

RESEARCH ARTICLE

Influence of Broadcast Media Messages on the Knowledge, Attitude and Practice of Maternal and Child Health among Reproductive-age Women in South-East Nigeria

Shalom C. Oparaugo¹, Dr Nduka N. Nwankpa², Dr Edith U. Ohaja³

^{1,3}*Department of Mass Communication, University of Nigeria, Nsukka*

²*Department of Journalism and Media Studies, Rivers State University, Nkpolu-Oroworukwo, Port Harcourt*

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Corresponding Author: Dr Edith U. Ohaja, Department of Mass Communication, University of Nigeria, Nsukka.

Abstract

The study investigated the influence of the broadcast media on the knowledge, attitude and practice of safe maternal and child health among reproductive-age women in South-East Nigeria. Out of the five states in the South-East region of Nigeria, three states were selected and 385 women of reproductive age were sampled using the multi-stage sampling technique. It was found that reproductive-age women in the South-East relied mostly on television and the radio as primary sources of information on maternal and child health; however, they believed that television was more effective than the radio at spreading these messages. Also, maternal and child health messages were rarely promoted by other radio and television programs apart from talk shows and health programs. It was concluded that proper usage of maternal and child healthcare services could be improved by frequently promoting broadcast media messages through other programs such as news, drama and documentary. It was recommended that helplines/call lines should be properly advertised and made available to women to call in and speak to professional doctors concerning any issues they might have during or after pregnancy.

Keywords: Maternal and child health, Broadcast media, Reproductive-age women, Media message, Nigeria.

1. Introduction

The overall health and wellbeing of individuals in any civilized society is dependent on their ability to identify risk factors and danger signs of health issues. The ability to detect these danger signs is a result of proper education and sufficient information. The broadcast media have been recognized as major channels for education among urban and rural dwellers in several societies.

Given the high priority placed on health in human society, broadcast media such as radio and television disseminate information on health issues in an effort

to inform, educate, persuade and modify public health behavior (Soola, 2009). Again, the broadcast media present information about society, stressing both its accomplishments and failings as well as its norms and ideals. Additionally, they offer cultural topics that aid in teaching the populace proper etiquette and cultural expectations (Onabanjo, 2000).

Broadcasting has been described as the act of transmitting messages from a station to a diverse audience dispersed throughout a reasonable area of coverage. No matter their location or time, as long as they are within the effective range of coverage, the audience receives the messages simultaneously (Owuamalam, 2014).

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Similarly, Kuewumi (2009, p. 139), sees broadcasting as “the deliberate distribution of information, education and entertainment to a sizable and diverse audience through the radio and television, two most important mass mediums.”

In Africa, for instance, radio is regarded as an essential medium for education. The channel helps many Africans who are unable to read, write and reside in the hinterlands, to access information, entertainment and education because it is less expensive (Chioma, 2014). In a similar vein, television is regarded as the most effective mass medium created by humans. Television, unlike radio, offers its audience the chance to both observe and listen to its messages. However, due to the high cost of purchasing a set, the lack of electricity and inadequate coverage, it is a costly medium (Chioma, 2014).

Broadcast stations are able to meet their obligations to the public through various carefully designed programs targeted at different audience segments. These programs are expected to meet certain goals, which Ohaja (2022) states could be the broadcast station’s general purpose, audience interest or a particular programme’s objective.

As Zamawe *et al.* (2016) have observed, every day people lose their lives needlessly because they lack access to medical professionals or information that would have given them the chance to make right choices. Access to trustworthy health information is, therefore, essential for achieving better and long-lasting health outcomes.

Information about reproductive-age women’s health available in rural areas is a key issue in developing countries. The lack of sufficient information on maternal and child health issues limits women from making informed health decisions. When faced with numerous gynecological issues during pregnancy, women in developing nations like Nigeria do not appear to use reproductive health facilities more frequently (Arnolu *et al.*, 2004).

Results of prior studies reveal that difficulties during pregnancy or childbirth claim the lives of more than 350,000 pregnant women each year, along with the lives of their unborn children (99 percent are found in less developed nations). And Nigeria as these studies show, has the second highest estimated maternal and

child deaths globally. The WHO estimated the maternal mortality ratio (MMR) to be over 800 maternal deaths per 100,000 live births with a neonatal mortality of 33 per 1000 live births in 2019. These figures contrast with corresponding figures from the UK and the USA which are around 10-18 deaths per 100,000 live births, respectively with neonatal mortality rates below 4 deaths per 1000 live births. (WHO, 2019; Nasir *et al.*, 2022).

Nigeria, which is the most populated nation in Africa, has the worst rates of maternal deaths worldwide (WHO, 2016). In Nigeria, a woman dies from pregnancy and child birth-related avoidable causes every 13 minutes. An estimate of 30 to 50 women may sustain serious complications such as organ failure, uterine rupture, disabilities and other lifelong diseases during pregnancy or delivery. Maternal and newborn mortality rates in Nigeria are among the highest globally and large socioeconomic inequalities exist in access to maternal, newborn and child health (MNCH) services in the country (Mao *et al.*, 2023)

The rising number of deaths among pregnant women and young children is a result of numerous dangerous practices in the fields of maternal and child health, one of which is unsafe abortion. According to a 2015 WHO research, approximately 3,000 Nigerian women managed in hospitals for complications from such procedures die each year. Similarly, prolonged labor, anaemia, eclampsia, infections and illnesses that existed prior to pregnancy are other direct causes of mother and infant fatalities (WHO, 2015).

The global maternal death ratio decreased by 44% between 1990 and 2015, from 385 fatalities to 216 deaths per 100,000 live births (UNICEF, 2016). Although this is admirable, it falls short of the 5.5% annual rate required to achieve the desired three-quarters decrease in maternal fatalities by 2015 under the Millennium Development Goal 5 (UNICEF, 2016). Maternal mortality rates decreased in every region of the world between 1990 and 2015, yet they are still unacceptably high in sub-Saharan Africa (Kalipeni *et al.*, 2017).

Similarly, 5.9 million kids under the age of five pass away every year from a variety of primarily preventable ailments. The first five years of a child’s life are when they are most susceptible to a variety of lethal illnesses,

such as pneumonia, diarrhea and malaria. Chronic malnutrition, poverty, limited access to treatment and preventative care contribute to the deterioration of these conditions in the world's poorest nations (USAID, 2013). Numerous complex, interrelated elements have an impact on children's health from more visible, immediate medical difficulties to complex economic, societal and political situations.

Over the previous two decades, child mortality rates have significantly decreased throughout the world, each day more than 16,000 kids under the age of five pass away. The majority of these deaths can be avoided with the use of straightforward, tested interventions like affordable, simple-to-administer vaccines, appropriate use of mosquito nets, fundamental hygiene and sanitation. These interventions are not reaching the most vulnerable and underprivileged children (WHO, 2013). Therefore, to advance the development of nations, especially Nigeria, it is essential to address the issue of child survival.

Exposure to the media has promoted positive health outcomes in relation to family planning, HIV/AIDS awareness and having skilled birth attendants (SBA) at delivery because the media are tools for disseminating information (Asp *et al.*, 2014). The WHO's major recommendation for lowering maternal and infant mortality in developing nations involves pregnant women, their families and communities being adequately prepared for childbirth (Bhutta *et al.*, 2012).

The reality is that when people are aware of things that could be harmful to their health, they might decide to change their unhealthy habits (Hajara, 2014). Since public health programs always call for behavioral change and behavioral change cannot take place if the specific target audience are not aware of the messages being disseminated to them, communication is an extremely important instrument for behavioral change (Zhang *et al.*, 2005; Thornson, 2006).

One underlying cause of maternal and child mortality in Nigeria is ignorance and lack of sufficient information on maternal and child health on the broadcast media. In agreement, Kristiana (2009) states that pregnant women underutilize antenatal care services (ANC) on the grounds that the majority of them do not receive enough health information from the media. Studies

have shown that regular media use, exposure and knowledge of ANC services can lower mother and infant mortality (Sood *et al.*, 2009). Numerous studies have demonstrated that exposure to the media can increase people's awareness of health-related concerns (Hajara, 2014; Atakiti & Ojomo, 2015; Utalor, 2019).

Despite the aforementioned, it appears that most pregnant women in Nigeria are not sufficiently exposed to health messages in the media in order to become aware of the value of utilizing antenatal health care. There is not enough health education programs available on the broadcast media even when women have access to the media to move them to attend ANC (Hajara, 2014). Women's access to and use of the media are generally constrained by a number of circumstances, including poverty, illiteracy and time.

In light of the foregoing, this study probes into the effectiveness and consistency or otherwise of broadcast media in conveying health information on maternal and child health and the impact of the conveyed messages on the attitude and practice of safe maternal and child health among reproductive-age women in South East Nigeria.

2. Literature Review

2.1 Media Coverage of Maternal Health Issues

Several academics (Firmansyah *et al.*, 2001; Yahaya *et al.*, 2009; Adeniran, 2009; Abubakar *et al.*, 2013; Asp *et al.*, 2014; Utalor, 2019) have expressed interest in the maternal health topics covered in the media. However, only a small percentage of journalists have experience covering and reporting on women's health issues, according to a study by Firmansyah *et al.*, (2001). They also do not have access to a network of reliable sources for this type of news. This led them to conduct research for a project (FRONTIERS) in Indonesia with the intention of convincing the media to increase the quality of its reporting on important reproductive issues. A slight increase (7%) was seen in the project's results.

The project involved a total of 22 journalists from both national and local media. The researchers had discussions with print media health editors and reproductive health specialists in September 1999. In order to strengthen their ability to write pieces based

on research findings and to better their understanding of reproductive health, a workshop was conducted for journalists in January 2000. Training modules like role plays, testimonials, stimulations and field trips were utilized to investigate various methods of information gathering and to practice writing articles on interesting subjects. The project had a favorable effect on how reproductive health was covered in Indonesian print media, according to the findings. There were more features and news stories written. This suggests that although the number was still low, media coverage and reporting of maternal health issues increased after some interventions. (Firmansyah *et al.*, 2001)

Adeniran (2009) conducted a study to look into how the Millennium Development Goals (MDGs), which include mother and child health, were covered in the media. Two Nigerian newspapers, *Punch* and *The Guardian*, were examined. The results indicated that although MDGs for maternal and child health and universal primary education received the least amount of reporting, MDGs for hunger and poverty, environmental sustainability and global cooperation received the most. Additionally, Adeniran found that out of 22,750 stories published in the 182 editions sampled, a significant portion of them in the *Punch* focused on mother and child health. Only 592 (2.6%) had MDGs. In a similar vein, over 25,480 stories had a little percentage higher than 3.3%. The total number of stories in the newspaper utilized was 48,230, but just 2.9% of those were about the MDGs. These findings are consistent with those of Firmansyah and his associates.

Abubakar *et al.* (2013) conducted a study to determine the level of media coverage of cervical cancer, which is also a maternal health issue. They studied national weekly news magazines in Nigeria. Three issues from *TELL* and *The News* magazines were chosen from each month in a three-month period using the random selection approach, resulting in a sample size of 18 issues. The two periodicals' coverage of maternal health-related problems was quite scanty, with the majority of their articles focusing on business, advertising and politics. The findings corroborated those of earlier studies which showed that the media paid scant attention to maternal health issues. Another study, Asp *et al.* (2014), examined the connection between media exposure and birth readiness among women living in the Mbarara District in South-West Uganda. The study's

conclusions demonstrated that high media exposure had no discernible impact on the preparation of the female respondents who were surveyed. Considering that the media have the power to influence public opinion, they recommended that the mass media increase their efforts to report on mother and child health. Once again, this demonstrated that although maternal and child health issues have been covered by the broadcast media, the coverage is quite scanty. Given that this subject involves human lives, more attention should be paid to maternal and child health, especially in Nigeria.

In a study on the impact of television health programs on maternal and child health in Ikenne and Badagry Local Government Areas (LGAs) of Lagos State, Nigeria, Atakiti & Ojomo (2015) found low exposure rate and a moderate impact of television health programs on women in the two LGAs. However, the researchers suggested that women's health programs should combine both educational and entertaining content.

Similar to this, Utalor (2019) found that women in Ilorin (Nigeria) rely on broadcast media as a major source of information on maternal health, but identified radio as more effective than television in disseminating maternal health messages. Findings also showed that only talk shows and health programs promoted maternal health. It was recommended that television should be effectively utilized for maternal health campaigns due to its advantage of sight and sound and that broadcast media programs such as drama, documentary and news should be used to promote maternal health messaging.

Yahaya *et al.* (2009), in their study on attitude and the effect of health-based entertainment-education strategies on the knowledge and behavior of women in Lagos State, found that women place a high value on information, entertainment and education. Therefore, health presenters on broadcast media should always incorporate education and entertainment into their messages about development and health that are geared toward women in order to grab their attention and alter their perspectives. As was reported, women who watched and listened to various health programs on family planning using the entertainment-education approach experienced significant improvements in their knowledge as well as favorable change in their health behaviors.

Omoera's (2010) study on effectiveness of the broadcast media in creating and disseminating family planning information in Ebelle Community, Edo State, a rural area in Nigeria, revealed that a significant number of the respondents listened or watched family planning programs on either the radio or television. The study also showed an increase in the consciousness and awareness of simple family planning concepts. However, only about 57% of the respondents adopted family planning methods, while 43% of the respondents which is still a large number did not. A study carried out in Malaysia on family planning motivation reveals that interpersonal sources further aided the mass media in promoting health information on family planning among women in Malaysia (Onyemenam, 2016).

Numerous studies have been conducted to investigate the factors that contribute to infant mortality. Black *et al.* (2003) notes that malnutrition, infectious and communicable diseases which frequently contribute to child mortality vary greatly between nations. According to WHO (2005) pneumonia, diarrhea, malaria, measles, sepsis, preterm delivery and asphyxia are responsible for 73% of child deaths.

Multilevel logistic regression was used by Titaley *et al.* (2008) to investigate the causes of infant fatalities in Indonesia. They found that factors such as geography, the number of births accompanied by trained birth attendants, the job position of the parents, the spacing between births and postnatal care all affect the likelihood of survival.

A multivariate survival model was employed by Hong and Ruiz-Beltran (2007) to look into newborn survival in Bangladesh. It was found that when other conditions are under control, obtaining prenatal care during pregnancy boosts the infant's survival. However, a number of explanatory variables including maternal education, dietary status and household income, access to sanitary toilets and residential location were not found to be statistically significant.

Gender equality had a significant impact on maternal and child health, according to a study by Guang-zhen Wang (2014). Economic development also had a statistically significant effect on maternity care and gender equality. According to the study, economic expansion will raise the level of information and communication technology

infrastructure, which will enhance gender equality in work and education and further fortify health care services for women and their children.

Rahman (2013) cited in Hossain, (2015) examined the variables influencing child survival in Bangladesh using the Coox proportional hazard model. He discovered that the use of antenatal care, the location of delivery and mother's awareness are significant contributors to child mortality in Bangladesh. In their own study, Rubayet *et al.* (2012) identified community initiatives, donor funding and an increase in the reporting of critical interventions, such as skilled birth attendants and postnatal care, as important contributors to infant mortality in Bangladesh.

Despite being a global issue, maternity and child health is more problematic in developing nations such as Nigeria (Ogunjimi *et al.*, 2012) which is why it is important to critically assess the influence of broadcast media messages on the knowledge, attitude and practice of maternal and child health among reproductive age women in South-East Nigeria. There has not been a comprehensive study in this domain.

2.2 Theoretical Framework

2.2.1 Social Responsibility Theory

The underlying principle of the social responsibility theory of the press is that the press should be free to perform their functions; however, this freedom should be exercised with responsibility (Okunna & Omenugha, 2012). The theory holds that the government should encourage the media to comply by way of controlling them if they fail to meet their responsibility to society.

The theory's central tent is that the media must be utilized with extreme caution and be answerable to the people they serve. Therefore, the mass media, particularly the broadcast media, have a duty to the communities they serve. This notion is relevant to the present study. Health professionals and other interested parties can use the media to inform women about health issues and help them make informed decisions about safe maternity and child health practices. Thus, the media have a duty to contribute to the advancement of mother and child health, particularly in developing nations like Nigeria. This duty can be discharged by using the media's information and education functions (Gaziano & Horowitz, 2001; Adekoya, 2013).

Journalists should not undervalue their contribution to educating the public about health issues. Expectant mothers require precise knowledge on their condition in particular. Health information can be disseminated by the radio, television, print media, as well as written materials including fact sheets, print adverts and posters (Flores *et al.*, 2007).

2.2.2 Health Belief Model

Social psychologists Godfrey Hochbaum, Irwin Rosenstock and Stephen Kegels first created the HBM in the 1950s while working for the US Public Health Services to comprehend why individuals do not use disease prevention methods or screening tests for the early detection of disease (Conner & Norman, 1996).

The Health Belief Model (HBM), according to Glanz (2002), is a psychological model that aims to explain and forecast health behaviors. This is accomplished through concentrating on people's attitudes and beliefs. The HBM has been modified to examine other short and long-term health behaviors, such as sexual risk behaviors and the spread of HIV/AIDS. A person will respond in a way that is relevant to their health if:

1. They are sensitive to the possible issue.
2. There are serious repercussions to the issue.
3. Taking preventive action is not difficult to do.
4. The preventive action will be successful in reducing the risk and
5. They are able to carry out and maintain the behavior as necessary to achieve the desired result.

Nigerian women will undoubtedly be more inclined to embrace preventive behavior and stick to safe maternity and child health practices (ANC services) if they believe that:

1. Maternal and child mortality rates are high in developing nations, particularly in Nigeria, and women and children are individually at risk.
2. That a woman and child can die prematurely as a result of poor adherence to safe maternal and child practices.
3. That following safe maternal and child health practices and ANC services would not be challenging or problematic.

4. That maintaining ANC services would be beneficial in identifying health issues that pose a threat to the mother's and child's lives.

5. That they are capable of going to the hospital and engaging in healthy habits to ensure the survival of both the mother and child.

The health belief model is pertinent to this study because the health of people in any given society or group depends on their capacity to recognize the danger signs of particular health issues. This skill is mostly dependent on having information and accurate perception of the sickness and pathological abnormality in any organ of the body system. Through the broadcast media campaigns, this knowledge might be attained.

3. Research Questions

The study set out to provide answers to the following questions:

1. What is the level of exposure to broadcast media messages on maternal and child health among women of reproductive age in South-East Nigeria?
2. What is the level of knowledge of broadcast media messages on maternal and child health among women of reproductive age in South-East Nigeria?
3. What is the influence of maternal and child health messages in the broadcast media on the attitude of these women towards safe maternal and child health?
4. What is the influence of maternal and child health messages in the broadcast media on the practice of safe maternal and child health among women of reproductive age in South-East Nigeria?

4. Method

The study is a survey of the impact of broadcast media messages on the knowledge, attitude and behavior of reproductive-age women in South-East Nigeria. Nigeria's South-East region is made up of five states, namely, Enugu, Imo, Anambra, Abia and Ebonyi. We adopt UNDP's suggested yearly growth rate of 3.2 percent to forecast the region's population for 2021 which stood at 12,017,599. Details of the calculation are presented as appendix 1.

A sample size of 385 was obtained using the Australian Sample Size Calculator, created by the National

Statistical Service of Australia (See Appendix 2). This was got using a population of 12,017,599, a confidence level of 95% and a confidence interval of 0.05. We applied a multi-stage sampling technique because of the large size of the population. At the first stage, using simple random sampling, Anambra, Enugu and Imo States emerged. The second step comprised cluster sampling through which the states were sorted into discrete groups referred to as clusters and a simple random sample of clusters was then chosen. The first division was into senatorial districts for each of three

states. The senatorial districts for each state are shown in Table 1. There are three senatorial districts in each state and all three were chosen for the study. Secondly, the senatorial districts chosen were further divided into their local governments as well as their towns (clusters). For each senatorial district, one local government area was randomly picked as well as one town. Table 2 presents the senatorial districts, the local government areas and the towns selected.

The purposive sampling technique was then employed

Table 1. Selected States and their Senatorial Districts

	Senatorial Districts	Local Governments Areas
Anambra	Anambra North	Onitsha North, Onitsha South, Oyi, Ogbaru, Anambra East, Anambra West, Ayamelum
	Anambra Central	Awka North, Awka South, Njikoka, Anaocha, Idemili North, Idemili South and Dunukofia
	Anambra South	Aguata, Ekwusigo, Ihiala, Nnewi North, Nnewi South, Orumba North, Orumba South
Enugu	Enugu West,	Aninri, Awgu, Ezeagu, Oji River, Udi.
	Enugu East	Enugu East, Enugu North, Enugu South, Isi Uzo, Nkanu East and Nkanu West
	Enugu North	Igboeze South, Nsukka, Igbo Etiti, Igboeze North, Udenu and Uzo-uwani
Imo	Imo East,	Aboh mbaise, Ahiazu Mbaise, Ezinihitte, Ikeduru, Mbaitoli, Ngor Okpala, Owerri Urban, Owerri North, Owerri West
	Imo West	Ideato North, Ideato South, Isu, Njaba, Nwangele, Nkwerre, Oguta, Ohaji/Egbema, Orlu, Orsu, Oru East, Oru West.
	Imo North	Ehime Mbano, Ihitte/Uboma, Isiala Mbano, Obowo, Okigwe, Onuimo.

Table 2. Selected Local Governments and Towns

States	Senatorial Districts	LGA	Towns
Anambra	Anambra North	Onitsha South	Onitsha
	Anambra Central	Idemili South	Nnobi
	Anambra South	Ihiala	Ihiala
Enugu	Enugu East	Enugu East	Abakpa
	Enugu West	Udi	Obinagu
	Enugu North	Nsukka	Nsukka
Imo	Imo North	Ehime Mbano	Ehime
	Imo East	Ikeduru	Avuvu
	Imo West	Ohaji/Egbema	Egbema

to select respondents who would make up the sample. The eligibility criteria were that respondents should be from the South-East region of Nigeria, be women of reproductive age and should be exposed to radio and television programs on maternal and child health. At the next stage, we applied proportionate sampling technique to determine the number of respondents to be selected from each stratum (state) of the population. Bowley's technique with the formula $nh = (Nh/N) n$ was used to work out each sample size. Based on the formula (See Appendix 3), the number of copies of the questionnaire distributed in each state is shown in Table 3.

To conclude the sampling process, respondents were accessed using accidental sampling based on the eligibility criteria earlier outlined. The questionnaire served as the research tool for this investigation. It was an admixture of open-ended and close-ended questions

Table 3. *Distribution of copies of questionnaire in each state*

State	Population	Copies of Questionnaire	Percentage
Anambra	3,048,569	142	37
Enugu	2,474,256	115	30
Imo	2,753,553	128	33
Total	8,276,378	385	100

Table 4. *Likert Scale*

Category of Response	Nominal Value	Class Boundaries
Strongly agree	5	4.5 – 5.5
Agree	4	3.5 – 4.5
Undecided	3	2.5 – 3.5
Disagree	2	1.5 – 2.5
Strongly disagree	1	0.5 – 1.5

Quantitative and qualitative data analysis were employed. Percentages were worked out for the frequency of the demographic information, while the weighted mean was used to analyze the psychographic data from the Likert Scale.

Data Presentation and Data Analysis

Table 5. *Age Distribution of Respondents*

Response	Frequency	Percentage
18-29	153	40
30-39	117	31
40-49	45	13
49 and above	59	16
Total	374	100

and a Likert Scale. To enhance understanding, it was simplified to elicit useful and unambiguous information from the respondents and validated by two communication research experts. To ensure reliability, a pre-test employing 20 respondents each from two of the study regions, Abakpa and Obukpa, was done. The instrument's reliability was evaluated using the Guttman scale of reproducibility (See Appendix 4.) It yielded 80%. This is within the acceptable range.

For frequency of response for each response category, the simple mean was calculated using the nominal value and divided by the total number of respondents that responded to that item. By locating the class boundaries of the response, as shown, the cut-off point for deciding whether an item is accepted or rejected was established as shown in Table 4.

Three hundred and eighty-five copies of the questionnaire were administered and 381 copies were returned. Out of the total returned, 374 copies representing 98% were considered valid, while the remaining 7 (2%) were invalid. Tables 5, 6, 7, 8 and 9 present various aspects of respondents' demographic variables.

Table 5 shows that the majority of the respondents fall within the ages of 18 -29 (153) and 30-39 (117). They form a cumulative of 71% out of the 100% population. Also, women that fall into this category are pregnant women, nursing mothers and women who have not reached menopause. Women within the ages of 40-49 and 49 and above accounted for 13% and 16% of the population respectively.

Table 6. *Marital Status of Respondents*

Response	Frequency	Percentage
Single	77	21
Married	249	67
Divorced	12	3
Widowed	36	10
Total	374	100

Table 6 shows that out of the 374 respondents 77 (21%) are single, 249 (67%) which is more than half of the total population are married, 12(3%) are divorced while 36(10%) are widowed.

Table 7. *Respondents' Educational Status*

Response	Frequency	Percentage
FSLC	61	16
WAEC/NECO	93	25
HND/BSC/BA	164	44
Postgraduate	56	15
Total	374	100

Table 7 indicates that out of the 374 respondents, 61 (16%) have their FSLC, 93 (25%) have WAEC/NECO as their qualification, 164 (44%), which is almost half of the population are HND/BSC/BA holders while 56 (15%) have postgraduate qualifications.

Table 8. *Respondents' Occupation*

Response	Frequency	Percentage
Business	185	49
Civil/Public servant	107	29
Others	82	22
Total	374	100

Out of the 374 respondents, 185 (49%) are into business, 107 (29%) are civil/public servants and others 82 (22%).

Table 9. *Distribution based on whether the respondents have given birth to children of their own*

Response	Frequency	Percentage
Yes	301	80
No	69	20
Total	374	100

Data on Table 9 show that the majority of the respondents 301 (80%) have given birth to children of their own while 69 (20%) indicated that they do not have children. Table 10 presents respondents' exposure to the broadcast media. Item 6: Which of these broadcast media are you mostly exposed to?

Table 10. *Respondents' exposure to broadcast media*

Response	Frequency	Percentage
Television	233	62
Radio	141	38
Total	374	100

Out of 374 respondents 233 (62%) are mostly exposed to television while 141 (38%) of the respondents are mostly exposed to radio. Item 7: How frequently do you use the broadcast medium of your choice?

Table 11. Frequency of exposure to preferred broadcast medium

Response	Frequency	Percentage
Always	168	45
Often	109	29
Sometimes	74	20
Rarely	23	6
Total	374	100

From Table 11, 168 respondents (45%) indicated that they always used their preferred broadcast medium, 109 (29%) indicated ‘often,’ 74(20%) indicated ‘sometimes’ while 23 (6%) indicated that they ‘rarely’ used their preferred broadcast medium.

Item 8: Are you aware of maternal and child health? All respondents said they were aware of maternal and child health. Item 9: Do you primarily rely on broadcast

media for information on maternal and child health? Out of 374 respondents, 169 (45%) stated they relied primarily on the broadcast media for information on maternal and child health, while, 205 (55%) did not rely primarily on the broadcast media for information on maternal and child health.

Item 10: How often do you come across broadcast media messages on maternal and child health?

Table 12. Frequency of exposure to broadcast media messages on maternal and child health

Response	Frequency	Percentage
Weekly	74	20
Bi-weekly	56	15
Monthly	65	17
Every 6 months	39	10
Can’t say	140	38
Total	374	100

Table 12 indicated that the majority 140 (38%) of the respondents could not say how often they came across broadcast messages on maternal and child health. Some of the respondents indicated ‘weekly’ (74 or 20%), 56 (15%) indicated ‘bi-weekly,’ 65 (17%) indicated

‘monthly’ and 39 (10%) indicated ‘every 6 months.’

Item 11: Which of the programs you watched/listened to featured messages regarding maternal and child health? (More than one response may be selected.)

Table 13. Maternal and child health content of broadcast programs

Response	Frequency	Percentage
News	36	10
Talk shows	89	28
Feature	14	4
Advert	30	8
Health programs	162	43
Others, specify	43	11
Total	374	100

From Table 13, 162 (43%) and 89 (28%) of the respondents indicated that ‘health programs’ and ‘talk shows’ respectively, contained messages about maternal and child health. Fewer respondents indicated ‘news’ 36(10%), ‘features’ 14 (4%), ‘advertisements’ 30 (8%) and ‘others’ 43(11%). The responses to items 12 through 29 are shown and discussed in the next section.

Research questions 2 to 4 are addressed by these responses. A weighted average of the mean scores on the Likert scale are used to assess these psychographic data. Table 14 displays the mean score analysis of respondents’ knowledge level of broadcast messages on maternal and child health.

Table 14. Mean Score Analysis of Respondents' knowledge level of Broadcast Messages on Maternal and Child health

S/N	Questions	(5)	(4)	(3)	(2)	(1)	Total	Σ Mean	Rating
		SA	A	U	D	SD			
12	I have sound knowledge of maternal and child health through information on the broadcast media.	93	206	28	40	7	374	3.9	Accepted
		4.6	8.2	0.8	0.8	0.1	14.5		
13	The maternal and child health information I get from broadcast media concentrates on risk factors (factors likely to cause maternal and child mortality such as smoking, poor diets, inadequate use of antenatal care services).	102	217	19	33	12	374	3.9	Accepted
		5.1	8.7	0.6	0.7	0.1	15.2		
14	The broadcast media provide me with sufficient information about maternal and child health.	87	179	35	61	12	374	3.7	Accepted
		4.4	7.2	1.2	1.2	0.1	14.1		
15	The messages explain that every woman of childbearing age faces a risk of maternal mortality when pregnant.	91	185	33	44	21	374	3.7	Accepted
		4.6	7.4	1.0	1.0	0.2	14.2		
16	The messages about maternal and child health outline the various services that are accessible to expectant mothers and children.	109	214	16	28	7	374	4.0	Accepted
		5.5	8.6	0.5	0.6	0.1	15.3		
17	The messages explain that maternal and child mortality can be prevented if certain unsafe practices are avoided during pregnancy.	127	204	19	13	11	374	4.1	Accepted
		6.4	8.2	0.6	0.3	0.1	15.6		

The maximum cut-off point using the 0 to 5 range is 3.5. Therefore, responses that had a mean score rating of 3.5 or higher were considered accepted, but responses that received a mean score rating of 3.5 or lower were

considered rejected. Table 15 presents the Mean score analysis of the influence of maternal and child health messages in the broadcast media on respondents' attitude towards safe maternal and child health.

Table 15. Mean score analysis of the influence of maternal and child health messages in the broadcast media on respondents' attitude towards safe maternal and child health

S/N	Questions	(5)	(4)	(3)	(2)	(1)	Total	Σ Mean	Rating
		SA	A	U	D	SD			
18	The broadcast media have positively changed my overall attitude towards maternal and child health.	112	194	23	31	14	374	3.9	Accepted
		5.6	7.8	0.7	0.6	0.1	14.8		
19	I dislike broadcast media messages on maternal and child health.	16	19	23	208	129	374	2.0	Rejected
		0.8	0.8	0.7	4.2	1.3	7.8		
20	In my opinion, broadcast media messages about maternal and child health are unnecessary and should be stopped.	0	1	0	296	77	374	1.8	Rejected
		0	0.01	0	6.0	1.0	7.0		
21	I enjoy viewing/listening to broadcast media messages on maternal and child health.	134	209	17	9	5	374	4.2	Accepted
		6.8	8.4	0.5	0.2	0.1	16.0		
22	I feel broadcast media messages on maternal and child health are educative and adequate.	115	223	13	16	7	374	4.1	Accepted
		5.8	9.0	0.4	0.3	0.1	15.6		
23	It is my opinion that the broadcast media do not cover all the important issues on maternal and child health.	103	196	21	35	19	374	3.8	Accepted
		5.2	7.8	0.6	0.7	0.2	14.5		

Table 16 presents the mean score analysis of the influence of maternal and child health messages on the practice of safe maternal and child health among respondents.

Table 16. Mean score analysis of the influence of maternal and child health messages on the practice of safe maternal and child health among respondents

S/N	Questions	(5) SA	(4) A	(3) U	(2) D	(1) SD	Total	Σ Mean	Rating
24	I take precautions against factors of maternal and child mortality such smoking, poor diets and insufficient utilization of antenatal care as a result of my exposure to broadcast media messages on maternal and child health.	118 6.0	216 8.6	12 0.4	5 0.1	4 0.04	374 15.1	4.0	Accepted
25	As a result of enlightenment from the broadcast media, I undergo antenatal care when I am pregnant.	116 5.8	208 8.3	25 0.7	16 0.3	9 0.09	374 15.1	4.0	Accepted
26	As a result of enlightenment from the broadcast media, I take doctor-prescribed medications during pregnancy.	121 6.0	211 8.4	23 0.6	15 0.3	4 0.04	374 15.3	4.1	Accepted
27	Through my exposure to broadcast media messages on maternal and child health, I go to a competent hospital to deliver my baby.	128 6.2	209 8.4	22 0.6	12 0.2	3 0.03	374 15.4	4.1	Accepted
28	I educate others about maternal and child health.	114 5.7	220 8.8	18 0.5	15 0.3	7 0.07	374 15.3	4.1	Accepted
29	As a result of being exposed to broadcast media messages on maternal and child health, I now consciously engage in safe maternal and child health practices (immunization, eating healthy, use of antenatal services).	120 6.0	207 8.2	26 0.7	13 0.2	8 0.08	374 15.1	4.1	Accepted

5. Discussion of Findings

According to the demographic data, the majority of the respondents were between the ages of 18 and 29 (153/40%) and 30 and 39 (117/31%). The data demonstrates that respondents who provided answers within this age range were in the peak of childbearing age. Sixty-seven percent of the respondents were married, compared to 21% who were single. One third of the respondents (13%) were divorced or widowed. This demonstrates that the majority of the respondents were likely to become mothers because they were married. Even though some of them were widows and divorcees, it did not preclude the prospect of their being productive. Most of the respondents (80%) had actually given birth to their own children.

RQ 1: What is the level of exposure to broadcast media messages on maternal and child health among women

of reproductive age in South-East Nigeria? Items 6 to 11 in the questionnaire were analyzed to answer this question. Findings revealed that the respondents were listeners and viewers of both radio and television, with most of them saying that they watched more of television than listened to radio. This is a deviation from what was reported in Asp *et al.* (2014). Their study of media association and birth preparedness of women in South-West Uganda reported that ‘an overwhelming majority were exposed to radio’ while only a paltry 4.9% agreed to ever watching television. The contradictory results could be attributed to the 10-year gap between both studies. However, the present results are in line with those of Item (2018). From Item’s (2018) study, 46.1% of the respondents preferred television news channels and 26.1% preferred radio news stations, an indication that the majority of the respondents were exposed more to television than to radio.

On the frequency of exposure (Table 11), 45% of the respondents said they ‘always’ used broadcast media, 29% said they ‘frequently’ used broadcast media, 20% said they ‘occasionally’ used broadcast media while 6% seldom utilized broadcast media. The findings indicate that women are regularly exposed to the broadcast media.

Although, the majority of the respondents always used the broadcast media (Table 12), 140 (38%) of them could not say how often they were exposed to broadcast messages on maternal and child health. This could be attributed to memory lapse or a lack of interest on the part of the affected respondents in seeking information related to maternal and child health from the broadcast media. If that is the case, the broadcast media must find ways of making their content on maternal and child health more engaging and appealing to capture and sustain audience interest so as to enhance understanding and recall. Another possible explanation could be that the broadcast media were inconsistent in their delivery of messages on maternal and child health. And this may highlight the weakness of these media in executing this responsibility to reproductive-age women in South-East Nigeria.

The findings also revealed that the programs that received more of the respondents’ attention were health programs (43%) and talk shows (38%) while advertisements got (8%) attention, news (10%), features (4%) and other programs (11%) (Table 13).

RQ 2: What is the level of knowledge of broadcast media messages on maternal and child health among reproductive-age women in South-East Nigeria? Items 12 to 17 in the questionnaire were used to address this question. Findings (see Table 14) demonstrate that the majority of respondents were aware of the broadcast media messages on maternal and child health. Ninety-three strongly agreed while 206 agreed with the statement, ‘I have sound knowledge of maternal and child health through information on the broadcast media’ with an acceptable mean score 3.9. In addition, other information acquired on the respondents’ understanding of broadcast media messages on maternal and child health demonstrates unequivocally that they heard about maternal health, indicating a significant improvement in knowledge. For instance, the majority of respondents (93) indicated ‘strongly agree’ and 206

‘agree,’ respectively with the statement, ‘The broadcast media provide me with sufficient information about maternal and child health.’ Similarly, the majority of the respondents indicated ‘strongly agree’ (91) and ‘agree’ (185) respectively, with the statement, ‘The messages explain that every woman of childbearing age faces a risk of maternal mortality when pregnant.’ Also, the majority of the respondents indicated ‘strongly agree’ (109) and ‘agree’ (214) with the statement, ‘The messages about maternal and child health outline the various services that are accessible to expectant mothers and children.’ In sum, all the statements tested in Table 14 received an acceptable mean score, ranging from 3.7 to 4.1.

As prior studies have shown, exposure to media messages on a subject can increase understanding, strengthen opinion and reinforce previously held attitudes (Calvert 2011; Khan & Ali, 2017). Yar’zever and Said’s (2013) study in Kano State (Nigeria) on the knowledge and use of maternal health services reported that both urban and rural respondents had a good understanding of the variety of maternal health services provided by healthcare facilities. This widespread awareness can be linked to the media as they have remained highly successful across ages in spreading general awareness.

RQ 3: What is the influence of maternal and child health messages in the broadcast media on the attitude of women towards safe maternal and child health? Items 18 to 23 addressed this research question. The purpose of this research question was to gauge how positively the women responded to safe mother and child health after exposure to broadcast media messages on these issues. The majority of the respondents were positively influenced by broadcast media messages on maternal and child health (Table 15). For instance, to the statement, “The broadcast media has positively changed my overall attitude towards maternal and child health” the majority of the respondents indicated ‘strongly agree’ (112) and ‘agree’ (194) respectively. Also, to the statement, ‘I enjoy viewing/listening to broadcast media messages on maternal and child health,’ most of the respondents indicated ‘strongly agree’ (134) and ‘agree’ (209). Similarly, to another statement, ‘In my opinion, broadcast media messages about maternal and child health are unnecessary and should be stopped,’ most of the respondents indicated ‘strongly disagree’

(77) and 'disagree' (296). This clearly buttressed the fact that broadcast media messages on maternal and child health have a positive influence on women of reproductive age.

The findings are consistent with those of Adewoye et al. (2014). The study examined the knowledge and willingness of reproductive-age women in Ilorin-East Local Government Area (Kwara State, Nigeria) to utilize antenatal care services (ANC). They found that 87.7% of the respondents were aware of ANC services and willing to use them.

Our findings strengthen the health belief model which states that women will be more inclined to embrace preventive behavior and stick to safe maternal and child health if they are well exposed to its risk factors. The majority of the respondents, however, believed that not all significant maternal and child health concerns are adequately covered by broadcast media. As indicated in their response to the statement, 'It is my opinion that the broadcast media do not cover all the important issues on maternal and child health' – 103 'strongly agreed' and 196 'agreed.'

RQ 4: What is the influence of maternal and child health messages in the broadcast media on the practice of safe maternal and child health among women of reproductive age in South-East Nigeria? Items 23 to 29 addressed this research question. Responses to this question (Table 16), showed that the majority of the respondents were persuaded by broadcast media to receive antenatal care during pregnancy. Similarly, most of the respondents indicated 'strongly agree' (116) and 'agree' (208) to the statement, 'As a result of enlightenment from the broadcast media, I receive antenatal care when I am pregnant.' Also, broadcast media messages on maternal and child health have inspired women to educate other women on maternal and child health. Most of the respondents indicated 'strongly agree' (114) and 'agree' (220) to the statement, 'I educate others about maternal and child health.' The response to this question showed that broadcast media messages on maternal and child health had a positive influence on reproductive-age women and motivated them to practice safe maternal and child health, such as giving birth in a reputable hospital, taking medication as prescribed by a doctor, regularly immunizing their children and eating healthy diets.

These findings are consistent with those of Atakiti & Ojomo (2015) which investigated how television health programs affect maternal health. They found that 73% of their respondents agreed that watching health programs on LTV had enlightened and motivated women to uphold safe maternal and child health.

6. Conclusion

The study has established that women are informed about maternal and child health risks through the radio and television. Given that this has been one of the biggest problems in Nigeria and throughout Africa, it is clear that the electronic media have the power to significantly decrease mother and child deaths.

Similarly, broadcast media messages on maternal and child health had significant beneficial influence on the attitude of the majority of the women sampled. Most women found maternal and child health programs on the broadcast media entertaining and informative, although they believed that all the important/topical issues on maternal and child health were not properly covered by radio and television.

The findings showed that most women who were exposed to messages on maternal and child health were in agreement that they had to put the knowledge they had gained about maternal health into practice. In order words, women were motivated to start practicing safe maternal and child health after receiving information about it. They were also inspired to uplift and encourage other women.

It can, therefore, be concluded that increased exposure to the broadcast media, especially television, has the capacity to improve proper use of ANC services. This indicates that effective use of radio and television as part of a novel and comprehensive strategy for improving maternal and child health in Nigeria is required. It is important to empower women with the requisite information to enable them to make decisions about their own health and the health of their babies. This will significantly lower maternal and infant mortality rates in Nigeria. Given the enormous gap between knowledge and use of maternal and child health services in Africa, a paradigm shift is required.

7. Recommendations

In light of the study's findings, it is recommended that

more emphasis be placed on using broadcast media to spread messages about maternal and child health, as women rely on them for information on the issue. There is need to make sure that there are sufficient health programs on television and radio that are explicitly focused on maternal and child health. Government and public-spirited individuals can invest into sponsorship and creation of programs promoting maternal and child health.

Since women are more exposed to talk shows and health programs, broadcast stations should collaborate with health professionals in such programs to ensure the delivery of quality information relating to maternal and child health. These programs should also be produced in different local languages to ensure access to more woman.

Furthermore, there is need for broadcast stations to conduct thorough study into the best time to air these programs. Additionally, any programs targeted at increasing maternal and child health should involve broadcast media campaigns.

Also, helplines/call lines should be made available for women to call in and speak to professional doctors on any issue they may have during or after pregnancy. Other programs such as news, drama and documentaries should promote maternal and child health messages.

8. References

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APPENDICES

APPENDIX 1

The projection formula is $P_p = G_p \times P_i \times T$, where

P_p = the projected population;

G_p = given population as at last census;

P_i = is the population increase index;

T = Time

The projected population growth for reproductive-age women in Anambra State going by this formula would be $3.2/100 \times 2,059,844 \times 15 = 936,524$. Therefore, the population of reproductive-age women in Anambra State for the year 2021 is $988,725 + 2,059,844 = 3,048,569$. By the formula, the projected population growth for reproductive-age women in Enugu would be $3.2/100 \times 1,671,795 \times 15 = 802,461$. Therefore, the population of reproductive-age women in Enugu State

for the year 2021 is $802,461 + 1,671,795 = 2,474,256$

Similarly, the projected population growth for reproductive-age women in Imo State would be $3.2/100 \times 1,951,092 \times 15 = 802,461$. Therefore, the population of reproductive aged women in Imo state for the year 2021 would be $802,461 + 1,951,092 = 2,753,553$. The projected population growth for reproductive-age women in Ebonyi State would be $3.2/100 \times 1,112,791 \times 15 = 534,139$. Therefore, the population of reproductive-age women in Ebonyi State for the year 2021 would be $534,139 + 1,112,791 = 1,646,900$.

In the same vein, the projected population growth for reproductive-age women in Abia State would be $3.2/100 \times 1,415,082 \times 15 = 679,239$. Therefore, the population of reproductive-age women in Imo State for the year 2021 would be $679,239 + 1,415,082 = 2,094,321$. Thus, the total population of reproductive-age women in Anambra, Enugu, Imo, Ebonyi and Abia State is 12,017,599

APPENDIX 2

Australian Sample Size Calculator

APPENDIX 3

Formula for calculation of Sample size for each stratum of the population

$$nh = (Nh/N) n$$

Where:

nh is the sample size for the stratum h,

Nh is the total population size for the stratum h,

N is total population size,

And n is total sample size

Therefore, for Anambra state with the population of reproductive aged women at 3,048,569, the copies of questionnaire to be allocated to the state would be;

$$nh = (3,048,569 / 8,276,378) 385$$

$$nh = 0.36834 \times 385$$

$$nh = 142$$

For Enugu state, which has the population of reproductive aged women at 2,474,256, the copies of questionnaire to be allocated to the state would be;

$$nh = (2,474,256 / 8,276,378) 385$$

$$nh = 0.29895 \times 385$$

$$nh = 115$$

For Imo state, which has the population of reproductive aged women at 2,753,553, the copies of questionnaire to be allocated to the state would be;

$$nh = (2,753,553 / 8,276,378) 385$$

$$nh = 0.3327 \times 385$$

$$nh = 128$$

Appendix 4

Guttman scale reproducibility for calculating reliability

The calculation goes thus:

$$1- \text{total error} / \text{total respondents}$$

$$1- 2/10$$

$$\text{Therefore, } 0.8/1 \times 100/1 = 80\%$$