

# NURSE LED EDUCATIONAL INTERVENTION ON KNOWLEDGE OF PRIMARY HEALTH CARE SERVICES AND UTILIZATION AMONG MEN IN BIDA LOCAL GOVERNMENT AREA, NIGER STATE, NIGERIA

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## ABSTRACT

*Primary Health Care (PHC) services play a critical role in disease prevention and health promotion, yet men's knowledge and utilization of these services remain low in Bida Local Government Area (BLGA), Niger State, Nigeria. This study aimed to assess the effect of a nurse-led educational intervention on men's knowledge and use of PHC services. Using a quasi-experimental design, 420 participants were selected through Fisher's formula from a population of 160,250. Participants were drawn from four wards, with three assigned to an experimental group (EG) and one to a control group (CG). Data were collected before and after a three-week educational intervention (held one hour per day, three days per week) using a validated questionnaire (Cronbach's alpha: 0.74–0.82). Post-intervention data were gathered eight weeks later and analyzed using descriptive and inferential statistics at a 0.05 significance level. Demographically, most participants were aged 35–44 years (44%), married (80.2%), job-seeking (36%), held bachelor's degrees (58%), and earned less than 30,000 monthly (43.3%). Pre-intervention knowledge scores were  $\bar{X}=11.2$  for the experimental group and  $\bar{X}=9.2$  for the control. Post-intervention scores increased to  $\bar{X}=11.6$  for the experimental group, while the control group remained at  $\bar{X}=9.2$ . Similarly, service utilization scores rose from  $\bar{X}=37.8$  to  $\bar{X}=45.5$  in the experimental group, but decreased slightly in the control group. Statistical tests confirmed a significant association between improved knowledge and PHC utilization, leading to the rejection of the null hypothesis. The study concludes that nurse-led interventions effectively enhance men's PHC knowledge and recommends their integration into community health programs.*

**Keywords:** Educational Intervention; Knowledge; Primary Health Care Services; Utilization; Men.

## INTRODUCTION

It is postulated that men visit primary care facilities less frequently than women, have fewer preventive health checks and, when they do seek medical help, ask fewer questions than women (UNAIDS, 2017). Men also tend to be diagnosed for several life-threatening conditions at later stages than women, and to be less knowledgeable about specific diseases, risk factors and health in general. Seeking medical help is a complex process, shaped by demographic, structural and individual factors such as age, sex, access to healthcare, socioeconomic inequalities, cultural norms, gender roles and education (Llanwarne et al, 2017). Most quantitative research documenting patterns in primary healthcare use is based on cross-sectional analysis of aggregate-level data. These findings have consistently shown that women use primary healthcare services more often than same-aged men—even when excluding consultations for childbearing and birth control (Höhn et al, 2020). Structured instruction provided by a skilled nurse has been reported to be an effective alternative for enhancing patient adherence to medical treatment and self-care. Healthcare providers, especially nurses, can improve patients' health and quality of life by implementing counselling and educational programmes. During counselling, the patient receives information that helps them understand how to best meet their requirements (Bagheri et al, 2021).

Health education programs have been shown to increase men's utilization of PHC services. Johnson et al. (2020) found that educational interventions targeting men significantly improved their knowledge and attitudes towards

preventive care, leading to increased service utilization. Therefore, a nurse-led intervention may be more cost-effective (Berardinelli et al., 2024). A nurse-led educational intervention programme has shown to improve the level of knowledge about health conditions over a short period in the hospital (Justin et al., 2017). Primary health care (PHC) is a veritable tool for achieving health for all peoples of the world and for addressing the main health problems in the community by providing promotive, preventive, curative and rehabilitative services to the populace (Nwokoro et al., 2022). It represents the first contact individuals, families and the community make with the national health system in the health care spectrum (Nwokoro et al., 2022). This study is important because it will not only enhance men's understanding and utilization of PHC services but also contribute to the broader goal of reducing preventable diseases and improving public health outcomes in Bida and its environs.

Men under-utilization of Primary Health Care services in Bida Local Government Area is a public health challenge which should be addressed. Observation and interaction during the researcher's clinical experience in Bida reveals that there is availability of PHC facilities and services. However, the level of awareness and the knowledge about these services among men is low, leading to poor health-seeking behavior. This situation contributes to increased morbidity and mortality rates from conditions that could be prevented or managed effectively with early intervention. The lack of targeted educational interventions addressing the specific needs and barriers faced by men in accessing PHC services exacerbates this problem. Though there are many studies (Charumathi et al, 2020; Nwokoro, 2022; Otovwe & Elizabeth, 2017) on utilization of health care services, but there is paucity of information on nurse-led intervention on knowledge and utilization of PHC by men in Niger state, and specifically in Bida LGA. Therefore, the need for this study on Nurse-Led Educational Intervention on Knowledge of PHC and Utilization Among Men in Bida LGA. Niger State to fill the gap.

## OBJECTIVES

The main objective of the study is to assess the nurse-led educational intervention on knowledge of PHC services and utilization among men in Bida Local Government Area, Niger State.

The specific objectives are to:

1. assess the pre and post intervention of knowledge of participants on PHC services in the control and experimental group among men in Bida Local Government Area, Niger State.
2. compare pre and post intervention mean score knowledge of participants on PHC services in the control and experimental group among men in Bida Local Government Area, Niger State.
3. examine the pre and post intervention of self-reported utilization of PHC in the control and experimental group among men in Bida Local Government Area, Niger State.
4. compare pre and post intervention mean score of self-reported utilization of PHC in the control and experimental group among men in Bida Local Government Area, Niger State.

## METHODOLOGY

**Design:** The study adopted a two group quasi-experimental design with experimental and control groups

**Setting:** the study was carried out in 14 wards of Bida local government area of Niger State, Nigeria.

**Target Population:** The target population involve all adult men that are resident in the 14 wards of Bida local government area (Bariki, Ceniyan, Dokodza, Kyari, Landzu, Masaba I, Masaba II, Masaga I, Masaga II, Mayaki Nadjiya, Nasarafu, Umaru Ma'ajigi I, Umaru Ma'ajigi II, and Wadata). The study population is the subset of the selected target population that was available for study, which are about 160,250 participants.

**Sample Size Determination:** Total population is 318,300 and Fisher's formula was used to calculate minimal sample size for desired statistical power, accounting for type 1 error, using normal distribution for large sample sizes in analytical cross-sectional research. To take care of non-response 10% was added to the calculated sample size to give a total of 420.

**Sampling Technique:** The multi-stage sampling technique was used to determine the sample size of 420 men from 318,300 for this study.

**Stage One - Selection of Primary Sampling Units (PSUs).** This stage involves selecting large clusters or groups, such as cities, towns, or villages. The LGA was clustered into fourteen wards, using proportional stratified random sampling.

**Stage Two - Selection of Secondary Sampling Units (SSUs).** This involves selected PSUs, smaller clusters or groups are elected such as neighbourhoods or wards using simple random sampling techniques. These include Bariki, Kyari, Masaga II, Umaru Ma'ajigi II Wards. Three Wards was used as the experimental group (Umar Majigi II, Kyari, and Masaga II,) and one Ward as the control group (Bariki).

**Stage Three - Selection of Tertiary Sampling Units (TSUs).** This involves selected SSUs, even smaller clusters or groups are selected such as households or individuals. Proportional allocation based on each ward population was done to ensure proper representation among the total 420 respondents.

**Stage Four - Selection of Sample Elements (SSEs)** This involves selecting the actual sample elements, such as individuals or households from the selected TSUs participants that were willing to participate using the simple random sampling technique.

**Instrument:** A 33-item, self-structured questionnaire was validated and used to obtain information from the participants. The questionnaires consist of three sections as follows: Section A - Socio-demographic data of the participants: This section contained 4 items on socio-demographic data such as age,

marital status, monthly income and level of education. Section B - Knowledge of PHC services among men: This section contained 12 items on PHC services. The participant responses were on a discreet scale of "true" or "false." The level of the knowledge was measured on a 12-point reference scale and categorized as thus: high – 9 to 12, moderate – 5 to 8, low – 0 to 4. Section C - Utilization of PHC facilities among men: This section contained 16 items on utilization of PHC facilities and services among men. The participant responses were on a 4-point Likert scale – Never (0), Rarely (1), Sometimes (2), Always (3), and Often (4). The extent of the Utilization of PHC facilities for specific healthcare services were measured on a 64-point reference scale, the utilization levels are categorized as: low (0–21), moderate (22–42), and high (43–64).

**Validity:** The face and content validity of the instrument was established through the judgment of research supervisors/methodologist and modified based on the inputs. Furthermore, to improve the content validity, the researcher conducted a pilot test of the educational intervention and the measurement instruments with a small sample from the target population. This helps to identify any gaps in content coverage and allows for adjustments before the full-scale implementation.

**Reliability:** The reliability of the instruments was ascertained by administering the questionnaire once to about 42 men in Agaie Local Government Area of Niger state - another Local Government Area about 50km from Bida Local Government Area using the test-retest reliability method. The data retrieved was subjected to analysis. Test-retest reliability was operated through three basic steps. First, the same test administered to the same group of individuals at two different times. Next, the correlation coefficient between the scores of the two assessments was calculated. Cronbach's Alpha Based on Standardized Items = .739

**Data Collection:** During the pre-intervention phase, participants were recruited voluntarily, and pretest questionnaires were administered

to both experimental and control groups. The intervention phase featured a three-week nurse-led educational program divided into three modules, delivered once per week. Participants were energized through songs, jokes, and applause for participation. The first week focused on introducing the study, obtaining written consent, and delivering Module 1—an overview of Primary Health Care (PHC), its principles, importance, and services—using lectures, participatory teaching, and visual aids.

In the second week, Module 2 addressed preventive care, screening, vaccinations, and communication with PHC providers. Each session lasted 60 minutes and included a recap of the previous lesson. The third week served as the post-intervention phase, with a review of Modules 1 and 2 followed by administration and immediate collection of the posttest questionnaire, identical to the pretest. The data collected pre- and post-intervention were then analyzed to assess the impact of the training program on participants' knowledge and utilization of PHC services.

The complete questionnaires were collected and checked. The data was manually coded and entered into the computer for analysis. The statistical package for social science (SPSS) version 24 was used as the analytical tool. The data entered into the computer was subjected to both descriptive (i.e. frequency calculation, mean and standard deviation) and inferential (t-test) statistics.

**Ethical Approval:** The study followed a structured, ethically approved process involving pre-intervention, intervention, and post-intervention phases. Ethical clearance was obtained from the Babcock University Health Research Ethics Committee (BUHREC) and the Niger State Ministry of Secondary and Tertiary Health. Informed consent was secured from the Bida Local Government Area. The researcher engaged key community leaders and obtained permission to conduct the study in selected wards. The

purpose, nature, and schedule of the study were communicated, and training venues arranged. Research assistants were trained, and teaching materials—such as projectors, posters, and whiteboards—were prepared.

Ethical approval was obtained from the Niger State Ministry of Secondary and Tertiary Health Research ethic committee. The approval was presented to the Director Health Department Bida local government for permission to gain access to the wards and households in the study setting before data collection. Informed consent was obtained from the participants. Confidentiality of research participants was ensured, other information that can reveal the identity of the households and research participants were excluded from the research instruments.

## RESULTS

A total of four hundred and twenty (420) participants were recruited for this study, and four hundred and four (404) took part in the study, thus representing a 96% response rate. From Table 1, in Masaga the majority of participants (55.4%) are aged 35–44, followed by 22.8% aged 45–64, 19.8% aged 22–34, and a small proportion (2.0%) aged 65 and above. In Umaru Ma'ajigi, half of the participants (50.9%) are in the 35–44 age range, 24.1% are 45–64, 22.2% are 22–34, and 2.8% are 65 and above. Nearly half of the participants in Kyari are split between the 35–44 and 45–64 age groups, each constituting 46.7%, with the remaining 6.7% aged 22–34. In Bariki, a significant majority (71.4%) are aged 22–34, 23.8% are 35–44, and 4.8% are 45–64. Masaga ward are predominantly made up of married participants (89.1%), with 10.9% single. In Umaru Ma'ajigi, the majority are married (80.6%), while 19.4% are single, unlike Kyari where all the participants are married (100%). A significant majority (76.7%) hold a bachelor's degree, 12.2% have a master's degree or higher, and 11.1% possess trade school certification in

Kyari. And a majority (57.4%) earn more than 30,000, 34.3% earn 30,000, and 8.3% earn less than 30,000 in Umaru Ma'ajigi ward. The sociodemographic characteristics of respondents revealed that majority are within

the age of 35 to 44years (44%), married (80.2%), Seeking Opportunities (36%), with bachelor's degree (58%) and earn monthly income Less than #30,000 (43.3%).

**Table 1: Sociodemographic Characteristics of respondents knowledge and utilization of PHC services**

| Age                                 | Masaga |      | Umaru Ma'ajigi |      | Kyari |      | Bariki |      | Total |      |
|-------------------------------------|--------|------|----------------|------|-------|------|--------|------|-------|------|
| Mean age - 39.85                    | Freq   | %    | Freq           | %    | freq  | %    | Freq   | %    | Freq  | %    |
| 22 – 34                             | 20     | 19.8 | 24             | 22.2 | 6     | 6.7  | 75     | 71.4 | 125   | 31   |
| 35 – 44                             | 56     | 55.4 | 55             | 50.9 | 42    | 46.7 | 25     | 23.8 | 178   | 44   |
| 45 – 64                             | 23     | 22.8 | 26             | 24.1 | 42    | 46.7 | 5      | 4.8  | 96    | 24   |
| 65 and above                        | 2      | 2.0  | 3              | 2.8  | ---   | ---  | ---    | ---  | 3     | 1    |
|                                     | 101    | 100  | 108            | 100  | 90    | 100  | 105    | 100  | 404   | 100  |
| Marital status                      |        |      |                |      |       |      |        |      |       |      |
| Single                              | 11     | 10.9 | 21             | 19.4 | ---   | ---  | 43     | 41.0 | 75    | 19   |
| Married                             | 90     | 89.1 | 87             | 80.6 | 90    | 100  | 57     | 54.3 | 324   | 80.2 |
| Divorced                            | ---    | ---  | ---            | ---  | ---   | ---  | 5      | 4.8  | 5     | 1.2  |
|                                     | 101    | 100  | 108            | 100  | 90    | 100  | 105    | 100  | 404   | 100  |
| Employment status                   |        |      |                |      |       |      |        |      |       |      |
| Full time                           | 21     | 20.8 | 17             | 15.7 | 16    | 17.8 | 32     | 30.5 | 86    | 21.3 |
| Part-time                           | 30     | 29.7 | 26             | 24.1 | 15    | 16.7 | 68     | 64.8 | 136   | 34.4 |
| Seeking Opportunities               | 44     | 43.6 | 52             | 48.1 | 44    | 48.9 | 5      | 4.8  | 145   | 36   |
| Currently Retired                   | 6      | 5.9  | 13             | 12.0 | 15    | 16.7 | ---    | ---  | 34    | 8.4  |
|                                     | 101    | 100  | 108            | 100  | 90    | 100  | 105    | 100  | 404   | 100  |
| Educational Level                   |        |      |                |      |       |      |        |      |       |      |
| Primary                             | 1      | 1    | ---            | ---  | ---   |      |        |      | 1     | 0.2  |
| Trade School Certification          | 29     | 28.7 | 12             | 11.1 | 10    | 11.1 | 37     | 35.2 | 88    | 22   |
| Secondary                           | 18     | 17.8 | 34             | 31.5 | ---   | ---  | 16     | 15.2 | 68    | 17   |
| Bachelor's Degree                   | 50     | 49.5 | 62             | 57.4 | 69    | 76.7 | 52     | 49.5 | 233   | 58   |
| Master's Degree or Higher Education | 3      | 3    | ---            | ---  | 11    | 12.2 | ---    | ---  | 14    | 4    |
|                                     | 101    | 100  | 108            | 100  | 90    | 100  | 105    | 100  | 404   | 100  |
| Monthly Income                      |        |      |                |      |       |      |        |      |       |      |
| Less than #30,000                   | 46     | 45.5 | 9              | 8.3  | 55    | 61.1 | 65     | 61.9 | 175   | 43.3 |
| Minimum Wage (#30,000)              | 14     | 13.9 | 37             | 34.3 | 5     | 5.6  | 35     | 33.3 | 91    | 22.5 |
| More than #30,000                   | 41     | 40.6 | 62             | 57.4 | 30    | 33.3 | 5      | 4.8  | 138   | 34   |
|                                     | 101    | 100  | 108            | 100  | 90    | 100  | 105    | 100  | 404   | 100  |

Source: Field Study, 2024

Table 2 presents an analysis of the pre-and post-intervention levels of knowledge of Primary Health Care (PHC) services among participants in an experimental and a control group. The knowledge levels were classified as low (0–4), moderate (5–8), and high (9–12) based on a 12-point reference scale. The experimental group consisted of 299 participants. Before the intervention, the mean knowledge score was 11.1706, with a standard deviation (SD) of 1.71482, indicating a predominantly high level of knowledge among participants. In contrast, the pre-intervention level of knowledge for the control group had a mean score of 9.2381 with a standard deviation (SD) of 3.34125 on a 12-point reference scale. Since the mean score (9.2381) falls within the

high knowledge category (9–12), it indicates that, on average, participants in the control group had a high level of knowledge before the intervention. However, the high SD (3.34125) suggests considerable variation, meaning some participants may have had lower knowledge levels. This study observed that at the Pre-intervention stage, the experimental group score is  $\bar{X}$  = 11.2 and the control group is  $\bar{X}$  = 9.2. Further findings revealed that at the post intervention stage, the experimental group score is  $\bar{X}$  = 11.6 and the control group is  $\bar{X}$  = 9.2, thus there is a difference of 2 among the experimental group. Therefore, there is a slight effect of nurse led intervention programme on Knowledge of PHC Services among men

**Table 2: Pre and Post Intervention Level of Knowledge of PHC Services among men**

| Variable                                                            | N   | Pre- Intervention |         | Post- Intervention |         |
|---------------------------------------------------------------------|-----|-------------------|---------|--------------------|---------|
|                                                                     |     | Mean              | SD      | Mean               | SD      |
| (Knowledge of PHC Services measured on a 12 -point reference scale) |     |                   |         |                    |         |
| Experimental Group                                                  | 299 | 11.1706           | 1.71482 | 11.6054            | .80567  |
| Control Group                                                       | 105 | 9.2381            | 3.34125 | 9.2381             | 3.34125 |

**Source: Field Study, 2024**

Table 3 presents the pre-and post-intervention levels of self-reported utilization of Primary Health Care (PHC) services among male participants in the control and experimental groups. utilization self-reported was measured on a 64-point reference scale. The level of PHC services utilization was categorized as low (0–21), moderate (22–42), and high (43–64).

In the experimental group, the pre-intervention mean score of self-reported utilization among the participants was 37.5385, with a standard deviation (SD) of 7.75642. This result indicates that, on average, participants in this group had a moderate level of self-reported utilization of PHC services before the intervention. Post-intervention, the mean perceived utilization

score increased from 37.5385 to 45.3913, with an SD of 6.59653, thereby placing the majority of participants in the high utilization category (43–64), suggesting an increase in perceived utilization of PHC services post-intervention. The reduction in SD indicates a more consistent perception of PHC utilization among participants.

However, in the Control group, the pre-intervention mean score on perceived utilization among the participants was 29.4857, with an SD of 11.92937. This score falls within the moderate utilization category (22–42), indicating that, on average, participants in this group reported a moderate level of perceived utilization of PHC services before the intervention. The post-

intervention analysis revealed a mean perceived utilization score of  $28.8476 \pm 16.21121$ . This score remained within the moderate utilization category. However, the increase in standard deviation (SD) suggests greater variability in perceived utilization levels among participants post-intervention.

The result of this study showed that at the Pre-intervention stage, the experimental group score is  $\bar{X} = 37.8$  and the control group is  $\bar{X} = 29.4$ . Further findings revealed that at the post

intervention stage, the experimental group score is  $\bar{X} = 45.5$  and the control group is  $\bar{X} = 28.8$ , thus there is a difference of  $\bar{X} = 16.7$ . Therefore, there is an effect of nurse led intervention programme on utilization of PHC Services among men

Pre and Post intervention of self-reported utilization of PHC Services in the control and experimental group among men in Bida Local Government Area, Niger State.

**Table 3: Pre and Post Intervention Level of self-reported utilization of PHC Services**

| Variable           | N   | Pre- Intervention |          | Post- Intervention |          |
|--------------------|-----|-------------------|----------|--------------------|----------|
|                    |     | Mean              | SD       | Mean               | SD       |
| Experimental Group | 299 | 37.8685           | 7.96642  | 45.4613            | 6.54653  |
| Control Group      | 105 | 29.4857           | 11.92937 | 28.8476            | 16.21121 |

**Source: Field Study, 2024**

### Hypothesis

**H01:** There is no significant difference in the pre and post intervention mean score of knowledge in the control and intervention groups on PHC service among men in Bida Local Government Area, Niger State.

A paired t-test was conducted to determine if the total mean difference observed in the participants knowledge of PHC service was due to the intervention programs. As shown in

Table 3 above the intervention programs had significant effect on the participants knowledge in the EG1 ( $t_{298} = 5.86$ ;  $p < 0.01$ ). There was no statistically significant change in the control group ( $t_{104} = 1.00$ ;  $p = 0.32$ ). EG had effect size (ES) of 0.33 (0.45 to 0.22). The results show that the intervention had a statistically significant change in participants level of knowledge on PHC services at the pre and post intervention stages, hence the null hypothesis is rejected.

**Table 4: Paired Sample T-test analysis showing the level of Knowledge of PHC services at Pre-intervention and post -intervention**

| Variables          | Groups  | Mean Diff | S.D  | S.E  | Df  | T    | ES(95%CI)          | p-value |
|--------------------|---------|-----------|------|------|-----|------|--------------------|---------|
| Level of Knowledge | EG      | 0.80      | 2.36 | 0.14 | 298 | 5.86 | 0.33(0.45to-0.22)  | 0.001   |
|                    | Control | 0.00      | 0.09 | 0.00 | 104 | 1.00 | 0.09(0.28 to 0.09) | 0.32    |

Source: Field Study, 2024 (Significant at  $< 0.05$ )

**H02:** There is no significant difference in the pre and post intervention mean score on the Utilization of PHC services in the control and intervention groups among men in Bida Local Government Area, Niger State.

A paired t-test was conducted to determine if the total mean difference observed in the participants utilization of PHC was due to the

intervention programs. As shown in Table 4 above the intervention programs had significant effect on the participants utilization of PHC in the EG ( $t_{296} = 12.57$ ;  $p < 0.01$ ). There was no statistically significant change in the control group ( $t_{104} = 1.06$ ;  $p = 0.28$ ). EG had effect size (ES) of 0.73 (0.87 to 0.60). The results show that the intervention had a

statistically significant change in participant's utilization of PHC services at the pre-

intervention and post intervention hence the null hypothesis is rejected.

**Table 5: Paired Sample T-test analysis showing the Utilization of PHC services at Pre-intervention and post -intervention**

| Variables   | Groups  | Mean Diff | S.D  | S.E  | df  | t     | ES(95%CI)          | p-value |
|-------------|---------|-----------|------|------|-----|-------|--------------------|---------|
| Utilization | EG      | 7.55      | 0.35 | 0.60 | 296 | 12.57 | 0.73(0.87to-0.60)  | 0.001   |
|             | Control | 0.63      | 6.14 | 0.59 | 104 | 1.06  | 0.14(0.08 to 0.29) | 0.28    |

Significant at <0.05

## DISCUSSION OF FINDINGS

This study assesses the Nurse-Led Educational Intervention on Knowledge of PHC and Utilization among Men in Bida LGA. Niger State to fill the gap. The sociodemographic characteristics of respondents revealed that majority are within the age of 35 to 44years, married, Seeking Opportunities with bachelor's degree and earn a monthly income less than #30,000.

This study observed that experimental and control groups had high knowledge levels about PHC services at baseline before the intervention. This study is consistent with Miller et al. (2023), who have depicted men as having a good understanding of the availability of PHC services such as who opened the Canadian men understood the availability of PHC services. However, they were less informed about the importance of regular check-ups and preventive measures. Also, this study aligns with Schmidt et al. (2023), who found that German men had good knowledge of PHC services, mainly due to the country's robust healthcare system and mandatory health insurance. The writers noted that that baseline high knowledge of PHC services noted in the present study may be because most participants are educated and have a Bachelor's Degree.

This study revealed that at the post intervention stage, the nurse led intervention programme on Knowledge of PHC Services among participants the experimental group was effective. The positive mean difference ( $X=2$ ) in the experimental group suggests that the intervention had a small but noticeable effect

on participants' knowledge of PHC services, and the reduction in SD indicates that post-intervention knowledge scores were more consistent across the group.

The finding of this study is supported by Tan et al., (2020) & Okube et al., (2023) who showed that nurse-led interventions significantly improved participants' level of knowledge. This study also support Akpor & Dere (2023) and Kappes et al. (2023), who highlights how focused interventions can boost health knowledge and increase the use of services. Based on this, the researchers opined that the intervention likely moved PHC knowledge from short-term memory to long-term memory in participants, especially in locations where scores increased significantly (Masaga, Umaru Ma'ajigi, and Kyari 2025).

The results of the control group (pre-and-post intervention) suggest that knowledge levels remained unchanged without structured intervention. This study is consistent with Ralph et al. (2019), who discovered that communities with lack or low formal health education programs had low awareness of primary health care (PHC) services. As a result, these communities used health services less frequently.

The result of this study showed that at the Pre-intervention stage, all groups had a moderate level of self-reported utilization of PHC services as baseline. This study support Wang et al. (2020) who found that men were significantly less likely to visit their GP for regular check-ups, instead opting for care only when experiencing severe symptoms using UK general practice data. Similarly, Vaidya et al.

(2019) reported lower rates of preventive care visits among men in the United States. The researcher opined that the moderate level of perceived PHC services utilization may be due to the level of education among most participants; this conformed to the Ronald Anderson (1968) theory of the Behavioral model for health service utilization. This decline in the perceived level of PHC services utilization further emphasizes that without an educational intervention, community members may not experience meaningful changes in health service utilization. The researcher opined that people with insufficient health literacy may delay seeking health services due to not knowing preventive measures or the symptoms of the disease. Yamada et al. (2023) who reported that men in Japan had a high level of awareness about PHC services but often did not utilize them due to cultural factors and perceptions of masculinity.

Findings revealed that at the post intervention stage, there is an effect of nurse led intervention programme on utilization of PHC Services among men. There is a score difference of = 16.7. This study support Li et al., (2020) who demonstrate that health education interventions improve individuals' health-seeking behaviour and PHC engagement among their participants. This study validate Akpor & Dere (2023) and Kappes et al. (2023), who highlights how focused interventions can increase the use of PHC services. The result of the first hypothesis tested show that the intervention had a statistically significant change in participants' level of knowledge on PHC services at the pre-intervention and post intervention stages. The results show that the intervention had a statistically significant change in participant's utilization of PHC services at the pre-intervention and post intervention

## CONCLUSION

Targeted interventions by nurses can effectively improve knowledge and utilization of PHC services among men in the studied area. It is therefore recommended that healthcare authorities and policymakers should develop and integrate nurse-led educational interventions to improve men's knowledge and utilization of Primary Health Care (PHC) services. Regular

community health education sessions should be organized to raise awareness about available PHC services, including preventive care, chronic disease management, and mental health support. The unexpected increase in knowledge scores among the control group suggests the potential influence of external factors, warranting further investigation.

## Conflict of Interest

The Author(s) declares(s) that there is no conflict of interest.

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