

AWARENESS AND USE OF RADIO FOR TYPHOID FEVER PREVENTIVE MESSAGES IN RURAL AREAS OF OYO STATE, NIGERIA

ADEBAYO JOHN JAMES

PhD, Department of Mass Communication, Faculty of Social Sciences, Federal University, Oye-Ekiti, Ekiti State, Nigeria. E-mail: adebayo.james@fuoye.edu.ng

ONAYINKA, TOYIN SEGUN

PhD, Department of Mass Communication, Faculty of Social Sciences, Federal University, Oye-Ekiti, Ekiti State, Nigeria. E-mail: abari.ogah@fuoye.edu.ng

RAPHAEL OLUGBENGA ABIMBOLA

PhD, Department of Mass Communication, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria. Email: gbegbib@gmail.com

OMOWUMI BUKOLA OLASEINDE

PhD, Department of Communication Studies, School of Social Sciences, Bamidele Olumilua University of Education, Science and Technology, Ikere-Ekiti, Ekiti State, Nigeria.

Email: Olaseinde.omowumi@bouesti.edu.ng

OLATUNJI, OLUSOJI SAMSON

Department of Mass Communication, School of Business and Communication Studies, The Polytechnic Ibadan. Email: sojioustimilehin@gmail.com

Abstract

This paper examined awareness and use of radio for typhoid fever preventive messages in rural areas of Oyo State. Focus group discussion (FGD) was adopted to access the opinions, behaviour, attitudes, thoughts and knowledge of the respondents about the awareness and the use of radio preventive message strategies for typhoid fever in the rural areas of the Oyo State. Findings showed that although typhoid-related preventive messages were aired on radio in Oyo State, but those typhoid preventive messages were restricted to urban centres. Findings also showed that handwashing, personal hygiene and safe sources of water are those issues mentioned during radio programmes. Findings also showed that timing and language are two major barriers in making typhoid fever preventive measures on radio a success in rural areas of Oyo State. Therefore, it is recommended that radio stations in Oyo State should beam their searchlight on the incidence of typhoid fever in the rural areas of Oyo State. Radio stations must devote specific programmes for anti-typhoid fever messages. Preventive messages against typhoid fever must be aired or broadcast to the rural dwellers in their local languages at night when they must have returned from their farms.

Keywords: Awareness, Use, Radio, Typhoid Fever, Messages, Rural Areas.

1. INTRODUCTION

Radio is the most popular medium of mass education, entertainment and information of people in the rural areas of Nigeria. Radio, as James (2019) maintains, has the tongue of multiple-

ethnic nationalities, and can mobilise both the illiterate and the educated to support a national cause, including health issues. Development messages and health information are incomplete in the absence of radio medium in rural areas of Nigeria (James, Olatunji and Adunola, 2020). Radio has been a very effective medium in raising public awareness and disseminating preventive messages about typhoid fever and good health practices in the rural areas of Oyo State, and by extension, Nigeria. Okore et al., (2015) found that radio medium is capable to change the wrong perception people have about typhoid fever and strengthen the preventive and control measures. Pam et al., (2018), while investigating co-infection of malaria and typhoid fever among pregnant women attending antenatal clinics at General Hospital, Abuja, Nigeria, found that there is need for massive health education campaigns to educate the pregnant women who visit General Hospitals to correct the wrong perception they have about typhoid fever for effective treatment and control of the diseases.

Modjo et al (2023), while examining the case of nursing care in children with Typhoid fever, found that around 17 million cases of typhoid fever are reported globally with 700,000 people dying from the disease each year. Lo et al., (2018) found that typhoid fever remains a public health problem globally. Kim et al., (2014) also examined optimal prices and outpost locations for rural vaccination campaigns and found that typhoid fever precipitates millions of illnesses and hundreds of thousands of deaths yearly in developing nations. Okore et al., (2015), while examining the prevalence of Malaria and typhoid co-infection in Abia State, Nigeria, revealed that excessive fried oil and excessive intake of alcohol as the major cause of typhoid fever. Breiman (2014) averred that sub-Saharan African states are noted for urban slums, high population density, poor sanitation, limited hygiene and poor water quality, which are accessories for typhoid fever. Also, Bulage et al., (2017) while examining modifiable risk factors for typhoid intestinal perforations during a large outbreak of typhoid fever in Kampala, Uganda, found that most of the typhoid fever case-persons were of low socio-economic status.

However, Scobie et al., (2014) revealed that radio vaccination campaigns played crucial roles in reducing the incidents of typhoid fever in high incidence areas. Vaccination remains one of the greatest success stories with the health sector in Nigeria. Carias et al., (2015), while examining economic evaluation of typhoid vaccination in a prolonged outbreak setting in Uganda, revealed that in spite of growing concerns that typhoid incidence in some areas of sub-Saharan Africa is similar to high incidence areas of Asia, no large-scale typhoid vaccinations campaigns have been carried out there. Hajj et al., (2015) found that vaccines form part of a multifaceted public health response to the emergence of typhoid fever in endemic areas of Nigeria.

A huge amount of money is set aside for the radio campaigns against the growing cases of typhoid fever in the rural areas of Oyo State (James, 2019). The nucleus of the anti-typhoid radio campaigns, as James (2019) observes, is to get people informed about the rising cases of the disease and its preventive strategies aimed at making people form new health behaviours, especially in the rural areas of Oyo State.

Modjo et al., (2023), while investigating the effectiveness of the radio for typhoid fever campaigns, found that some people irrespective of the anti-typhoid fever campaigns on radio, fail to embrace enlightenment campaigns by cleaning their environment, drink safe and quality water, and maintain high quality hygienic practices. As Modjo et al., (2023) maintained, most listeners of radio anti-typhoid campaigns treat anti-typhoid fever campaigns with suspicion and doubt. James, et al., (2020) while investigating acceptance of radio typhoid preventive messages in rural areas, found that majority of rural dwellers treat typhoid preventive messages on radio with skepticism. James et al., (2020) also found that absence of sanitation, good toilets, boreholes and good sources of water has weaponised the scourge of typhoid fever in rural areas. Open defecation practice is still very endemic in rural areas of Oyo State, causing all manner of diseases. James et al., (2020) further found that rural dwellers who live in far-flung and remote places in rural areas are prevented from adequate access to radio preventive messages about typhoid fever, which has defeated the fight against the scourge of disease.

Hajj et al., (2015) argued that most radio stations focused on disseminating preventive messages generally about environmental sanitations. Other preventive measures such as construction of toilets, quality and safe potable water, regular hand-washing and hygienic foods are conspicuously neglected on radio preventive messages about typhoid fever.

Toule (2017) did a longitudinal study on environmental health situations of three different rural communities in Cote D'ivoire and found that poor water quality, poor hygiene and insufficient sanitation are the major causes of water-borne diseases. Toule (2017) also found that 8 million people, half of which are children, die of typhoid fever every year, due to water quality, lack of water, poor hygiene and sanitation. Toule (2017) further found that poor sanitation system could lead to social and psychological problems and increased risk to personal safety. Yousafzai et al., (2018) while investigating mass immunisation against ceftriaxone resistance typhoid fever in Hyderabad, Pakistan, found that typhoid fever causes diarrhea, abdominal pains, vomiting, chest pains, cough and swelling.

There are concerns that radio focused attention on safe drinking water and clean environments, ignoring, to a large extent, the issue of typhoid fever among rural dwellers in most rural areas of Oyo State. Yousafzai et al., (2018) revealed that radio preventive messages could only be effective if the dwellers of rural areas of Oyo State expressed willingness and readiness to adopt typhoid preventive messages. There are concerns as to whether radio allots adequate timing to broadcast messages on typhoid fever. There are also concerns about the nature of language used to disseminate typhoid fever preventive messages, as most of the rural dwellers do not understand English Language. Although radio anti-typhoid preventive messages have been effective in some urban areas, some radio stations only beam sanitation messages to dwellers of rural areas at the expense of specific anti-typhoid messages.

Typhoid fever remains a major public health concern in developing nations of Africa and Asia (Hussain and Khan, 2019). Antillon et al., (2017) posit that typhoid fever is a major cause of mortality and morbidity in low-income countries of the world. Consequently, there is a need to investigate adoption and use of radio typhoid fever preventive messages among rural dwellers in Oyo State. And therefore, the research objectives were to investigate how frequently the

rural dwellers in Oyo State are exposed to radio messages on typhoid preventive measures; understand the effectiveness of radio in the adoption of typhoid preventive messages on radio, ascertain the attitude of rural dwellers in Oyo State towards the use of typhoid preventive measures on radio, find out communication methods or techniques used by radio stations to influence the adoption of typhoid preventive measures, and perceived barriers to radio preventive measures on typhoid fever.

Nga et al., (2018) examined factors that influence the adoption of typhoid preventive measures on radio between dwellers of both rural and urban areas. They found out that urban dwellers adopted typhoid preventive measures on radio more than those in the rural areas. Nga et al., (2018) found that being of low socio-economic status is a factor for contracting typhoid fever. People living in the rural areas lack basic access to safe drinking water, good hygiene and safe foods. James et al., (2020) maintained that rural areas of Nigeria are peopled with citizens that are predominantly illiterate, poor and can easily contract any disease because of the distance between them and the health care facilities.

Hussain and Khan (2019) carried out a study of Outbreak of typhoid fever in Kuwardu Village Pakistan and found that contamination of drinking water sources with human fecal matter was the main cause of typhoid fever in Kuwardu Village. Hussain and Khan (2019) also found that radio messages on handwashing before meal and after attending toilets are means to prevent the spread of typhoid fever. Access to quality and safe water, sanitation and hygiene is a key public health issue in most of Nigerian States (Okereke et al., 2020). Improved sanitation and water treatment have reduced transmission, but widespread vaccination is important to further prevention efforts, especially against antimicrobial resistance typhoid and to prevent outbreaks (Debellut et al., 2019).

While investigating the type of communication techniques used in transmitting messages to people in the rural areas, James (2019) maintained that only radio cannot function effectively in the mobilisation of rural dwellers to embrace preventive messages about typhoid fever. James (2019) affirmed that itinerant information vans should be integrated with radio to attain information objectives of preventing the spread of typhoid fever in the rural areas of Oyo State. While radio stations adopt drama, advertising, health interviews and talk shows to create awareness about the menace of typhoid fever, Okore et al., (2015) noted that most communication techniques about typhoid fever have been grossly inadequate, non-interactive, and listener-unfriendly on radio stations in Nigeria, leading to the continued widespread of typhoid fever in most rural areas. The continued use of English language in the airing of typhoid fever preventive measures on radio stations have disconnected most rural dwellers from embracing typhoid preventive measures on radio.

Health belief model was adopted to guide the study. Salleh et al., (2023) averred that individuals are more or less motivated to perform on the basis of perceptions of their vulnerability to a problem, the severity of the problem, and the benefits and the cost of addressing the problem. In the observation of Qian et al., (2023) health belief model postulates that a person's perceived threat of an illness together with a person's belief in the effectiveness of the recommended health behaviour predicts the likelihood the person will adopt a certain behavioural change.

Health belief model is an effective psychosocial and psychological model for health behaviours (Celik and KOC, 2023). The perceived values of radio typhoid preventive measures may actually be linked to attitudinal change regarding handwashing, environmental sanitations, water and food hygiene.

Health belief model, as Tam et al., (2023) maintained posits that individuals' health actions can be determined by numerous beliefs regarding illness or health behaviour practice, including knowledge of typhoid fever, perceived susceptibility to typhoid fever, perceived severity of typhoid fever, perceived benefits of typhoid fever radio preventive measures, perceived barriers to radio preventive measures on typhoid fever, self-efficacy in the adoption of typhoid fever radio preventive measures, social support and feeding behaviour. Also, the impact of the perceived value or threat of the typhoid fever preventive measures or perceived threat of the disease on actual behaviour can be impacted by self-efficacy. Furthermore, social support can influence the adoption of radio preventive measures on typhoid fever and indirectly affect behaviour by reducing barriers to adoption of radio preventive measures on typhoid fever.

The proposition of health belief theory is relevant to this study it can help predict and explain typhoid awareness, prevention, influence health behavioural change and also explain perceived benefits of radio typhoid preventive messages among rural dwellers in Oyo State. James et al., (2020) averred that rural dwellers' access to radio enlightenment campaigns and preventive measures against typhoid fever goes a long way in curbing the increased widespread of the disease and to influence the people in the rural areas of Oyo State to adopt positive health behaviour by washing their hands before meals and after using toilets, maintain clean environment, drink safe and quality water and maintain personal hygiene, thus making health belief model relevant to this study.

2. MATERIALS AND METHODS

The qualitative research method was used for this study. Focus group discussion (FGD) was adopted to access the opinions, behaviour, attitudes, thoughts and knowledge of the respondents about the awareness and the use of radio preventive message strategies on typhoid fever in the rural areas of the Oyo State, Nigeria. As Wimmer and Dominick (2014) note, FGD is a research strategy applied for understanding people's attitude, opinions, thoughts and behaviour. Oyo State consists of five different political zones, namely, Oyo political zone, Ibadan political zone, Ibarapa political zone, Oke-Ogun political zone, and Ogbomoso political zone. As a result, a multi-stage sampling technique, as Onabajo (2015) avers, enables the researchers to take successive samples from levels or clusters until it is possible to take a random sample of individuals.

A purposive sampling was used to select local government areas in each of the zones that host a radio station. Ndiyo (2010) affirms that purposive sampling is more useful than a probability sample in small-scale surveys. In Nigeria, there are three kinds of Local Government Areas: rural-rural Local Government Areas, Rural-Urban Local Government Areas, and Urban-Urban Local Government Areas. Consequently, Dynasty FM was selected in East Local Government Oyo town, Amuludun FM was selected in Akinyele Local Government Area, Ibadan, Eruwa

FM was selected in Ibarapa East Local Government Area, Oke-Ogun FM, Alaaga, in Itesiwaju Local Government Area of Oke-Ogun, Ajilete FM in Ogbomosho North Local Government Area of Ogbomosho. Each of the Local Government Areas was chosen to be sure that selected respondents have access to radio preventive messages about typhoid fever. Using simple random sampling, the researcher furthered selected political wards assumed to have a larger number of patients of typhoid fever. The political wards that were sampled in each of the rural-rural Local Government Areas that have been selected include: Apaara, Ijaye, Oke-Iserin, Agunrege, and Ayede. The convenient sampling method was used to select the participants for the study. Convenient sampling is chosen because data could be collected speedily and readily when the respondents are available. As Onabajó (2015) maintains, convenient sampling involves selecting individuals that are convenient, individuals in convenient spots such as motor parks, bus stops, schools, and interview whoever is willing to answer or whoever accidentally comes along. Access to respondents in each of the selected political wards was practically impossible, and therefore, respondents were selected on the basis of their close locations, and the knowledge of the subject matter under investigation. We adopted focus group discussion because it allows researchers to have accurate access to thoughts, thinking, opinions, beliefs, awareness and adoption of radio preventive strategies about typhoid fever by respondents. The focus group discussions had five groups with six participants in each of the sessions, making all the members in the five FGD thirty in all.

Moreover, the study maintained a high sense of gender balance. Each of the five groups of participants had 3 men and 3 women, making all the participants in all the groups 30. 15 males and 15 females participated in the FGD sessions. The session maintained high confidentiality because the identities of the participants were never made known based on the ethical considerations. Codes were used for each of the sessions that researchers had in each of the five political wards. Data were analysed and presented using explanation building and equally analysed thematically in line with research objectives. Inferences were made about the respondents' knowledge, awareness, and adoption of radio preventive strategies about typhoid fever in each of the political wards of Oyo State.

3. RESULTS

3.1 Theme 1: Awareness of Typhoid Preventive Messages on Radio

Data gathered from Focus group discussion showed the level of awareness of discussants about typhoid fever preventive messages and the radio stations covering typhoid-related preventive messages in the selected radio stations in the rural areas of Oyo State. Of the five radio stations sampled: Dynasty FM, Amuludun FM, Eruwa FM, Oke-Ogun FM, and Ajilete FM, only Dynasty FM Amuludun FM and Ajilete FM broadcast typhoid-related preventive messages. Providing more explanation, a participant said:

I have never listened to typhoid-related messages on Oke-Ogun FM, a rural community-based radio owned by Oyo State Government. It was my wife that told me about typhoid fever when she went to maternity centre for her ante-natal visit. She told me about the typhoid fever, but most time when our children are affected by typhoid fever local herbs are used to treat the fever.

Similarly, a respondent maintained that he had never listened to typhoid-related messages on Eruwa FM. He maintained that he had only listened to clean environment-related messages, a programme anchored at night on Eruwa FM. He said handwashing, personal hygiene and safe sources of water are those issues mentioned during the programme.

We discovered that although typhoid-related preventive messages were aired on radio in Oyo State, but those typhoid preventive messages were restricted to urban centres. People in the rural areas for which typhoid fever preventive messages are meant are disconnected from access to the messages on radio in rural areas of Oyo State.

3.2 Theme 2: Effectiveness of Radio in the adoption of Typhoid Fever Preventive Messages

The second theme assessed the effectiveness of radio in the adoption of typhoid fever preventive messages. From the discussions, we discovered that radio medium alone cannot fight typhoid malaria fever. Few participants mentioned that they had never heard typhoid fever preventive messages on radio. Shedding more explanations on this assertion, a participant said:

I live in a remote part of Oke-Ogun, and I hardly heard a message on typhoid Fever Preventive messages on Radio. Although, there are other programmes such as child-spacing, handwashing before meals and after using toilets, I have not heard messages about typhoid fever on radio. However, I have heard messages on malaria fever, and methods to use to fight the fever. Radio malaria preventive messages normally tell people to use treated nets before they sleep.

I have never heard preventive messages on radio in the past. Although, radio messages reach far and near, but there are some fundamental messages that are not aired or heard on radio. Besides, radio stations allot more time for political activities, advertisements and interviews more than health messages that could benefit ordinary members of the public, especially those of us living in the rural areas of Oyo State.

We do not listen to radio regularly. The only time we listen to radio was when we are back from our farm at night. Even at night, we only hear news reports on radio, and other indigenous programmes that border on life experiences of an individual or a group of individuals. We observe that radio only reports government activities, not any preventive messages such as that of typhoid fever or malaria.

We discovered that radio alone cannot get typhoid fever preventive messages to all the nooks and crannies of rural areas of Oyo State. Therefore, there is a need to integrate other media of communication such as itinerant information vans and traditional news persons in the fight against typhoid fever in rural areas of Oyo State.

3.3 Theme 3: Attitude towards the adoption of Typhoid Fever Preventive Messages on Radio

The third theme from this discussion is the attitude of the respondents towards the adoption of typhoid fever preventive messages. The theme is relevant to this study because it helped reveal

the attitudinal values, dispositions, and preferences of the respondents to radio typhoid fever preventive messages.

I do not like to listen to health information or messages on radio. Rather, I prefer to listen to music and other entertainment programmes on radio. Most health messages on radio feature people who are unfamiliar with us. I cannot really interact with the typhoid fever preventive messages of strangers on radio. Besides, credibility issues affect the adoption of typhoid fever preventive messages on radio.

We do not have a liking for radio health programmes. We prefer health workers to come and talk to us face-to-face. We so much believe in asking questions about health issues that we may not understand because we know that immediate answers will be supplied. However, persuasive nature of interpersonal interaction is an enabler to many rural dwellers to embrace a certain health programme. We observe that radio only reports government activities, not any preventive messages such as that of typhoid fever or malaria.

We discovered that, apart from typhoid fever preventive measures on radio, health workers are preferable to radio in many rural areas of Oyo State because people could ask direct questions on grey areas about typhoid fever and immediate answer could be supplied. It is imperative for government and policy makers in the health sector to adequately train and re-train health workers on interpersonal communication skills aimed at making people in the rural areas to embrace preventive messages on typhoid fever. Health workers must take preventive messages about typhoid fever house-to-house to reduce the incidence of the typhoid fever to barest minimum. While interpersonal communication system on typhoid preventive measures can reach few people, but with more effectiveness, radio messages can reach a large number of people with little effectiveness about typhoid preventive measures. Therefore, the use of radio and house-to-house by health workers to prevent the growing cases of typhoid fever in rural areas of Oyo State becomes imperative.

3.4 Theme 4: Communication Techniques used for Typhoid fever Preventive Messages

In the fourth theme, we assessed various communication methods or techniques by which typhoid fever preventive messages on radio were presented to the participants. Some of the communication techniques or methods used by radio to present typhoid fever preventive messages to the participants included: talk shows, interviews, documentaries, drama, docudrama, infotainment, jingles, advertisements, and discussion programmes. While some participants averred that they listened to typhoid fever preventive measures on radio dramas, other affirmed they listened to typhoid fever preventive measures on radio health documentaries.

I had the time to listen to Amuludun FM's radio drama. The drama essentially educated people on keeping their environment clean. It was stressed in the radio drama that unclean environments such as bushes, dirty drainages, water logged areas of our homes, open sewage, cracked *soakaway*, unclean source of water, dumping refuse near our houses and a heap of human waste could cause a killer fever called typhoid fever.

I listen to a sponsored message on Dynasty FM from the Oyo State Ministry of Health that enlightens people to do handwashing regularly before meals and clean their hands with soap after using toilets always.

We found that few radio stations in Oyo State beam their searchlight on typhoid fever preventive messages. Those radio stations do not specifically mention typhoid fever, but mention cleaning of surroundings and making the environment clean. However, it is important that all radio stations whether located in the urban centres or rural areas of Oyo State have it as a point of duty to spread anti-typhoid fever messages in the nooks and crannies of Oyo State to halt the growing cases of the fever among children and adults living in both rural and urban areas.

3.5 Theme 5: Perceived Barriers to Typhoid Fever Preventive Measures on Radio

In theme five, we examined the perceived barriers to typhoid fever preventive measures on radio. Some of the participants revealed diverse barriers to listening to typhoid fever preventive measures on radio. AMULUDUN FM, ERUWA FM, DYNASTY FM, OKE-OGUN FM and AJILETE FM are all radio stations established in the rural areas of Oyo State. However, as residents/respondents of these areas mentioned, many factors are responsible for their inability to access typhoid fever preventive measures on radio.

Most times, we are on our farm because of rural nature of this community. Although, we may listen to radio when we are working on our farms but we feel it may slow down our work. We regard listening to radio while working our farm as distraction. However, we listen to radio at night when we are finished with the day's work, but we have not heard any typhoid fever preventive messages on radio.

Most health-related messages on radio are couched in English Language. Majority of us living here are uneducated, and therefore, we find it extremely difficult to interact with any message delivered on radio other than own dialect.

Findings showed that timing and language are important in making typhoid fever preventive measures on radio a success. While people living in the urban areas or cities can relate with any language on radio, health programmes such as typhoid fever or malaria preventive messages on radio, meant for the people living in the rural areas must be couched in their local languages for the preventive measures to be embraced.

4. FINDINGS AND DISCUSSIONS

This study examined awareness and use of radio typhoid fever preventive messages in rural areas of Oyo State. The first objective investigated the awareness of typhoid Preventive messages on radio. Findings showed that although typhoid-related preventive messages were aired on radio in Oyo State, but those typhoid preventive messages were restricted to urban centres. An examination of typhoid fever preventive measures on radio showed that are largely lacking on radio in the rural areas of Oyo State. This finding agrees to the position of James, Bello and Olatunji (2020), who discovered that rural citizens are deformed and disconnected

from the national grid of information whenever radio medium is applied for health communication purposes in rural areas of Nigeria because radio is an urban-centric medium of mass communication. Findings also showed that handwashing, personal hygiene and safe sources of water are those issues mentioned during the programmes. This finding agrees to findings by James (2019) who discovered that most radio stations air enlightenment campaigns generally on health issues in the rural areas of Nigeria in lieu of specifically embarking on a certain health message or campaign to enlighten people about such health issue. Also, Hajj et al., (2015) argued that most radio stations focused on disseminating preventive messages generally about environmental sanitations. Other preventive measures such as construction of toilets, quality and safe potable water, regular hand-washing and hygienic foods are conspicuously neglected on radio preventive messages about typhoid fever.

The second objective investigated the effectiveness of radio in the adoption of typhoid fever preventive messages. Findings showed that radio alone cannot get typhoid fever preventive messages to all the nooks and crannies of rural areas of Oyo State. Therefore, there is a need to integrate other media of communication such as itinerant information vans and traditional news persons in the fight against typhoid fever in rural areas of Oyo State. This finding agrees to Modjo et al., (2023), who argued that people, irrespective of the anti-typhoid fever campaigns on radio, fail to embrace enlightenment campaigns by cleaning their environment, drink safe and quality water, and maintain high quality hygienic practices. Also, consideration should be given to the appropriateness of medium of communication in the design of typhoid preventive measures. Onyeonoro et al., (2013) maintained that there is need to combine radio with other strategies to reach the disadvantaged population. Also, Modjo et al., (2023) maintained most listeners of radio anti-typhoid campaigns treat anti-typhoid fever campaigns with suspicion and doubt. Findings also showed that radio stations allot more time for political activities, advertisements and interviews more than health messages that could benefit ordinary members of the public, especially those of us living in the rural areas of Oyo State.

The third objective examined the attitude of rural dwellers towards the adoption of typhoid fever preventive messages on radio. Findings revealed that health workers are preferable to radio in many rural areas of Oyo State because people could ask direct questions on grey areas about typhoid fever preventive measures and immediate answers could be supplied. While interpersonal communication system on typhoid preventive measures can reach few people with more effectiveness, radio messages can reach a large number of people with little effectiveness about typhoid preventive measures. Therefore, the use of radio and house-to-house by health workers to prevent the growing cases of typhoid fever in rural areas of Oyo State becomes imperative. This agrees to finding by Pam et al., (2018), who noted that there is need for massive health education through media integration campaigns in the rural areas to correct the wrong perception people have about typhoid fever for effective treatment and control of the disease.

The fourth objective investigated communication techniques used for typhoid fever preventive messages. Findings showed that few radio stations in Oyo State beam their searchlight on typhoid fever preventive messages. Those radio stations do not specifically mention typhoid

fever, but mention cleaning of surroundings and making the environment neat. This finding agrees to the position canvassed by Nwammuo and Salawu (2018) who averred that radio owners and operators should do more by evolving health programmes meant for the education of the people in the rural areas of Oyo State. However, it is important that all radio stations whether they are located in the urban centres or rural areas of Oyo State to have it as a point of duty to spread anti-typhoid fever messages in the nooks and crannies of Oyo State to halt the growing cases of typhoid fever among children and adults living in both rural areas.

The fifth objective investigated the perceived barriers to typhoid fever preventive measures on radio. Findings showed that timing and language are two major barriers to making typhoid fever preventive measures on radio a success. The finding agrees to the position of Petrella et al., (2005) who noted that barriers to radio preventive measures on typhoid are worsened by poor knowledge of the consequences of the disease. The finding also agrees to the position of Lwin et al., (2022) who argued that a systematic review in sub-Saharan Africa reported that language was identified as one of the major barriers to accessing healthcare delivery system. This finding also agrees to the position of Khammarnia et al., (2015) who argued that insufficient proficiency in English Language by people in the rural areas of Oyo State is a major barrier to access radio preventive measures. While people living in the urban areas or cities can relate with any language on radio, health programmes such as typhoid fever or malaria preventive messages on radio, meant for the people living in the rural areas must be couched in their local languages for the preventive measures to be embraced.

5. CONNECTION BETWEEN THE THEORY USED AND THE FINDINGS OF THE STUDY

It is crucial to discuss how the HBM connects with the findings of this study. As mentioned earlier, there are factors assumed by this model to facilitate certain health behavioural changes. For instance, the fear of getting sick or killed by typhoid fever compel people in the rural areas to seek medical help in health facilities. Also, rural dwellers' perceived susceptibility to typhoid fever, and severity of typhoid fever may also impose certain health behavioural change on them.

6. CONCLUSION AND RECOMMENDATIONS

The study concluded that radio station established in the rural areas of Oyo State have to strengthen their preventive messages against typhoid fever. Efforts should not be spared by health stakeholders to couch preventive messages against typhoid fever in languages or dialects that people in the rural areas could relate with. Media integration becomes imperative here. House-to-house preventive measures against typhoid fever must be personally communicated to people through face-to-face interaction. Face-to-face interactions offer people the opportunities to ask questions and to get immediate answers. Persuasive nature of interpersonal interaction is an enabler to many rural dwellers to embrace a certain health programme. We observe that radio only reports government activities, not any preventive messages such as that of typhoid fever or malaria. Therefore, it is recommended that radio stations in Oyo State

should beam their searchlight on typhoid fever in the rural areas of Oyo State. Radio stations must specifically mention typhoid fever in their scheduled programmes and mention preventive measures against typhoid fever to halt the growing cases of the fever among children and adults living in both rural and urban areas. Preventive messages against typhoid fever must be aired or broadcast to the rural dwellers in their local languages at night when they must have returned from their farms.

Acknowledgements

There are no special acknowledgements for this article

Declaration of Interest Statement

The authors declare that there are no competing interests

References

- 1) Antillón, M., Bilcke, J., Paltiel, A. D., & Pitzer, V. E. (2017). Cost-effectiveness analysis of typhoid conjugate vaccines in five endemic low- and middle-income settings. *Vaccine*, 35(27). <https://doi.org/10.1016/j.vaccine.2017.05.001>
- 2) Breiman, R. (2014). The rapidly re-emerging burden of endemic typhoid fever in the 21st Century: A preventable by-product of massive urbanization in the developing world? *International Journal of Infectious Diseases*, 21. <https://doi.org/10.1016/j.ijid.2014.03.531>
- 3) Bulage, L., Masiira, B., Ario, A. R., Matovu, J. K. B., Nsubuga, P., Kaharuza, F., Nankabirwa, V., Routh, J., & Zhu, B. P. (2017). Modifiable risk factors for typhoid intestinal perforations during a large outbreak of typhoid fever, Kampala Uganda, 2015. *BMC Infectious Diseases*, 17(1). <https://doi.org/10.1186/s12879-017-2720-2>
- 4) Carias, C., Walters, M. S., Wefula, E., Date, K. A., Swerdlow, D. L., Vijayaraghavan, M., & Mintz, E. (2015). Economic evaluation of typhoid vaccination in a prolonged typhoid outbreak setting: The case of Kasese district in Uganda. *Vaccine*, 33(17). <https://doi.org/10.1016/j.vaccine.2015.02.027>
- 5) ÇELİK, B. A., & KOÇ, V. (2023). Skin Cancer-Related Health Behavior Interventions in the Context of the Health Belief Model. *Psikiyatriye Güncel Yaklaşımlar*, 15(1). <https://doi.org/10.18863/pgy.1112210>
- 6) Debellut, F., Hendrix, N., Pitzer, V. E., Neuzil, K. M., Constenla, D., Bar-Zeev, N., Marfin, A., & Pecenka, C. (2019). Forecasting demand for the typhoid conjugate vaccine in low- and middle-income countries. *Clinical Infectious Diseases*, 68. <https://doi.org/10.1093/cid/ciy1076>
- 7) Hajj, H. I., Chams, N., Chams, S., El Sayegh, S., Badran, R., Raad, M., Gerges-Geagea, A., Leone, A., & Jurjus, A. (2015). Vaccines through Centuries: Major Cornerstones of Global Health. In *Frontiers in Public Health* (Vol. 3). <https://doi.org/10.3389/fpubh.2015.00269>
- 8) Hussain, Z., & Khan, A. W. (2019). Outbreak Investigation of Typhoid Fever in Village Kuwardu, District Skardu, Gilgit-Baltistan (G-B), Pakistan. *Pakistan Journal of Public Health*, 9(2). <https://doi.org/10.32413/pjph.v9i2.315>
- 9) James, A. J., Olatunji, O. S., & Adunola, N. O. (2020). Effectiveness of Radio to Communicate
- 10) Knowledge of Female Genital Mutilation Issues in Oyo State, Nigeria. *Nasarawa Journal of Multimedia and Communication Studies*. 2(2), 193-203.
- 11) James, A. J., Bello, A. O., & Olatunji, O. S. (2020). Influence of Trado-Tronic Media on Malaria

- 12) Fever Campaigns in Atisbo Local Government Area of Oyo State. *AKSU Journal of Communication Research*. (7)2, 145-158.
- 13) James, A. J. (2019). Radio Enlightenment Campaigns against Open Defecation: Audience Perception in Oyo East Local Government Area, Nigeria. *Media and Communication Currents*. 3(2), 18-32.
- 14) Khammarnia, M., Haj Mohammadi, M., Amani, Z., Rezaeian, S., & Setoodehzadeh, F. (2015). Barriers to Implementation of Evidence Based Practice in Zahedan Teaching Hospitals, Iran, 2014. *Nursing Research and Practice*, 2015. <https://doi.org/10.1155/2015/357140>
- 16) Kim, D., Lauria, D. T., & Whittington, D. (2014). Selecting optimal prices and outpost locations for rural vaccination campaigns. *International Regional Science Review*, 37(4). <https://doi.org/10.1177/0160017612461505>
- 17) Lwin, T. T., Apidechkul, T., Saising, J., Upala, P., & Tamornpark, R. (2022). Barriers to accessing TB clinics among Myanmar TB patients attending a Thailand-Myanmar border hospital: a qualitative approach. *Journal of Health Research*, 36(2). <https://doi.org/10.1108/JHR-03 2020-0079>
- 18) Modjo, D., Sudirman, A. A., Hunowu, S. Y., & Husain, F. (2023). Case Study of Nursing Care in Children of Typhoid Fever with Ineffective Intervention of Termoregulation in Child Care Room Rsia Sitti Khadijah. *Journal of Community Health Provision*, 3(2). <https://doi.org/10.55885/jchp.v3i2.268>
- 19) N.C., L., R., G., J.D., S., D.O., G., I.I., B., S.P., L., & R, A. J. (2017). Comparison of strategies and thresholds for VI conjugate vaccines against typhoid fever: A costeffectiveness modeling study. *American Journal of Tropical Medicine and Hygiene*, 97(5 Supplement 1).
- 20) Ndiyo, N. A. (2010). *Fundamentals of Research in Behavioural Science and Humanities*. WUSEN Publishers.
- 21) Nga, T. V. T., Duy, P. T., Lan, N. P. H., Chau, N. V. V., & Baker, S. (2018). The control of typhoid fever in Vietnam. *American Journal of Tropical Medicine and Hygiene*, 99(3).<https://doi.org/10.4269/ajtmh.18-0035>
- 22) Nwammuo, A. N., & Salawu, A. (2018). Effectiveness of Indigenous Language Media in Disseminating Health Information to Rural Women: The Case of Malaria Campaigns Via Radio in Anambra State, Nigeria. *Gender & Behaviour*, 16(3).
- 23) Okereke, E. E., Amadi, C. O. A., Obasi, K. O., Azuamah, Y. C., & Amadi, A. N. (2020). An Investigation into the Relationship between Sanitation Practices and Water-Borne EntericDiseases in Ihechiowa Community, Arochukwu, Southeastern Nigeria. *International Journal of Science and Healthcare Research (Www.Ijshr.Com)*, 5(January).
- 24) Okore, O. O., Ubiaru, P. C., & Nwaogwugwu, U. G. (2015). Prevalence of Malaria and Typhoid Fever Co-Infection: Knowledge, Attitude and Management Practices among Residents of Obuda-Aba, Abia State, Nigeria. *American Journal of Public Health Research*, 3(4).
- 25) Onabajo, O. (2015). *Foundations of Communication Research*. Sibon Books Limited
- 26) Onyeonoro, U. U., Chukwu, J. N., Nwafor, C. C., Meka, A. O., & Oshi, D. C. (2013). Effect of TB behaviour change communication (BCC) intervention in Enugu state, southeast Nigeria. *Health Education*, 113(6). <https://doi.org/10.1108/HE-10-2012-0050>
- 27) Pam, V. A., Landan, S., Adejoh, V. A., Pam, D. D., & Danjuma, K. (2018). Co-infection of malaria and typhoid fever among pregnant women attending antenatal clinics at general hospital, wuse, federal capital territory (FCT), Abuja, Nigeria. *Nigerian Journal of Parasitology*, 39(2). <https://doi.org/10.4314/njpar.v39i2.6>

- 28) Petrella, R. J., Speechley, M., Kleinstiver, P. W., & Ruddy, T. (2005). Impact of a social marketing media campaign on public awareness of hypertension. *American Journal of Hypertension*, 18(2). <https://doi.org/10.1016/j.amjhyper.2004.09.012>
- 29) Qian, P., Duan, L., Lin, R., Du, X., Wang, D., Zeng, T., & Liu, C. (2023). Decision-making process of breastfeeding behavior in mothers with gestational diabetes mellitus based on health belief model. *BMC Pregnancy and Childbirth*, 23(1). <https://doi.org/10.1186/s12884-02305527-3>
- 30) Salleh, H., Avoi, R., Abdul Karim, H., Osman, S., Dhanaraj, P., & Ab Rahman, M. A. 'Imran. (2023). A Behavioural-Theory-Based Qualitative Study of the Beliefs and Perceptions of Marginalised Populations towards Community Volunteering to Increase Measles Immunisation Coverage in Sabah, Malaysia. *Vaccines*, 11(6). <https://doi.org/10.3390/vaccines11061056>
- 31) Scobie, H. M., Nilles, E., Kama, M., Kool, J. L., Mintz, E., Wannemuehler, K. A., Hyde, T. B., Dawainavesi, A., Singh, S., Korovou, S., Jenkins, K., & Date, K. (2014). Impact of a targeted typhoid vaccination campaign following cyclone Tomas, Republic of Fiji, 2010. *American Journal of Tropical Medicine and Hygiene*, 90(6). <https://doi.org/10.4269/ajtmh.13-0728>
- 32) Tam, C. C., Li, X., Li, X., Wang, Y., & Lin, D. (2023). Adherence to preventive behaviors among college students during COVID-19 pandemic in China: The role of health beliefs and COVID-19 stressors. *Current Psychology*, 42(20). <https://doi.org/10.1007/s12144-021-01942-x>
- 33) Toule, A. C., Koussemon, M., Adingra, A. A., & Kouadio-N'gbesso, N. (2018). Environmental health situation of three rural communities living in the immediate vicinity of Ebrié Lagoon, Côte d'Ivoire. *Journal of the Cameroon Academy of Sciences*, 14(1). <https://doi.org/10.4314/jcas.v14i1.2>
- 34) Wimmer, R. D., & Dominick, J. R. (2014). *Mass Media Research: An Introduction*. WADSWORTH Cengage Learning.
- 35) Yousafzai, M. T., Karim, S., Masood, N., Khanzada, J., & Qamar, F. N. (2018). Adverse events following immunization with typhoid conjugate vaccine: Mass immunization against ceftriaxone resistance typhoid fever in Hyderabad, Pakistan. *American Journal of Tropical Medicine and Hygiene*, 99 (4 Supp.