assessment of knowledge, attitudes, and practice on water sanitation, and hygiene in some selected Local Government Areas (LGAs) in Kaduna State, Northwestern Nigeria aimed at providing hygiene education programs and increased awareness towards promoting good water sanitation, and hygiene practices. Sridhar et al., (2020) adopted the cross-sectional field survey method, which involved the use of a structured questionnaire and field observational checklist. Findings from the survey showed that only 46.2% treated their water supply and few (16.6%) used the chlorination method. However, the study commended the findings but concluded the communities

were still at risk due to poor practices of household water treatment therefore providing water sanitation, and hygiene education is fundamental for ensuring good health in the study area. Sridhar et al., (2020) conducted a study on the assessment of knowledge, attitudes, and practice on water sanitation, and hygiene in some selected LGAs in Kaduna State, Northwestern Nigeria aimed at providing hygiene education programs and increased awareness towards promoting good water sanitation, and hygiene practices. Sridhar et al., (2020) adopted the cross-sectional field survey method, which involved the use of a structured questionnaire and field observational checklists. Findings from the survey showed that only 46.2% treated their water supply and few (16.6%) used the chlorination method. However, the study commended the findings but concluded the communities were still at risk due to poor practices of household water treatment therefore providing water sanitation, and hygiene education is fundamental for ensuring good health in the study area.

Charles et al. (2021) on the effectiveness of Health Education Intervention in Water Sanitation and Hygiene Practice among Adolescent girls adopted a school-based cluster randomized control trial conducted among 417 adolescent girls (10 to 19 years old) in four schools using the chi-square design to compare the baseline differences between intervention and control groups for WASH practice. The findings revealed that health education intervention was effective in improving water sanitation and hygiene practices among adolescent girls. Mako, Gelanh, and Mamo (2019) carried out a study to assess the knowledge, attitude and practice of Arsi Nagele town inhabitants on water supply, sanitation and hygiene at the household level. The study adopted the community-based cross-sectional study design where data was collected using a structured questionnaire through face-to-face interviews and analysis was done using SPSS version 20 statistical software. Results showed that the majority of the respondents (87.1%) had good practices in the case of water supply, sanitation and hygiene while 12.9% had poor practices.

Rima et al. (2017) carried out a study to assess the knowledge, attitudes, and practices on water sanitation, and hygiene among mothers of under-five children in rural households of Saptari district of Nepal. Rima et al., (2017) adopted a cross-sectional study using a multistage sampling method and analysis was done using the Chi-square test for independence with a significance level of 0.05. The study data was collected using a semi-structured questionnaire and data entry was computed using the SPSS version 16.0. findings showed that 60% of participants did good practice and 40% did poor practice. The study concluded that the poor practice of water sanitation, and hygiene among mothers was affected by their educational level and hence, there is a need to spread information on the importance of the proper practice of water sanitation, and hygiene in rural areas.

The study by Katkuri (2021) aimed to assess the knowledge, attitudes, and practices of mothers with children under five years of age regarding sanitation, water, and hygiene in a rural area. The study utilized a community-based cross-sectional method and a semi-structured questionnaire with face-to-face interviews to collect data. The results of the study indicated that the knowledge of the mothers regarding water purification was poor. This suggests that there is a need for more intense health education in the community to improve their knowledge and understanding of water purification. The study concluded that improving the knowledge, attitude, and practices of mothers towards sanitation, water, and hygiene is crucial in reducing the incidence of illnesses and diseases among children under five years of age in rural areas.

Sridhar, et al., (2020) conducted a study on the assessment of knowledge, attitudes, and practice on water sanitation, and hygiene in some selected LGAs in Kaduna State, Northwestern Nigeria aimed at providing hygiene education programs and increased awareness towards promoting good water sanitation, and hygiene practices. Sridhar et al., (2020) adopted the cross-sectional field survey method which involved the use of a structured questionnaire and field observational checklists. Findings from the survey showed that 15.1% used open containers for water storage, 11.6% used clay pots without covers, 84.9% used cups with handles to fetch water from storage facilities while 4.9% didn't and 5.6% kept the item used for fetching the water on the floor. However, the study commended the findings but concluded the communities were still at risk due to poor attitudes towards handling and storage of household drinking water therefore providing water sanitation, and hygiene education is fundamental for ensuring good health in the study area.

Mako (2019) carried out a study to assess the knowledge, attitude and practices of Arsi Nagele town inhabitants on water supply, sanitation and hygiene at the household level. Mako (2019) adopted the community-based cross-sectional study design where data was collected using a structured questionnaire through face-to-face interviews and analysis was done using SPSS version 20 statistical software. Results showed that the majority of the respondents (90.5%) had a positive attitude to the issue that improper disposal of solid and liquid waste may contribute to the transmission of diseases while 7.1% had a negative attitude and 2.5% had a neutral attitude. According to these findings, Mako (2019) recommended urgent action to create awareness and health education on water supply, sanitation and hygiene. Also, Ibrahim, Lawal, Isa, Tanimu, and Sani, (2017) studied knowledge, attitudes, and practices of household water purification among caregivers of under-five children in Biye community, Kaduna State and adopted a descriptive cross-sectional study design which found that women had a positive attitude toward household water sanitation in the Biye community of Giwa L.G.A., Kaduna state as a result of health education intervention.

Rima et al. (2017) carried out a study to assess the knowledge, attitudes, and practices on water sanitation, and hygiene among mothers of under-five children in rural households in Saptari district of Nepal. The study adopted a cross-sectional study using

a multistage sampling method. Findings showed that 57.14% of participants had positive attitudes toward water sanitation, and hygiene practices while 42.85% had negative attitudes. The study concluded that the attitude towards water sanitation, and hygiene among mothers was affected by their educational level and hence, there is a need to spread information on the importance of proper attitude towards water sanitation, and hygiene in rural areas. Improving water quality is critical to prevent diseases; but improving the knowledge, attitude and practice of water sanitation is key and means to achieving SDGs goal 6. It is on this basis, that the researcher raised the question: what is the effect of health education intervention on attitude towards water sanitation between the control and experimental groups after intervention among rural women in Niger State?

Research Hypothesis

Health education intervention has no significant difference between the control group and experimental group on attitude towards water sanitation after the intervention programme among rural women in Niger State.

Methodology

Quasi-experimental design of pre-test and post-test methods was used for this study. The target population for this study were rural women in Niger State, Nigeria aged eighteen (18) years and above totalling seven hundred and sixty-one thousand five hundred and fifty-eight (761,558), (National Bureau of Statistics, 2021). A sample size of 100 participants (50 experimental and 50 control groups) was used for the study. This is based on the Central Limit Theory, which states that sample sizes equal to or greater than 30 are deemed sufficient for an experimental group (Ganti & Estevez, 2021). The researcher adopted purposive sampling techniques to select the participants for the research based on specific attributes that are of particular interest to the study; that is, Women from a rural settlement faced with challenges of non-accessibility to portable water thereby depending on non-hygienic sources. 50 participants each were drawn from the control and the experimental groups. The instrument used for data collection was a close-ended questionnaire developed by the researchers, titled "Effect of Health Education Intervention on Attitude towards Water Sanitation (EHEIA) among rural women in Niger State, Nigeria. The instrument was validated and a reliability index of 0.7 (70%) was obtained. Fifty (50) interested participants (women) in the settlement as a pre-test with the support of five (5) instructed research assistants who directly asked the questions and took responses from the participants. This was followed by a pretest and intervention session proper following the scheme of work and training manual for six weeks. Thereafter, a post-test was administered on a one-on-one basis with the participants. This was done immediately after the training session was concluded with the support of five (5) research assistants. Descriptive statistics of frequencies and percentages were used to describe the demographic characteristics of the participants and means and standard deviations were used to answer the research question while inferential statistics of paired sample t-test was used to analyse the null hypothesis at 0.05 level of significance using Statistical Packages for Social Sciences (SPSS) 25.0 version.

Results

Table 1: Distribution of Participants by Level of Education

Level of Education of Respondents	Frequency	Percentage
Non-formal education	56	56
Primary education	28	28
Secondary	16	16
Total	**100**	**100**

Table 1 reveals participants with non-formal education are (28; 56%) while those with primary school education are (14; 28%) and participants with secondary education are (8: 16%). In this distribution, participants with secondary school levels of education are more than non-formal and primary education.

Research Question: What is the effect of health education intervention on attitude towards water sanitation between the control and experimental groups among rural women in Niger state?

Table 2: Mean Scores of Responses on the effect of health education intervention on attitude towards water sanitation among Rural Women

Group of Respondents	N	Mean	SD	Mean difference
Experimental Group	50	3.41	.746	0.65
Control Group	50	2.76	.232	

Table 2 shows the effect of health education intervention on attitudes towards water sanitation among rural women. Participants in the experimental group had a mean score of 3.41, while the participants in the control group had a mean score of 2.76. The result showed a mean score difference of 0.65 which indicated that rural women who received health education

intervention had better attitudes towards water sanitation than their counterparts who had no health education intervention. This implies that health education intervention predisposes rural women to positive attitude towards water sanitation in Niger state.

Hypothesis: Health education intervention have no significant difference between the control group and experimental group on attitude towards water sanitation after the intervention programme among rural women in Niger state.

Table 3: Paired Sample t-test Analysis of difference between the control group and experimental group on attitude toward water sanitation after health education intervention among rural women in Niger State

Test Variable	N	Mean	SD	T	Df	P
The difference in the effect of Health education intervention on attitude toward water sanitation	50	-1.504	.450	-23.613	49	.000

*($t = -23.613$, $df = 49$, $P = .000 < \alpha = 0.05$)

Table 3 shows the difference between the control group and the experimental group on attitude towards water sanitation after health education intervention with P = .000. This reveals that the null hypothesis which states that health education intervention has no significant difference between the control group and experimental group on attitude towards water sanitation after intervention programme was rejected. This indicates health education intervention has promoted positive attitude towards water sanitation among rural women who received intervention than their comparts who do not receive intervention on water sanitation in Niger state, Nigeria.

Discussion of Findings

This study found that rural women who received health education intervention had better attitudes towards water sanitation than their counterparts who had no health education intervention. This was confirmed by looking at the results of hypothesis testing where the p-value was ($P = .000 < \alpha = 0.05$). This implies that health education intervention predisposes rural women to positive attitudes towards water sanitation in Niger State. Interestingly, this finding is expected because the intervention programme was designed to make rural women susceptible to the right attitude toward water sanitation. This result corroborates the study by Ibrahim, et al. (2017) studied knowledge, attitudes, and practices of household water purification among caregivers of under-five children in Biye community, Kaduna State and adopted descriptive cross-sectional study design which found that women had a positive attitude toward household water sanitation in the Biye community of Giwa L.G.A., Kaduna state as a result of health education intervention, and contradicts the study of Sridhar et al. (2020) studied on assessment of knowledge, attitudes, and practice on water sanitation, and hygiene in some selected LGAs in Kaduna State, Northwestern Nigeria and adopted a cross-sectional field survey and it was found that only 46.2% treated their water supply and few (16.6%) used the chlorination method, the study then concluded that the communities were still at risk due to poor practices of household water sanitation/treatment but recommended the need for the present research work providing water sanitation and hygiene education which they concluded is fundamental for ensuring good health. These similarities may be due to some level of exposure by the participants to issues related to boiling and chlorination and difference owing to the design adopted by the previous researchers which is descriptive compared to the present study which adopted an experimental design of quasi-experimental that enables the participants to received intervention on water sanitation. This finding has implications for health educators and practitioners. Thus, if health educators/practitioners reach out to rural women with intervention on water sanitation, there would be a high likelihood that they would be inclined to a positive attitude towards water sanitation.

Conclusion

Based on the findings of this study, the study concluded that health education intervention promotes positive attitude towards water sanitation among the rural women in Niger State, Nigeria.

Recommendations

Based on the conclusion of this study, the study recommended that health educators in their ongoing efforts in health education should focus on sustaining and reinforcing these positive changes through continuous education, and community engagement, by sensitizing communities using culturally sensitive messaging to ensure long-term attitudinal and behavioural change in the rural communities.

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