Attitude and Knowledge of Benin City Residents towards Anthrax Preventative Campaign on Broadcast Media

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Abstract
This study examined the attitude and knowledge of Benin residents towards the anthrax preventive campaign on broadcast media. The study was carried out to ascertain the level of exposure of Benin City residents to anthrax preventive campaigns on the broadcast media. Anchored on the Health Belief Model and the social judgment theories, the study adopted the descriptive survey research method with the questionnaire as an instrument for data collection. The researchers employed the descriptive survey research method to study the attitudes of the respondents toward the broadcast media campaign on anthrax prevention. The population of this study was 1,605,000 while the sample size drawn with the Taro Yamane sample size determination formula was 400. The quantitative data were analysed with the aid of the Statistical Package for Social Sciences (SPSS). Findings revealed that the respondents had little knowledge of the campaign on the broadcast media. It concluded that the broadcast campaign on anthrax prevention did not influence the residents of Benin City. Based on the conclusion, it was recommended that there should be an increase in the frequency of information dissemination on disease-preventative measures on different media outlets. It was also recommended that broadcast media should continually take health communication seriously by packaging their campaign messages content in a way that affects changes in the attitude and behaviour of the public.
Keywords: Broadcast Media, Anthrax, Disease, Benin City Residents, Campaign, Attitude.

Introduction
A lot of dangerous diseases and viruses can spread quickly if precautions are not taken. And anthrax is one of these diseases. Anthrax is a serious bacterial affecting animals and

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humans worldwide, acquired through direct contact with infected animals or animal products. *Bacillus anthracis*, the causative agent of anthrax, produces spores and persists for decades in the soil, initiating an outbreak through a favorable climate shift; people get infected when anthrax spores get inside the body through the skin, lungs, or gastrointestinal system (Alam, *et al*, 2022). Anthrax is a rapidly fatal infectious disease affecting herbivores and people. In the farm animals, cattle and sheep are more susceptible, followed by goats and horses, while dwarf pigs and Algerian sheep are relatively resistant. Anthrax has been considered a major non-contagious, zoonotic disease since ancient times.

Mwakapeje, *et al* (2017) stated that depending on the method of transmission, three different varieties of anthrax can affect people: cutaneous, gastrointestinal, and inhalational forms. The gastrointestinal form of Anthrax is more serious and is contracted by consuming raw or undercooked animal products. The inhalational type is contracted by breathing in anthrax spores. It might also indicate a substantial burden that is misdiagnosed and inadequately reported. Given this, grazing in vegetated areas where prior anthrax outbreaks have occurred is the main way that wildlife and livestock become infected with the disease.

As such, a campaign is the ideal means of raising public awareness of topics that affect people either favourably or badly and are of importance to the public. Rice & Atkin, (2012) cited in Akarika, *et al* (2021), argue that as a result, communication activities involving the mainstream media are necessary to raise awareness of the fatal sickness. In light of the foregoing, many platforms, including new media, flyers, posters, brochures, group conversations, and one-on-one contacts, can be used to spread messages.

Media campaigns have been utilised in the last few decades to try and influence different health behaviours in large audiences. However, according to the Centre for Disease Control (CDC), as cited in Cajetan, Jumbo & Etumn, (2021) the purpose of mass media health campaigns is to disseminate messages intended to inform, influence, and persuade target audiences' views about adopting or sustaining healthy behaviours. Drawing from the above, this study is designed to identify the attitude and knowledge of Benin residents towards Anthrax preventive campaigns on broadcast media.

Objectives of the Study

The following objectives guided the study

1. To ascertain the level of exposure of Benin City residents to broadcast media anthrax preventative campaign
2. To find the media channels of exposure to broadcast media campaign media campaigns on anthrax prevention
3. To determine the attitude of Benin City residents towards the anthrax preventative campaign on broadcast media.

Literature Review

History of Anthrax

The bacteria Bacillus anthracis, which forms toxic spores and is Gram-positive, can cause anthrax, a potentially fatal illness that affects all warm-blooded species. Although there are no documented occurrences of human-to-human transmission, it is a highly contagious and virulent disease. Anthrax endospores are immune to many disinfectants,

heat, UV light, gamma radiation, and drying. The disease manifests itself in three different ways: cutaneous, by inhalation, or through ingestion of endospores that enter the body through breaches in the skin.

Geol (2015) asserts that B. anthracis, the source of anthrax, is a highly contagious and lethal disease. Anthrax has a lengthy history with humans and was recognized in China (3000 BC) and Europe (1190-1491 BC). Early Greek, Roman, and Hindu literature all had descriptions of anthrax. Since coal-black skin lesions are the cutaneous form of anthrax, the word "anthrax" comes from the Greek word "anthrakis," which means coal. Anthrax may be the cause of the fifth plague of Egypt, an outbreak described in the book of Genesis (1491 BC) that destroyed all Egyptian animals, including horses, donkeys, camels, sheep, and cattle, but spared the livestock of the Israelites. Anthrax in domestic and wild animals appears to be the sickness that 29-year-old Virgil mentioned in his third Georgics (a collection of poems on agriculture and animal husbandry). This is because anthrax was a significant agricultural disease in Europe from the 16th to the 18th century. Many advancements in medicine were made possible by anthrax studies in the 19th century. Filiform bodies, which are little rods that are roughly half the length of a red blood corpuscle, were originally identified in the blood of sheep that had perished from anthrax in 1850 by Pierre Rayer. In 1863, Casimir-Joseph Davaine proposed that the etiology of anthrax was "corpuscles," which may be infected blood that was subcutaneously injected into mice, guinea pigs, sheep, horses, and cattle. In 1864, Tiegel and Klebs proved that anthrax-contaminated blood lost its contagiousness after it was passed through a bacterial filter made of clay candles, but the deposit on the filter retained its contagiousness.

The deadly illness dubbed the "black bane" that struck Europe in the 1600s and claimed the lives of over 60,000 people and animals has been confirmed as anthrax. Comparably, between 1979 and 1980, there was a significant outbreak in the human population of Zimbabwe that resulted in about 10,000 cases of cutaneous anthrax. In addition, a severe outbreak of the disease was reported in Siberia in 2016, which led to a considerable decline in the number of reindeer in the area and the death of one person. Nonetheless, the most well-known effect of anthrax on humans was caused by the Amerithrax terrorist attack in the United States in 2001, which resulted in the infection of twenty-two individuals and the death of five. One of the most significant examples of anthrax being used as a bioterrorism weapon was this. (Rumide *et al* 2023).

Pasteur *et al* cited in Goel (2015) demonstrated that buried animal remains infected with anthrax were a significant source of new infections. They also disclosed that earthworm activity could carry spores from deep soil to the upper surface. It was believed that anthrax would be created as a bioweapon for use in World Wars I and II. In 2001, envelopes carrying the B. anthracis organism were mailed to several dignitaries in the United States, resulting in the infection of 22 individuals. This was seen as a bioterrorism act. (Geol 2015)

Outbreak of Anthrax in Nigeria

In a bid to contain the anthrax disease in Nigeria, the Federal Government of Nigeria launched a free immunization campaign on July 27, 2023, to prevent the spread of an anthrax epidemic, working with pertinent partners. Protecting cattle and preventing the spread of illness to people and other animals were the goals of this initiative. Thirty-two kilometers around the original epidemic location was where animals were to be targeted

with 50,000 doses of anthrax vaccinations given to the state to begin the campaign. (Usman, *et al* 2023)

Al-Mustapha *et al* (2023) found that mass mortality after pathognomonic symptoms of the disease in a multi-species farm in Gajiri Village, Suleja, Niger State, led to the confirmation of Nigeria's index anthrax case. About 100 cows (49 exotic and 51 native breeds), 73 sheep (a breed of fat-tailed sheep from Sudan), and 19 goats (red Sokoto goats) were present on the property where the index case was located. On June 27, 2023, the circumstances that led to the confirmed anthrax outbreak began. Thirteen cattle and ten sheep were among the thirty-five instances (20 cattle and fifteen sheep) that had been reported as of July 13, the day the samples were collected. The National Reference Laboratory (Nigerian) confirmed on July 16 that the sample was positive for anthrax (bacterial culture). Although animals are driven to graze on natural grass, the majority of the cows are grown in large production systems. July 17, 2023, saw the rapid notification of a global disease submitted to the World Organization for Animal Health and shared on the World Animal Health.

Rumide *et al*, (2023) posit that laboratory tests on animal blood samples were carried out by the National Veterinary Research Institute Laboratory in Jos Plateau state to validate the diagnosis. The case was the first documented in the nation due to the positive test results. The Nigerian Federal Government thereafter notified the public about the outbreak and those in neighboring countries. Several states have implemented mass vaccination programs for farm animals as part of strategies to stop the disease's spread.

Little is currently known about the outbreak in the nation. Nonetheless, studies are being conducted to identify potential contributing factors and track down the disease's origin.

Review of Empirical Study

Misigie *et al*, (2015) conducted a study on the public health and economic importance of Anthrax and it was revealed that control of the infected animals, and prevention of contact with the infected animals and contaminated animal products are quite important to disease control. It is recommended that if an animal Anthrax case is confirmed, the affected property is quarantined, potentially exposed stock vaccinated; dead animals buried, and contaminated sites disinfected. The quarantine is not released until occurrences of anthrax cases have ceased and at least six weeks have elapsed since the last round of vaccinations on the property and people who are exposed might be given anthrax vaccine to prevent disease.

Nsoh, *et al*, (2016) carried out a study on "mapping as a tool for predicting the risk of anthrax outbreaks in the Northern Region of Ghana". The result of the study showed that the likelihood of outbreaks occurrence was higher due to the suitability of soil PH, temperature, and rainfall for the survival and dispersal of Bacillus anthracis spore. Predictive maps were generated using soil PH, temperature, and rainfall as predictor variables to identify hotspot areas for the outbreaks. There were 43 confirmed outbreaks. The deaths involved were 131 cattle, 44 sheep, 15 goats, and 562 pigs with 6 human deaths and 22 developed cutaneous anthrax. We found three strata of well-delineated distribution patterns indicating levels of risk due to the suitability of an area for anthrax spore survival. The likelihood of outbreaks occurrence and reoccurrence was higher in

Strata I, Strata II, and Strata III respectively in descending order, due to the suitability of soil pH, temperature, and rainfall for the survival and dispersal of B. anthracis spore.

Rumide, *et al* (2023) carried out a study on "Anthrax Outbreak in Nigeria: An Issue for Concern?" and noted that areas with significant concentrations of agricultural practices, such as Asia and Africa, are often the sites of anthrax outbreaks. This epidemic may have been caused by many variables, such as variations in the pH, moisture content, porosity, and texture of the soil as well as the recent outbreak in Ghana, a neighbouring nation. Limiting the incidence of Anthrax in animals and minimising human exposure to sick or dead animals or their byproducts are key components of strategies to decrease Anthrax infections in humans. The use of antibiotics, isolation, and yearly vaccination (both preventative and ring) are the most efficient methods of treating and preventing animal anthrax. The researcher added that timely collaboration between public health and animal health institutes is crucial when detecting anthrax in a particular location. From the literature reviewed, enough evidence exists that Anthrax is another "killer" disease that possibly much attention has not been given to by the media, thus, the need for this study.

Theoretical Framework

This study was anchored on two theories. They are the health belief model and social judgment theories

Health Belief Model

Health Belief Model (HBM) is one of the theories this study was anchored on. This theory was developed by social psychologists Hochbaum, Rosenstock, and others in the 1950s. With the tenet that health messages and campaigns will achieve the core purpose of embarking on it, of course, which is to change behaviour if they successfully target perceived barriers, benefits, self-efficacy, and threats.

Boulos and Hassan, (2023) posit that a person's decision to engage in a particular health-related behavior is influenced by a variety of factors, including the perceived risk of the condition, awareness of the impact of the disease on one's health (perceived severity), the benefits of engaging in the necessary behaviour, perceived costs and barriers, and cues to action that act as motivators for changing one's behavior. Examples include both external and internal cues, such as information and reminders about illnesses and personal symptoms. Perceived self-efficacy, or confidence in one's ability to act, is the final construct.

Relating this theory to this study, Jones *et al* (2015) opine that according to the HBM, people will take preventative measures against illness if they perceive themselves as susceptible to a condition (perceived susceptibility), if they think the condition would have potentially serious consequences (perceived severity), if they think that taking a specific action would lessen the severity or susceptibility or have other positive outcomes (perceived benefits), in addition to other factors, if they believe that there aren't many detrimental aspects of the health action (perceived barriers). In a situation where the individual sees the benefit of seeking prompt health information rather than perceived barriers to taking such actions, they tend to quickly seek for good professional health information.

Social Judgment Theory

One of the theories which this research will base on is the social judgment theory. In 1961, Muzafer Sherif, Carolyn Sherif, and Carl Hovland developed this theory. According to the theory, viewers evaluate and interpret a message before taking a side. The theory centers on the inner workings of a person's assessment of a message that has been conveyed. Since influencing someone's attitude is the main goal of persuasive communication, social judgment theory aims to identify the circumstances in which this shift occurs as well as forecast the direction and magnitude of the shift. After understanding a message and comparing it to their position on the matter, persuasion happens after the process (Asemah, *et al*, 2017).

According to this theory, an individual weighs every new idea, comparing it with the individual's present point of view to determine where it should be placed on the attitude scale in an individual's mind. Social Judgment Theory is the subconscious sorting out of ideas that occurs at the instant of perception. According to this theory, a person evaluates each new concept by weighing it against their current viewpoint and deciding where it belongs on their mental attitude scale. The idea is that people absorb new information regarding attitude objects by comparing it to what they already know or believe; the initial attitude serves as a benchmark and new information is classified using these criteria.

The social judgment theory has significant implications for this study. Okwechime, (2008); Anaeto *et al*, (2008) cited in Wokemezie, (2021) emphasised that the highlight of social judgment theory is the classification of attitude into three distinct latitudes namely: latitude of acceptance, the latitude of rejection, and latitude of non-commitment. Thus, we receive messages and instantly judge where it should be placed in our mind; to accept the information, reject the information or to neither accept nor object to the information. It would be much more difficult to persuade a person on a topic that falls within his latitude of rejection than one with his latitude of non-commitment.

This theory is relevant to this study as it explains how broadcast media uses persuasion through its support to know the attitude of Benin residents towards the Anthrax preventive campaign.

Methodology

To critically evaluate the effectiveness of this study, the Attitude and knowledge of Benin residents towards the anthrax preventive campaign on broadcast media, a survey research method was adopted. Asemah *et al*, (2022) asserted that the survey research method is a research that takes a sample to understand and make descriptive assertions about a large population. The survey research method can use quantitative, qualitative, and mixed research strategies. The population of this study was 1,605,000. Benin City is made up of mainly three Local Government Areas: Oredo, Ikpoba-Okha, and Egor. The projected population of Oredo as of 2022 according to the National Population Commission of Nigeria (web) and National Bureau of Statistics (web), was 553,300, Ikpoba-Ehor was 549,700 and that of Egor was 502,700. The sample size of this research was 400; calculated using the Taro Yamane formula. The Taro Yamane method for sample size calculation was formulated by the statistician, Taro Yamane in 1967. A multi-stage sampling technique was used to select the respondents needed for the study. Asemah et al (2022) asserted that when the distribution of the population is so complex that it requires more than one sampling technique to select the samples hence, resort to

sampling in stages. The first stage of the process involves the delineation of Benin into its local government areas: Egor, Uhunmwonde, Oredo, Ikpoba-Okha, Orhionmwon, Ovia North East, and Ovia South East local government areas, and, Purposive sampling was used to select three LGAs: Oredo, Ikpoba-okha and Egor local government areas.

At stage two, a simple random sampling technique was used to select two major areas each from the selected LGAs: Uselu, Textile Mill, Plymouth Road, and Ring Road. These areas will be chosen because of their strength in number and this will assist the researcher to have enough respondents for the study.

A simple random sampling technique was used in stage three to select ten streets from the areas: Good Samaritan Street, Iyeye Street, Godly Street, Owie Street, Idia Street, Obakhausaye Street, Akenzua junction, Oba market, Salon Street, and Edo Street. These will be chosen from Egor, Oredo, Ovia North East, Ikpoba-Okha, and Orhionmwon local government areas. These streets will be chosen for the study because the researcher believes that literate people who will understand the essence of the research and who also have access to broadcast media will be found on these streets.

In the fourth stage, a systematic sampling technique was used to select the households. A total of forty households will be selected from each street.

At the last stage, a convenient sampling technique was used to select ten residents from the select forty households. This amounted to 400 respondents. The questionnaire was considered the most appropriate measuring instrument. The questionnaire was designed in a way that allowed the respondents to answer the research questions appropriately. The design included close-ended questions and well-structured multiple-choice questions. The researchers conducted a pilot study also known as a pre-test using copies of questionnaires in some parts of the areas of Benin City under study. The pilot study showed the reliability of the instrument. The copies of the questionnaire were analysed and presented using tables, and simple percentages with the aid of a statistical package for social science (SPSS).

Data Presentation and Analysis

A total of 400 copies of the questionnaire were administered to residents of Benin in Oredo, Ikpoba-Okha, and Egor respectively. 365 copies of the questionnaire were retrieved and analyzed, while 35 were invalid.

Table 1: Respondents who are exposed to broadcast media in Benin City on anthrax prevention

Variable		Frequency	Percent
Valid	Yes	323	88.5
	No	42	11.5
	Total	365	100.0

The above quantitative data shows the respondents' awareness of broadcast media in Benin. The majority of the respondents with number 323 (88.5%) claim they are exposed to broadcast media in Benin. The implication of this on the study is that it stands as an advantage for the researcher, it aids in getting quality information from the respondents about broadcast media since they are aware of it.

Table 2: Channels of Exposure to broadcast media on Anthrax preventive campaign programmes

Variable		Frequency	Percent
Valid	Social media	26	7.1
	Television	45	12.3
	Newspaper	37	10.1
	Magazine	91	24.9
	Radio/TV	166	45.5
	Total	365	100.0

From this table, it can be deduced that 166(45.5%) respondents strongly agreed that the social media platforms were their sources of information on anthrax preventative campaigns.

Table 3: Respondents who found the campaign messages to be educative and enlightening

Variable		Frequency	Percent
Valid	Strongly agree	39	10.7
	Agree	44	12.1
	Undecided	32	8.8
	Disagree	97	26.6
	Strongly Disagree	153	41.9
	Total	365	100.0

From the above table, it can be deduced that the respondents used in carrying out this research do not have a good perception of broadcast media. 153(41.9%) respondents strongly disagreed that the campaign messages they came across on broadcast media were not educative and enlightening.

Table 4: Respondents opinion to the effectiveness of broadcast media Anthrax preventive campaign message

Variable		Frequency	Percent
Valid	Strongly agree	24	6.6
	Agree	56	15.3
	Undecided	34	9.3
	Disagree	108	29.6
	Strongly disagree	143	39.2
	Total	365	100.0

From table 4 above, it can be seen that 143 (39.2%) strongly disagreed that broadcast media preventive campaign messages were effective. This result reveals that Anthrax preventive measures have not been effective to some extent. The findings further

revealed that the majority of the respondents believed that the extent to which the exposure to media campaigns on Anthrax influenced their behavior was low. This could be as a result of lack of the effectiveness of the campaign on Anthrax.

Table 5: Respondents' view on whether broadcast media campaigns convey detailed information on the symptoms and preventive measures of Anthrax

Variable		Frequency	Percent
Valid	Strongly agree	30	8.2
	Agree	45	12.3
	Undecided	39	10.7
	Disagree	101	27.7
	Strongly disagree	150	41.1
	Total	365	100.0

Information contained in the above table, 4.1.5 shows respondents' opinions as to whether broadcast media campaigns covey detailed information about the symptoms and preventive measures of Anthrax. It reveals that 150 (41.1%) strongly disagreed. This finding implies that the perception of the respondents on broadcast media preventive campaigns is very low.

Discussion of Findings

In this section, the qualitative and the quantitative data generated, presented, and analysed are discussed to establish lucid points and also, and they are further linked with existing literature to support the results on the attitude and knowledge of Benin residents towards Anthrax preventive campaigns on broadcast media. The essence of the discussion is to give the data collected and analysed meaning. For clarity, the discussion will be done in line with the research questions raised in the study.

Research Question One: To what extent are Benin residents exposed to Anthrax preventive campaigns on broadcast media?

In this research question, the researcher aimed to ascertain if Benin residents were exposed to Anthrax preventive campaigns on broadcast media.

The findings imply that Benin City residents were exposed to the broadcast media on the Anthrax preventive campaign in Benin. The finding of this study aligns with a study by Rumide, *et al* (2023) which discovered that enough evidence exists that Anthrax is another "killer" disease that possibly much attention has not been given to by the media, thus, the need for this study

Research Question 4: What is the attitude of Benin residents towards Anthrax preventive campaigns on broadcast media?

The quantitative data answering the above question in Table 1.3,4 and Table 5 revealed that the respondents had positive attitudes towards the anthrax preventive campaign on broadcast media.

The finding of this study shares similarities with the major assumption of the social judgment theory. The theory states that the audience of the mass media subjects the

messages to an internal process before they take a stand either to accept or reject the message.

Major Findings of the Study

The study found the following:

1. Respondents were exposed to broadcast media in Benin
2. Findings showed that respondents did not come across broadcast media on the Anthrax preventive campaign.
3. It also revealed that respondents' perception of broadcast media was low.
4. Broadcast media on the Anthrax preventive campaign were not highly effective, educative, and enlightening.
5. Respondents did not accept that broadcast media preventive campaign programmes made them know about Anthrax.
6. The respondents did not have a positive attitude towards broadcast media on the Anthrax preventive campaign.
7. It was discovered that the majority of the respondents believed that the Anthrax preventive campaign on broadcast media campaign was not accessible.
8. The majority of the respondents disagreed that their attention and interest in broadcast media was captured through the Anthrax prevention campaign.

Conclusion

Based on the findings, the researcher was able to conclude that Benin residents did not have high knowledge of the Anthrax preventive campaign and that the campaign did not have an influence on Benin residents.

Recommendations

Based on the findings of this study, the following recommendations were made;

1. Future campaigns should focus on reinforcing the message, addressing misconceptions, and promoting community engagement to enhance the adoption of preventive measures.
2. Increasing the frequency and reach of Anthrax prevention messages on radio and television to improve knowledge.
3. Production of health programmes and campaigns should not be seen as the responsibility of the media alone, but the responsibility of every individual in society; the government, private, individual, health organizations, etc.
4. Broadcast media should continually take health communication seriously by packaging their campaign messages content in a way that affects changes in attitude and behaviour of the public.
5. Media campaigns should not be left alone in the hands of government and non-governmental bodies; individuals, social groups, peer groups, opinion leaders, churches, mosques, and other forms of face-to-face communication should be used to promote the campaigns on Anthrax in our society.
6. Media campaigns should be well-structured in a more persuasive form than mere dissemination of Anthrax information. This will go a long way to sufficiently address the low level of exposure to media campaigns.

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