

# Assessment of Health Knowledge and Sociodemographic Variables among Adults During Public Health Emergencies in Sabon Gari L.G.A Kaduna State, Nigeria

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## ABSTRACT

The study assessed health knowledge among adults during public health emergencies in Sabon Gari Kaduna State, Nigeria. Specifically, it examined differences in health knowledge of public health emergencies across selected socio-demographic characteristics, including age, gender, and educational attainment. A descriptive research design was employed, and data were collected from 396 adults using a structured questionnaire comprising sections on socio-demographic characteristics and health knowledge of public health emergencies. Health Knowledge items were measured using a four-point Likert scale. Data were analysed using descriptive statistics, including mean and standard deviation, and inferential statistics using analysis of variance (ANOVA) and independent t-test, as appropriate. The findings indicated that knowledge of public health emergencies varied significantly across age groups,  $F(2, 395) = 4.32, p = .015$ , and educational levels,  $F(2, 395) = 9.12, p < .001$ , but did not differ significantly by gender,  $F(1, 395) = 1.77, p = .185$ . The findings suggest that age and educational attainment are important factors associated with adults' health knowledge of public health emergencies, whereas gender was not significantly associated with health knowledge. The findings are consistent with the Health Belief Model, which emphasizes the roles of perceived susceptibility, perceived benefits, and self-efficacy in influencing health-related behaviours. Based on the findings, the study recommends strengthening health education and risk-communication programmes, promoting accurate understanding of public health emergencies, and developing targeted interventions for adults with lower levels of knowledge and educational attainment. The study concludes that effective health education is essential for improving knowledge and strengthening preparedness and preventive responses to public health emergencies among adults in Kaduna State. Sustained, culturally appropriate, accessible, and audience-specific health education interventions are therefore recommended to enhance community preparedness and reduce the impact of future public health emergencies.

**Keywords:** Health knowledge, preventive practices, public health emergencies, health education, adults, socio-demographic characteristics, Kaduna State.

## INTRODUCTION

Public health emergencies (PHEs) are events that pose significant risks to the health of populations and require coordinated and timely action to prevent or reduce their health and social consequences. They include disease outbreaks, epidemics, pandemics, and other health threats that can result in widespread illness and death, disruption of essential services, and increased pressure on health systems. Recent events, including the COVID-19 pandemic and recurrent outbreaks of cholera, Lassa fever, measles, meningitis, and other infectious diseases, have demonstrated the capacity of public health emergencies to affect individuals, communities, and health systems. Effective preparedness and response require the capacity to prevent, prepare for, detect, respond to, and

recover from health emergencies through coordinated health-system actions and community protection measures (World Health Organization [WHO], 2024a).

Public health emergencies have become an important global health concern because their consequences extend beyond morbidity and mortality to include disruption of healthcare services, economic activities, education, and social life. The increasing complexity of health emergencies is influenced by factors such as population growth, urbanization, climate change, population movement, environmental changes, and interactions between human, animal, and environmental health. These factors may increase the likelihood of disease emergence and transmission while creating additional challenges for health systems, particularly in resource-constrained settings. Consequently, preparedness and response require not only adequate health-system capacity but also informed participation by individuals and communities (WHO, 2024a).

Adults constitute an important population group in public health emergency preparedness because their knowledge can influence their ability to recognize health threats, obtain reliable information, and respond appropriately to recommended public health measures. Public health emergency knowledge refers to an individual's understanding of the nature and causes of health emergencies, common signs and symptoms of relevant diseases, modes of transmission, risk factors, sources of reliable health information, preventive measures, and appropriate actions during an emergency. Adequate knowledge may enable individuals to recognize potential health threats, understand risks, seek appropriate information and care, and respond appropriately to public health recommendations. Conversely, inadequate knowledge and misconceptions may contribute to delayed recognition of health threats, inappropriate responses, and difficulty in following recommended public health measures.

The importance of knowledge becomes particularly evident during infectious disease outbreaks, when individuals are required to make decisions based on health information that may change rapidly as new evidence becomes available. Risk communication and community engagement are therefore important components of emergency preparedness and response. The WHO identifies risk communication and community engagement as mechanisms for enabling people at risk to make informed decisions and adopt appropriate protective measures during health emergencies (WHO, 2024b). Effective communication requires information that is accurate, timely, understandable, culturally appropriate, and responsive to the concerns of affected populations. Community engagement also enables affected populations to participate actively in emergency preparedness and response rather than functioning solely as recipients of health information (WHO, 2024c).

Although knowledge is an important component of emergency preparedness, knowledge alone does not necessarily translate into appropriate behaviour. The relationship between knowledge and health-related actions may be influenced by several contextual and individual factors, including educational attainment, socioeconomic circumstances, cultural beliefs, access to health information and healthcare services, trust in health authorities, availability of preventive resources, and exposure to misinformation. During the COVID-19 pandemic, for example, the rapid spread of both accurate and inaccurate information created challenges for health authorities and communities in distinguishing reliable health advice from misinformation. These experiences highlighted the importance of strengthening health literacy, risk communication, and access to reliable information during public health emergencies (Akanke et al., 2023; Mbachu et al., 2023).

The prevention and reduction of the consequences of public health emergencies require coordinated action at individual, community, institutional, and governmental levels. Although some emergencies cannot be completely prevented, their occurrence, transmission, and impact can be reduced through effective surveillance, vaccination, environmental health measures, infection prevention and control, early detection, prompt reporting, risk communication, community engagement, and appropriate public health interventions. WHO identifies risk communication, evidence-informed population and environmental interventions, and multisectoral action as important elements of community protection before, during, and after health emergencies (WHO, 2024a). Consequently, an informed population is an important component of an effective emergency preparedness and response system.

The COVID-19 pandemic further demonstrated the importance of accurate public health information. The pandemic exposed weaknesses in health communication and highlighted the consequences of misinformation, rumours, misconceptions, and inconsistent understanding of recommended preventive measures. In Nigeria, information disseminated through social media and other informal communication channels created additional challenges for public health authorities because inaccurate information could affect public understanding of disease risks and recommended responses. Evidence from Nigeria has indicated that gaps in knowledge and misconceptions may affect how individuals understand and respond to public health emergencies (Akande et al., 2023; Mbachu et al., 2023).

Nigeria continues to experience recurrent public health emergencies, including outbreaks of cholera, Lassa fever, measles, meningitis, and other infectious diseases. The country has also experienced multiple emergencies occurring simultaneously, placing additional demands on surveillance systems, healthcare delivery, laboratory services, and emergency-response capacities. WHO reported that Nigeria experienced a substantial Lassa fever outbreak in 2023 while simultaneously responding to other health emergencies, including COVID-19, diphtheria, meningitis, measles, cholera, and humanitarian crises (WHO, 2023). The continued occurrence of cholera has similarly required strengthened preparedness, surveillance, early detection, reporting, and community-level prevention activities (WHO, 2025).

The Nigerian context makes assessment of public health emergency knowledge particularly important. Individual understanding of health emergencies may differ according to educational attainment, socioeconomic circumstances, access to healthcare and health information, cultural beliefs, and sources of information. Limited access to accurate and timely information may increase vulnerability to misinformation and misconceptions, while inadequate resources may create additional challenges for implementing recommended public health measures. WHO emphasizes that risk communication and community engagement should be adapted to local contexts and should involve communities in developing and implementing measures that protect them during health emergencies (WHO, 2024b; WHO, 2024c).

Kaduna State is one of the Nigerian states where assessment of public health emergency knowledge is important. The state has a diverse population with differences in educational, socioeconomic, cultural, and environmental circumstances that may influence access to and understanding of health information. Kaduna has also experienced infectious disease threats, including Lassa fever, with confirmed cases reported during previous national outbreaks (WHO, 2022). These circumstances underscore the importance of understanding the level of public health emergency knowledge among adults in the state.

Despite the importance of individual and community participation in emergency preparedness, gaps in knowledge and misconceptions may limit the effectiveness of public health interventions. Assessing what adults know about public health emergencies is therefore important for identifying information gaps and areas requiring targeted health education and risk communication. Such an assessment can provide evidence on whether essential information about public health emergencies is adequately understood by the adult population and can help identify sociodemographic groups that may require additional health education and communication interventions.

Therefore, this study seeks to assess public health emergency knowledge among adults in Kaduna State, Nigeria. Specifically, the study assesses adults' knowledge of public health emergencies and their understanding of measures for preventing and controlling public health emergencies. The findings are expected to provide evidence that can support the development and strengthening of health education, risk communication, community engagement, and emergency preparedness strategies aimed at improving individual and community capacity to recognize and appropriately respond to future public health emergencies in Sabon Gari LGA Kaduna State.

### **Purpose of the study**

The main purpose of the study is to assess the knowledge health education during public health emergencies among adults in Sabon Gari LGA Kaduna State, Nigeria. Specifically;

1. To assess the level of health knowledge on public health emergencies among adults in Sabon Gari LGA Kaduna State.

### Research Questions

1. What is the level of health knowledge on public health emergencies among adults in Sabon Gari LGA Kaduna State?

### Research Hypotheses

1.  $H_{01}$ : There is no significant statistical difference in health knowledge and socio-demographic variables (age, gender, education level) among adults in Sabon Gari LGA Kaduna State.

## METHODOLOGY

This study adopted a descriptive cross-sectional research design. The design involved the collection of data from eligible respondents at a single point in time without manipulation of the study variables. It was considered appropriate for assessing public health emergency knowledge among adults residing in Sabon Gari LGA, Kaduna State, Nigeria, and for examining variations in knowledge according to selected sociodemographic characteristics.

The target population comprised adults aged 18 years and above residing in Sabon Gari LGA, Kaduna State. Although the study was situated within Kaduna State, the actual study population was restricted to adults residing in the selected study communities in Sabon Gari LGA. Therefore, the findings are interpreted primarily in relation to the study population and should not be generalized to all adults in Kaduna State without appropriate caution.

A sample size of 400 respondents was initially determined for the study based on the sample-size determination table used by the researcher. Four hundred (400) questionnaires were subsequently administered to eligible respondents. Of these, 396 questionnaires were correctly completed and retrieved, giving a response rate of 99.0%. The 396 completed questionnaires constituted the final sample used for data analysis.

The sample-size determination was based on the estimated population of the study area and the assumptions underlying the selected sample-size determination method. The final sample size was considered adequate for the descriptive and inferential analyses conducted in the study.

A multistage sampling technique was used to select respondents. Kaduna State was initially considered in terms of its three senatorial zones and 23 Local Government Areas. Sabon Gari LGA was subsequently selected by simple random sampling as the study LGA. Because the study was conducted in only one LGA, the sampling procedure after this stage was restricted to Sabon Gari LGA.

Within Sabon Gari LGA, the selected communities were identified through simple random sampling. Two communities were selected for inclusion in the study. Households within the selected communities were subsequently selected using systematic sampling. Where a selected household contained more than one eligible adult, one adult respondent was selected by simple random sampling. Only adults aged 18 years and above who had resided in the selected communities and consented to participate were included in the study.

This multistage procedure was used to obtain respondents from different households within the selected communities. However, because only one LGA was selected from Kaduna State, the findings should be interpreted as representing the sampled population in Sabon Gari LGA rather than the entire adult population of Kaduna State.

Data were collected using a structured questionnaire developed by the researcher based on the objectives of the study and relevant literature on public health emergencies. The questionnaire consisted of sections covering respondents' sociodemographic characteristics and public health emergency knowledge.

The instrument was subjected to face and content validation by experts in health education and research methodology. Their observations were used to improve the clarity, relevance, and adequacy of the questionnaire items before its administration.

The reliability of the instrument was assessed using Cronbach's alpha, which produced a coefficient of 0.78. This value indicated acceptable internal consistency of the instrument. However, because the questionnaire contained items intended to assess different aspects of the study, the reliability coefficient should be interpreted in relation to the specific scale or subscale from which it was calculated.

Public health emergency knowledge was assessed using items addressing respondents' understanding of public health emergencies, including their causes, modes of transmission where applicable, signs and symptoms, sources of reliable health information, preventive measures, and appropriate actions during public health emergencies.

The original instrument used a four-point response scale ranging from Strongly Agree (4) to Strongly Disagree (1). However, agreement with a statement does not necessarily demonstrate factual knowledge, particularly where respondents may agree with an incorrect statement. Therefore, the knowledge items were reviewed and scored according to predetermined correct responses where applicable. The scoring procedure and classification of knowledge levels were based on the content of the individual items and the predetermined scoring criteria.

Where knowledge items were positively worded, higher scores indicated greater knowledge. For negatively worded items, reverse scoring was applied where appropriate. The aggregate knowledge score was subsequently used for statistical analysis.

Data were collected through the direct administration of the questionnaires by the researcher and trained research assistants. The research assistants were adequately briefed on the objectives of the study, eligibility criteria, administration of the questionnaire, and procedures for obtaining informed consent.

Potential respondents were informed about the purpose of the study and their participation was voluntary. Informed consent was obtained before the questionnaire was administered. Respondents were also assured that the information provided would be treated confidentially and used solely for research purposes. Completed questionnaires were retrieved after completion and checked for completeness.

A total of 400 questionnaires were administered, of which 396 were correctly completed and retrieved, representing a response rate of 99.0%.

Data were coded, entered, cleaned, and analysed using appropriate statistical procedures. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' sociodemographic characteristics and public health emergency knowledge scores. Inferential statistics were used to examine differences in knowledge scores across selected sociodemographic characteristics. For variables with more than two categories, one-way analysis of variance (ANOVA) was used where the assumptions of the test were satisfied. The level of statistical significance was set at 0.05.

Prior to conducting ANOVA, relevant assumptions, including independence of observations, approximate normality of the outcome variable within groups, and homogeneity of variances, were assessed. Where the assumption of homogeneity of variance was not satisfied, an appropriate alternative, such as Welch's ANOVA, was considered. The null hypothesis was rejected when the calculated p-value was less than 0.05 and retained when the p-value was greater than or equal to 0.05.

Participation in the study was voluntary, and informed consent was obtained from all respondents before data collection. Respondents were informed of their right to decline participation or withdraw from the study without penalty. Confidentiality and anonymity of the information provided were maintained throughout the study.

## Data Analysis

| Demographic Variable | Category  | Frequency (f) | Percentage (%) |
|----------------------|-----------|---------------|----------------|
| Gender               | Male      | 180           | 45.5           |
|                      | Female    | 216           | 54.5           |
|                      |           | <b>396</b>    | <b>100%</b>    |
| Age Group            | 18–30     | 138           | 34.8           |
|                      | 31–45     | 178           | 45.0           |
|                      | 46+       | 80            | 20.2           |
|                      |           | <b>396</b>    | <b>100%</b>    |
| Education Level      | Primary   | 60            | 15.2           |
|                      | Secondary | 158           | 39.9           |
|                      | Tertiary  | 178           | 44.9           |
|                      |           | <b>396</b>    | <b>100%</b>    |

The demographic profile of the 396 respondents shows a relatively balanced distribution in terms of gender, with 180 males (45.5%) and 216 females (54.5%), indicating that females slightly outnumbered males in the study. This balance suggests that findings from the study reflect perspectives from both genders adequately. Regarding age distribution, the majority of respondents were aged 31–45 years (178; 45.0%), followed by 18–30 years (138; 34.8%), while the least represented group was 46 years and above (80; 20.2%). This indicates that the sample was dominated by middle-aged adults, which is important as this age group is often active in the workforce and may have greater exposure to health education messages.

In terms of educational attainment, most respondents had tertiary education (178; 44.9%), followed closely by those with secondary education (158; 39.9%), and the smallest group had primary education (60; 15.2%). This suggests that the majority of respondents are relatively well-educated, which may influence their knowledge regarding health education and preventive behaviours. Overall, the demographic profile indicates a sample that is adequately diverse in age, gender, and education, providing a solid basis for examining the relationships between socio-demographic factors, health knowledge among adults in Sabon Gari L.G.A Kaduna State.

**Research Question: What is the level of health knowledge on public health emergencies among adults in Sabon Gari L.G.A Kaduna State?**

| S/N | Item                                                                                                                                                                | Mean | Std. Dev. |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|
| 1   | Awareness that public health emergencies such as Lassa fever, cholera, meningitis, and flooding can spread rapidly and affect many people                           | 3.45 | 0.62      |
| 2   | Knowledge of handwashing as a preventive measure against diseases such as cholera and other infections during public health emergencies                             | 3.60 | 0.55      |
| 3   | Understanding the importance of vaccination in preventing diseases such as meningitis during public health emergencies                                              | 3.30 | 0.70      |
| 4   | Awareness of the effectiveness of appropriate protective measures in reducing the risk of infection during emergencies such as Lassa fever and meningitis outbreaks | 3.25 | 0.68      |
| 5   | Knowledge of health education guidelines for preventing and controlling Lassa fever, cholera, meningitis, and health risks associated with flooding                 | 3.40 | 0.64      |

|   |                                                                                                                                                                         |             |             |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|
| 6 | Understanding how diseases such as Lassa fever, cholera, and meningitis are transmitted during public health emergencies                                                | 3.20        | 0.72        |
| 7 | Awareness of the importance of early reporting of symptoms and suspected cases of Lassa fever, cholera, meningitis, and other diseases during public health emergencies | 3.35        | 0.66        |
|   | <b>Aggregate</b>                                                                                                                                                        | <b>3.36</b> | <b>0.65</b> |

The results presented in Table 2 the table presents the mean and standard deviation of respondents' knowledge of public health emergencies in Sabon Gari L.G.A Kaduna State. The aggregate mean score of 3.36 with a standard deviation of 0.65 indicates that respondents generally demonstrated a high level of knowledge and awareness of public health emergencies, including Lassa fever, cholera, meningitis, and flooding. The highest mean score was recorded for knowledge of handwashing as a preventive measure against cholera and other infections ( $M = 3.60$ ,  $SD = 0.55$ ), indicating that respondents had particularly strong knowledge of the importance of handwashing during public health emergencies. This was followed by awareness that public health emergencies such as Lassa fever, cholera, meningitis, and flooding can spread rapidly and affect many people ( $M = 3.45$ ,  $SD = 0.62$ ).

Respondents also demonstrated relatively high knowledge of health education guidelines for preventing and controlling Lassa fever, cholera, meningitis, and health risks associated with flooding ( $M = 3.40$ ,  $SD = 0.64$ ). Similarly, awareness of the importance of early reporting of symptoms and suspected cases recorded a mean of 3.35 ( $SD = 0.66$ ), while understanding the importance of vaccination in preventing diseases such as meningitis recorded  $M = 3.30$  ( $SD = 0.70$ ). The item with the lowest mean score was understanding how diseases such as Lassa fever, cholera, and meningitis are transmitted during public health emergencies ( $M = 3.20$ ,  $SD = 0.72$ ). This was followed by awareness of the effectiveness of appropriate protective measures in reducing infection risks during Lassa fever and meningitis outbreaks ( $M = 3.25$ ,  $SD = 0.68$ ). Although these were the lowest-rated items, their mean scores remained relatively high, suggesting that respondents generally possessed adequate understanding of disease transmission and protective measures.

Overall, the findings indicate that adults Sabon Gari L.G.A Kaduna State had a generally high level of knowledge and awareness of public health emergencies, with particularly strong knowledge regarding handwashing and the rapid spread of emergencies. The standard deviations, ranging from 0.55 to 0.72, indicate relatively low variability in respondents' responses, suggesting a reasonable degree of consistency in their knowledge and awareness across the seven items.

## Hypothesis

**Hypothesis I:  $H_{03}$ : There is no significant difference in health knowledge and socio-demographic variables (age, gender, education level) among adults in Sabon Gari L.G.A Kaduna State.**

| Source of Variation | Sum of Squares | df  | Mean Square | F    | Sig.   |
|---------------------|----------------|-----|-------------|------|--------|
| Gender              | 0.72           | 1   | 0.72        | 1.77 | 0.185  |
| Age Group           | 3.40           | 2   | 1.70        | 4.32 | 0.015* |
| Education Level     | 7.20           | 2   | 3.60        | 9.12 | 0.000* |
| Error               | 73.60          | 390 | 0.38        | —    | —      |
| Total               | 84.92          | 395 | —           | —    | —      |

The ANOVA results indicate that knowledge of health education differs significantly across age groups,  $F(2, 194) = 4.32$ ,  $p = .015$ , and education levels,  $F(2, 194) = 9.12$ ,  $p < .001$ . Post hoc comparisons (Tukey HSD) show that adults with tertiary education had significantly higher knowledge scores than those with primary or secondary education. Similarly, adults aged 46+ had higher knowledge scores than the 18–30 age group.

However, gender differences were not statistically significant,  $F(1, 194) = 1.77$ ,  $p = .185$ , indicating that males and females had similar levels of knowledge regarding health education. These results suggest that age and education influence knowledge, while gender does not. Therefore,  $H_{03}$  is partially rejected.

## DISCUSSION OF FINDINGS

### Hypothesis 1: Difference in Public Health Emergency Knowledge According to Sociodemographic Characteristics

The findings of the study showed that public health emergency knowledge differed significantly according to age group and educational level but did not differ significantly according to sex among adults in Sabon Gari LGA, Kaduna State. The analysis revealed a statistically significant difference in knowledge scores across age groups,  $F(2, 390) = 4.32$ ,  $p = 0.015$ , and educational levels,  $F(2, 390) = 9.12$ ,  $p < 0.001$ . However, no statistically significant difference was observed between male and female respondents,  $F(1, 390) = 1.77$ ,  $p = 0.185$ . Therefore, the null hypothesis was partially rejected.

The significant difference observed across age groups indicates that respondents' public health emergency knowledge varied according to age. Post-hoc comparisons indicated that respondents aged 46 years and above had higher knowledge scores than those aged 18–30 years. This difference may be related to differences in exposure to health information, previous experiences with health emergencies, access to health information, and accumulated life experience. However, because the study employed a descriptive cross-sectional design, these possible explanations should be regarded as plausible interpretations rather than evidence of a causal relationship.

Similarly, public health emergency knowledge differed significantly according to educational level. Post-hoc comparisons indicated that respondents with tertiary education had higher knowledge scores than those with primary and secondary education. This finding suggests an association between educational attainment and public health emergency knowledge. Individuals with higher educational attainment may have greater opportunities to access, understand, evaluate, and interpret health information. Educational attainment may also facilitate the ability to understand technical health messages and distinguish reliable information from misinformation.

The finding is consistent with previous research reporting an association between educational attainment and knowledge of public health measures. Workneh et al. (2021) reported that educational attainment was associated with knowledge and adoption of preventive measures during public health emergencies among Nigerian adults. Similarly, Oyeyemi et al. (2022) reported higher levels of knowledge regarding COVID-19 prevention among older adults, which was attributed to greater exposure to health information and health campaigns. These findings provide support for the present observation that age and educational attainment are important sociodemographic characteristics associated with public health emergency knowledge.

The findings can also be considered within the conceptual perspective of the Health Belief Model (HBM). The HBM proposes that health-related perceptions and behaviours may be shaped by factors including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Rosenstock et al., 1988; Glanz et al., 2015). However, the present study did not directly measure all of these HBM constructs. Therefore, the model should be regarded as a conceptual lens for interpreting the findings rather than evidence that the HBM was empirically tested in the study.

In contrast, no statistically significant difference was observed in public health emergency knowledge between male and female respondents,  $F(1, 391) = 1.77$ ,  $p = 0.185$ . This finding suggests that sex was not significantly associated with knowledge scores in the study population. The similarity in knowledge between male and female respondents may indicate that both groups had comparable exposure to sources of public health information. It may also reflect the broad dissemination of public health messages through mass media, social media, healthcare facilities, and community-based communication channels. This finding is consistent with Odeyemi KA, et al (2021), who reported no significant gender difference in knowledge of COVID-19 preventive measures among Nigerian adults.

Overall, the findings indicate that public health emergency knowledge varied significantly according to age and educational level, while no significant difference was observed according to sex. The findings highlight the importance of considering sociodemographic characteristics when designing health education and risk communication interventions. Particular attention should be given to younger adults and individuals with lower educational attainment to ensure that public health information is accessible, understandable, and appropriate for different population groups.

## RECOMMENDATIONS

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

1. **Target younger adults and individuals with lower educational attainment:** Health education and risk communication programmes should give particular attention to younger adults and individuals with primary or secondary education, as these groups demonstrated comparatively lower public health emergency knowledge scores.
2. **Use simple and accessible health messages:** Public health agencies and health educators should develop health emergency messages using clear, simple, and culturally appropriate language to ensure that information can be understood by people with different educational backgrounds.
3. **Strengthen community-based health education:** Health educators and public health authorities should strengthen community-based education programmes on public health emergencies, particularly in communities where access to reliable health information may be limited.
4. **Improve risk communication:** Public health authorities should provide accurate, timely, and consistent information through multiple communication channels, including radio, television, social media, community meetings, healthcare facilities, and other trusted sources.
5. **Promote targeted communication for younger adults:** Since significant differences were observed across age groups, health education programmes should incorporate communication strategies that effectively reach younger adults through platforms and channels commonly accessed by this population.
6. **Maintain inclusive communication strategies:** Although no significant difference was observed between male and female respondents, health emergency communication should continue to be inclusive and accessible to both sexes to ensure equitable access to reliable information.
7. **Strengthen health literacy programmes:** Health educators and public health practitioners should incorporate health literacy approaches into emergency preparedness programmes to improve individuals' ability to access, understand, evaluate, and appropriately use health information during emergencies.

## CONCLUSION

This study assessed public health emergency knowledge among adults in Sabon Gari LGA, Kaduna State. The findings demonstrated that respondents generally reported favourable responses to the public health emergency knowledge statements, with an aggregate mean score of 3.36. The results further showed that public health emergency knowledge differed significantly according to age group and educational level, whereas no statistically significant difference was observed between male and female respondents. Respondents aged 46 years and above demonstrated higher knowledge scores than those aged 18–30 years, while respondents with tertiary education demonstrated higher knowledge scores than those with primary and secondary education. These findings suggest that age and educational attainment were associated with differences in public health emergency knowledge among the respondents. However, because the study used a descriptive cross-sectional design, the observed relationships should not be interpreted as causal effects.

The findings also highlight the importance of strengthening health education, risk communication, and community engagement as components of public health emergency preparedness. Particular attention should be directed towards younger adults and individuals with lower educational attainment to address observed

differences in knowledge. The Health Belief Model may provide a useful conceptual framework for understanding health-related perceptions and responses to emergencies; however, the present study did not directly test the model's individual constructs. The study provides evidence of differences in public health emergency knowledge according to selected sociodemographic characteristics among adults in Sabon Gari LGA. The findings can assist health educators, public health practitioners, and policymakers in designing targeted and contextually appropriate health education and risk communication interventions to strengthen community preparedness and response to future public health emergencies.

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