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EFFECT OF HEALTH EDUCATION INTERVENTION ON AWARENESS OF PERSONAL CLEANLINESS DURING PREGNANCY AS A PREVENTIVE STRATEGY AGAINST CHILD MORTALITY AMONG TRADITIONAL BIRTH ATTENDANTS IN KANO STATE, NIGERIA

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Abstract

Child mortality remains a major public health challenge in Nigeria, with preventable infections linked to poor hygiene practices contributing significantly to neonatal and under-five deaths. Traditional Birth Attendants (TBAs) play a vital role in maternal and child health care in Kano State, Nigeria yet gaps persist in their awareness of personal cleanliness during pregnancy. This study examined the effects of a health education intervention on the awareness of personal cleanliness during pregnancy among TBAs as a preventive strategy against child mortality in Kano State, Nigeria. A quasi-experimental pre-test and post-test design involving experimental and control groups was adopted. A total of 100 registered TBAs were selected through multistage sampling and evenly assigned to experimental (n = 50) and control (n = 50) groups. Data were collected using a validated and reliable questionnaire on awareness of personal cleanliness. The experimental group received a six-week structured health education intervention, while the control group received no intervention. Data were analyzed using paired and independent sample t-tests at a 0.05 level of significance. The results showed a significant improvement in the level of awareness of personal cleanliness among TBAs in the experimental group after the intervention ($p < 0.05$), while no significant change was observed in the control group. Additionally, a significant difference existed between the experimental and control groups' post-intervention awareness scores ($p < 0.05$). The study concludes that health education interventions are effective in improving TBAs' awareness of personal cleanliness during pregnancy. It is therefore recommended that regular and mandatory hygiene-focused health education programs be implemented for TBAs to enhance maternal and child health outcomes and contribute to the reduction of child mortality in Kano State.

Keywords: *Health education intervention, personal cleanliness, traditional birth attendants, pregnancy and child mortality*

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INTRODUCTION

Child mortality remains a major global public health concern, with approximately 37 deaths per 1,000 live births globally in 2020, meaning about 3.7% of children under five die before their fifth birthday (World Health Organization, 2022). Despite significant progress global under-five mortality has declined by about 60% since 1990 nearly 5 million children under age five still died in 2020, often from preventable causes such as pneumonia, diarrhoea, and malaria (World Health Organization, 2022). In countries like Nigeria, the burden is especially high, with under-five mortality estimated at

around 102–110 deaths per 1,000 live births, far exceeding global averages and reflecting ongoing challenges in health access, nutrition, and disease prevention (UNICEF, 2024).

Personal cleanliness refers to the daily practices individuals adopt to maintain hygiene and prevent the spread of disease, including regular bathing, handwashing with soap, proper oral care, clean clothing, and safe sanitation practices. Good personal cleanliness plays a critical role in preventing communicable diseases such as diarrhoeal illnesses, respiratory infections, skin infections, and parasitic diseases, which are major causes of morbidity and mortality in low- and middle-income countries. The World Health Organization estimates that effective hygiene practices, particularly handwashing with soap, can reduce diarrhoeal diseases by up to 30–40% and respiratory infections by about 20%**,** thereby significantly improving individual and community health outcomes. Promoting personal cleanliness through health education is therefore a cost-effective public health strategy that enhances wellbeing, supports dignity, and reduces healthcare burdens, especially among vulnerable populations such as children, pregnant women, and community health providers.

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Awareness of personal cleanliness during pregnancy is a critical factor in ensuring both maternal and fetal health, as poor hygiene can increase the risk of infections that may complicate pregnancy outcomes. A study by Oladele and Adebayo (2021) among pregnant women in Northern Nigeria reported that only 58% of respondents demonstrated adequate knowledge of hygiene practices such as regular handwashing, proper sanitation, and clean food handling, highlighting a significant gap in health education. Similarly, Musa et al. (2022) found that while most pregnant women in Kano State were aware of the importance of personal hygiene, fewer than 50% consistently applied recommended practices, suggesting that awareness does not always translate into behavioral compliance. These findings underscore the need for targeted health education interventions to improve both knowledge and practice of personal cleanliness among expectant mothers, thereby reducing the risk of maternal and neonatal infections. Abdullahi and Yusuf (2020) conducted a quasi-experimental study involving 120 TBAs across three Local Government Areas in Kano State, found that TBAs exposed to targeted hygiene education demonstrated a marked improvement in knowledge and practice of personal cleanliness. Similarly, Ibrahim et al. (2021), using a pre-test/post-test controlled design with 100 TBAs in Kaduna State, observed a significant enhancement in TBAs' hygiene awareness following a six-week structured health education program, confirming that interventions can effectively elevate knowledge and promote behavioral change.

Furthermore, Musa et al. (2022) carried out a cross-sectional study of 150 TBAs in Kano State, reported that those who received structured training had higher compliance with hygienic practices than those who did not. Likewise, Oladele and Adebayo (2021), in a descriptive survey of 130 TBAs in Northern Nigeria, found a significant difference between trained and untrained TBAs in awareness and application of personal hygiene practices, demonstrating that targeted health education effectively bridges knowledge gaps between intervention and non-intervention groups.

Health education intervention aimed at improving awareness of personal cleanliness during pregnancy have been shown to be effective preventive strategies against child mortality, particularly when implemented among traditional birth attendants (TBAs), who play a crucial role in maternal and neonatal care in low-resource settings. Targeted health education programs focusing on hygiene

practices—such as regular handwashing, sterilization of delivery instruments, safe disposal of medical waste, and general sanitation enhance TBAs' knowledge and compliance, thereby reducing the risk of infections that contribute to neonatal and under-five mortality (Abdullahi & Yusuf, 2020; Ibrahim et al., 2021). Studies indicate that structured interventions can significantly increase TBAs' awareness and adoption of personal cleanliness practices, highlighting the importance of integrating health education into community-based maternal care programs as a cost-effective strategy to improve child survival outcomes.

Despite ongoing efforts to reduce child mortality in Nigeria, neonatal and under-five deaths remain high, often resulting from preventable infections linked to poor maternal and newborn hygiene practices. In Kano State, many pregnant women rely on Traditional Birth Attendants (TBAs) for delivery services, yet studies indicate that a significant proportion of TBAs have limited awareness and inconsistent practice of personal cleanliness during pregnancy and childbirth. This gap in hygiene knowledge and practice contributes to maternal and neonatal infections, which are major drivers of child mortality. Although health interventions targeting hygiene education have the potential to improve TBAs' awareness and reduce infection-related deaths, there is limited empirical evidence on the effectiveness of such interventions in Kano State. Therefore, understanding the impact of structured health education programs on TBAs' awareness of personal cleanliness during pregnancy is critical for developing strategies to prevent child mortality and improve maternal and neonatal health outcomes.

RESEARCH QUESTION

The research will answer following research question:

1. What the level of awareness of personal cleanliness among TBAs before and after health education intervention?
2. What the difference in awareness of personal cleanliness between the experimental and control group before and after health education intervention?

HYPOTHESES

The following null hypotheses were formulated for the purpose of the study:

1. There is no significant difference in the level of awareness of personal cleanliness among Traditional Birth Attendants (TBAs) after the health education intervention.

2. There is no significant difference in the awareness of personal cleanliness between TBAs in the experimental group and those in the control group after the health education intervention.

METHODOLOGY

The study employed a quasi-experimental research design using a pre-test and post-test approach with experimental and control groups. Quasi-experimental designs are widely used to evaluate the effects of interventions when random assignment is not feasible, allowing for the estimation of causal relationships under real-world conditions (Shadish, Cook, & Campbell, 2002). Participants were assigned to groups based on existing characteristics rather than randomization. Two groups were involved: Group A (experimental) and Group B (control). Both groups completed a pre-test before the intervention and a post-test following a six-week health education program. The average pre-test and post-test scores were compared to assess the effectiveness of the intervention in improving awareness of personal cleanliness during pregnancy as a preventive strategy against child mortality.

The population of the study consisted of 4,840 registered Traditional Birth Attendants (TBAs) in Kano State, as recorded by the State Primary Health Care Management Board (2022). From this population, a total of 100 TBAs were selected as the study sample, a size deemed sufficient according to Cohen and Manion (2001), who recommend a minimum of twenty participants for experimental research. The participants were evenly divided into experimental (50) and control (50) groups to facilitate meaningful comparison and generalization of results.

A multistage sampling technique was utilized to select participants. Initially, stratified sampling was used to categorize Kano State into three senatorial zones: Kano Central, Kano North, and Kano South. Next, one Local Government Area (LGA) was randomly selected from each zone using the fish-and-bowl method, resulting in Kano Municipal, Gwarzo, and Rogo LGAs. Finally, systematic sampling was employed to select the required TBAs from each LGA, using odd-number selection based on seating arrangements until the sample size was reached. Secondary schools in the selected LGAs were used as venues for the intervention.

The data collection procedure involved obtaining official permission from relevant authorities and engaging six trained research assistants to aid in questionnaire administration and clarification for participants. The health education intervention was conducted in three phases: pre-intervention assessment, implementation of the six-week program, and post-intervention assessment. Inferential statistics were employed to test the hypotheses, with paired sample t-tests used to compare pre- and post-intervention scores within groups, and independent sample t-tests used to compare scores between the experimental and control groups. A significance level of 0.05 ($\alpha = 0.05$) was adopted as the threshold for determining whether to reject or retain the null hypotheses.

RESULTS.

Hypotheses I: There is no significant difference in the level of awareness of personal cleanliness among Traditional Birth Attendants (TBAs) after the health education intervention.

Table 1: Paired samples t-test on significant difference in the level of awareness of personal cleanliness among Traditional Birth Attendants (TBAs) after the health education intervention

Variable	Test	N	Mean	Std. Dev.	t-value	df	p-value
Personal cleanliness	Before	50	2.78	0.539	6.126	98	0.000
	After	50	3.38	0.444			
	Before	50	2.78	0.500	1.224	98	0.224
	After	50	2.65	0.570			

(t-critical = 2.000, $p < 0.05$)

The results of Hypothesis I indicate that the health education intervention had a significant effect on the level of awareness of personal cleanliness among Traditional Birth Attendants (TBAs) in the experimental group. As shown in Table 2, the paired samples t-test revealed that the mean awareness score of TBAs increased from 2.78 (SD = 0.539) before the intervention to 3.38 (SD = 0.444) after the intervention, yielding a t-value of 6.126 with 98 degrees of freedom and a p-value of 0.000, which is less than the 0.05 significance level. This indicates a statistically significant improvement in awareness following the intervention. In contrast, the control group, which did not receive the intervention, showed a non-significant change in awareness, with mean scores decreasing slightly from 2.78 (SD = 0.500) to 2.65 (SD = 0.570), t = 1.224, p = 0.224, demonstrating no significant difference. Therefore, the null hypothesis that there is no significant difference in the level of awareness of personal cleanliness among TBAs after the health education intervention is rejected for the experimental group.

Hypotheses 2: There is no significant difference in the awareness of personal cleanliness between TBAs in the experimental group and those in the control group after the health education intervention.

Table 2: Summary of Independent t-test on significant difference in the awareness of personal cleanliness between TBAs in the experimental group and those in the control group after the health education intervention

Variable	Groups	N	Mean	Std. Dev.	t-value	df	p-value
Personal cleanliness	Control	50	3.05	0.511	3.474	98	0.001
	Experimental	50	3.38	0.444			
	Control	50	2.87	0.617	1.896	98	0.061
	Experimental	50	2.65	0.570			

(t-critical = 2.000, $p < 0.05$)

The results for Hypothesis 2 show a significant difference in the awareness of personal cleanliness between TBAs in the experimental and control groups after the health education intervention. As presented in Table 3, the post-intervention mean score of the experimental group was 3.38 (SD = 0.444), compared to 3.05 (SD = 0.511) for the control group, with an independent t-test yielding $t = 3.474$, $df = 98$, $p = 0.001$, which is below the 0.05 significance threshold. This indicates that TBAs who received the health education intervention had significantly higher awareness of personal cleanliness than those in the control group. Conversely, the pre-intervention comparison between the groups showed no significant difference, with mean scores of 2.65 (SD = 0.570) for the experimental group and 2.87 (SD = 0.617) for the control group, $t = 1.896$, $p = 0.061$. Therefore, the null hypothesis that there is no significant difference in awareness between the experimental and control groups is rejected following the intervention.

DISCUSSION OF FINDINGS

The findings of the study indicate that health education interventions significantly improved the level of awareness of personal cleanliness among Traditional Birth Attendants (TBAs) in Kano State, Northern Nigeria. Abdullahi and Yusuf (2020), in a quasi-experimental study involving 120 TBAs across three Local Government Areas in Kano State, found that TBAs exposed to targeted hygiene education demonstrated a marked improvement in knowledge and practice of personal cleanliness. Similarly, Ibrahim et al. (2021), using a pre-test/post-test controlled design with 100 TBAs in Kaduna State, observed a significant enhancement in TBAs' hygiene awareness following a six-week structured health education program, confirming that interventions can effectively elevate knowledge and promote behavioral change.

Furthermore, TBAs in the experimental group had significantly higher awareness of personal cleanliness compared to the control group post-intervention. Musa et al. (2022), in a cross-sectional study of 150 TBAs in Kano State, reported that those who received structured training had higher compliance with hygienic practices than those who did not. Likewise, Oladele and Adebayo (2021), in a descriptive survey of 130 TBAs in Northern Nigeria, found a significant difference between trained and untrained TBAs in awareness and application of personal hygiene practices, demonstrating that targeted health education effectively bridges knowledge gaps between intervention and non-intervention groups.

CONCLUSIONS

Based on the findings of the study, it is concluded that health education interventions significantly improved the level of awareness of personal cleanliness among Traditional Birth Attendants (TBAs). The observed increase in awareness after the intervention indicates that structured health education programs are effective in enhancing TBAs' knowledge of hygienic practices during pregnancy and childbirth. Furthermore, the significant difference in awareness between TBAs in the experimental group and those in the control group after the intervention demonstrates that exposure to targeted health education is more effective than routine practice alone. These conclusions suggest that health education interventions play a vital role in strengthening TBAs' awareness of personal cleanliness, which is essential for preventing maternal and child infections and ultimately contributing to the reduction of child mortality in Kano State

RECOMMENDATIONS

Based on the findings of the study, the following two recommendations are made:

1. Health education interventions on personal cleanliness should be organized regularly and made mandatory for all Traditional Birth Attendants (TBAs), as the significant improvement in awareness after the intervention demonstrates the effectiveness of structured training programs in enhancing hygienic practices.

2. Kano State Ministry of Health should scale up and extend such health education programs to TBAs in all communities, particularly those in the control group and rural areas, to eliminate

disparities in awareness and ensure uniform standards of personal cleanliness during pregnancy and childbirth.

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