

# Innovations

## Exposure and Attitude towards Media Messages on Cardiovascular Diseases among Men in North-Central Nigeria

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### Abstract

**Problem:** Cardiovascular diseases have raised a lot of concern as a major cause of mortality and morbidity among adult populations in sub-Saharan Africa. Media messages and medical solutions are used to address the menace of cardiovascular diseases. This study investigated exposure to, and attitude towards media messages on cardiovascular diseases among men in North Central Nigeria.

**Design/Methodology/Approach:** The study focuses on three states – Niger, Kogi and Nasarawa in North-Central Nigeria. The survey method was adopted to conduct the study. The Australian Sample Size Calculator was used to draw a sample of 539 respondents while the multi-stage sampling technique was adopted as the sampling approach for the study. Data were analyzed using simple percentages and chi-square test of independence using SPSS version 24. **Findings:** The study revealed that the level of exposure to general CVD messages was (66.5%). However, exposure to media messages on specific CVD risk factors were low. Findings further revealed that there is a low to moderate level of awareness and knowledge about CVD across the study participants. Similarly, results showed that exposure to health information on cardiovascular diseases has little or no influence on the attitude of study participants towards the disease itself. **Conclusion:** Men in North-Central Nigeria have a high level of exposure to media messages on CVDs. However, knowledge level needs to increase to match the level of awareness and exposure, and the attitude towards CVD needs to improve positively.

**Keywords:** Attitude, Cardiovascular Diseases, Exposure, Media Messages, North-Central

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### Introduction

Cardiovascular diseases (CVD) have raised a lot of concern as a major cause of mortality and morbidity among adult populations in sub-Saharan Africa. The World Health Organization fact sheet (2017) notes that cardiovascular diseases are the top and foremost reasons for millions of deaths representing 31% annually. The global statistics of men and adults dying as a result of cardiovascular disease incidents is quite alarming in Nigeria (Essin, Anoy & Udi, 2014; Hadiza, 2018; Ike, 2020). Cardiovascular diseases are not distinct health problems, rather they are abnormalities which affect sensitive parts of the human body, such as the heart and blood vessels (Adewale & Rufus, 2005). These diseases are present in the form of hypertension, coronary heart disease (CHD), stroke, heart failure, arrhythmias, cardiomyopathies, valvular heart diseases and congenital heart diseases (Adewale, Rufus, 2005; Essin, Andy & Udo, 2014; Ike, 2020).

Despite concerted efforts globally to fight against cardiovascular diseases, the disease still accounts for over 80% of deaths, illnesses and disabilities in high, middle and low-income countries (Hadiza, 2018;

Aliko, 2018; Ike, 2020 ). Cardiovascular diseases have been ravaging the health of people in different parts of the world. In 2005 alone, cardiovascular diseases killed 17.5 million people around the world (Aliko &Pedio, 2018). Hadiza (2018) reports that non-communicable diseases account for more than 36 million deaths with cardiovascular diseases responsible for 48% of the death cases (Mondo, Otomi, Musoke, Akoli& Oren (2013). Comments by experts (e.g. Hdiza, 2018; Kumar, 2017; the World Health Organisation, 2020) show that the incidence of cardiovascular disease is expected to double within the next two decades, unless urgent measures are taken to stem the risk profile of adults in developing and developed countries. In Nigeria, cardiovascular diseases kill over 200,000 people annually, leaving a high burden of morbidity and mortality, with many of the sick in critical illness or disability (Udjo, Lathapersad 2014 &WHO, 2019).

Scholars have lamented that despite the impact of cardiovascular diseases, there has been sparse studies and information in the public domain, especially in the media (Ajukun Chukwu, Adegoke &Awolola, 2018). This implies that the preventive social measures are inadequate. In addition to the inadequacy of information, scholars also decry the way some of the risk factors of cardiovascular diseases are glamorized as attractive or a way of life in the public domain such as the mass media (Aliko & Pedro, 2018, Ukonu 2021). Among the risk factors are unhealthy diet, obesity, stress, poor dental health, tobacco and harmful use of alcohol (Nse, Emmanuel, Durafemi 2021; Udjo&Lathapersad-pilly, 2014). In light of this, the present study focuses on exposure and knowledge of cardiovascular diseases among men in North-Central Nigeria.

It is common knowledge that the mass media as an institution plays a vital role in informing the public about health and medical issues ((Ejiofor, Beth, 2018; Mayer, 1995, Alexander, 2005; Thorson 2006). The media are significant sources of health-related information for creating awareness, boosting knowledge and shaping people's orientation toward cardiovascular diseases (Valdivia, Tsfati, &Cohen, 2012). This attests to the role of information, awareness and knowledge of the risk factors to any effort to address cardiovascular diseases, hence the present study.

This study was guided by five objectives: (1) to determine the level of exposure to media health messages on cardiovascular diseases among men in North-Central Nigeria (2)to ascertain the extent to which men in North-Central Nigeria recall the messages on cardiovascular diseases (3) to ascertain the knowledge levels of men in North-Central Nigeria on health information on cardiovascular diseases (4)to ascertain the level of influence of health information on cardiovascular diseases on the attitudes of men in Northcentral Nigeria towards the prevention of the disease (5) to identifyfactors affecting knowledge and responses of North-Central men to mass media campaigns on cardiovascular diseases.

## Literature Review

### Media Programmes on Cardiovascular Diseases

The mass media as an institution plays a central role in informing the public about health and medical issues to achieve positive preventive outcomes on cardiovascular diseases (Denis, 2009; Ejiofor, Beth, 2018; Mayer, 1995; Alexander, 2005; Thorson, 2006).

The mass media are diversified media technologies capable of reaching a large heterogeneous audience simultaneously with messages. They include the broad areas of electronic and print media, such as radio, television, newspapers, magazines, books, pamphlets and the internet (Ekwueme, Okoro &Ukonu, 2012; Wogu, 2018) While the mass media have an edge in reaching a vast number of people, they could be used to cover issues such as health, music, fine art, crime, sports and political events (Meye, 2002; Soola, 2004; Wogu, 2018). The media have the capacity to create awareness and knowledge about issues of national interest. Valdivia, Tsfati and Cohen(2012) note that people who are exposed to information are able to have informed opinions about the world. Equally, it is widely held that the media have considerable influence on the opinions and attitudes of people with regard to important social and health issues such as cardiovascular diseases prevalence, causes, risk factors, types and treatments (Ajuluchukwu, Adegothe&Awolola, 2018; Misban&Asemah, 2011).

Expectedly, Nigerians are exposed to a plethora of programmes promoting healthy lifestyles both by foreign and local media. A BBC commercial once depicted the effects of smoking and second hand

smoking. It portrayed the dangers of smoking such as death, cancer and other cardiovascular disease-related complications. This commercial showed graphic images of polluted blood flowing through the body in an attempt to urge smokers to quit (BBC, 2013; Olugbenga, Owolabi, Ezika & Cross, 2016).

Channels Television in Nigeria runs a programme called Health Matters. The programme is a live phone-in show. It uses interviews from health and medical practitioners to promote healthy lifestyles among the adult population. For example, the programme encourages adults to engage in the recommended 30-minute moderately-intense aerobic physical activity, making effort to accommodate the exercise within their work schedule (Olugbenga, Owolabi, Ezika, Lewih and Cross (2016). The programmes are based on self-efficacy, reflecting the degree of confidence people have in maintaining their desired positive health behaviour change in circumstances that often trigger relapse. The programme emphasizes the need to maintain positive reinforcement as a way to adopt healthier behaviours.

Apart from general health programmes, Radio Nigeria regularly broadcasts national and international health messages on CVDs, especially during international days for CVDs. For instance, Radio Nigeria and other private stations in Nigeria have been used to communicate a WHO initiative called Hypertension Control Initiative aimed at providing a robust database on the prevalence of hypertension and fine-tune standard protocols for the treatment of the disease (Radio Nigeria, 2020). Similarly, the Nigerian Television Authority runs Health line, a television clinic that attends to all patients with diverse ill health. The social media of WhatsApp and Facebook also carry regular skits, comments and health advice on CVDs. Pieces of health advice and comments are based on the need to have five (400g) portions of fruits and vegetables every day. One such health advice, known as 'five a day' is predicated on the advice from the WHO, which 161 recommends that eating a minimum of 400g of fruits and vegetables a day lowers the risk of serious health problem, including heart disease, stroke, type 2 diabetes, and obesity (Olugbenga, Owolabi, Ezika, Lewitt, & Cross, 2016).

Another programme available to Nigerians is Unite for Sight, 2000-2013, which is available online. According to Olugbenga, Owolabi, Ezika, Lewitt, & Cross (2016) the programme demonstrates that high impact health communication catalyzes behavioural changes on a societal level. It shows how entire communities can be galvanized into action to live healthy lifestyles by taking the necessary measures to prevent disease and to protect, maintain and improve their own health by promoting good nutrition, regular exercise, and smoking cessation.

Moreover, the use of community media, such as radio, newspapers and viewing centers can provide alternative channels through which people's needs and interests can be articulated (Wogu, 2018). These rural media have great potentials for stimulating literacy that can pave way for positive development and integration of the rural dwellers into national life. CVDs conditions can be published in the forms of news reports, articles, drama and editorials base on the rural situations for proper understanding, the needed information and knowledge in the rural areas for the prevention of CVDS.

Besides, the content of the community media programmes originate from the local community people who reflects the needs and interests of the community. These local media programs can be used to educate people about the nature, causes, and consequences of CVDs in Nigeria. Wogu (2018) in Onabanjo (2003) noted community viewing center is a controlled theater for imparting knowledge and a rallying point for people in rural areas and to adequately serve as a platform for showing documentary programmes aimed at creating awareness of cardiovascular diseases. The magnitude of the threat posed by CVDs in ravaging the health of people in different parts of the world is quite alarming if not curtailed. Various theories and models of health communication and media messages are some of the stand-out measures, in addition to the medical solutions to stem the menace of cardiovascular disease.

Community sources such as pubs, hospitals, stadia, religious centers, schools and community centers are other small and large group interpersonal media used to reinforce mass media messages. Such channels, which circumvent the barriers of modern media access, power problems and literacy challenges, have been successfully used to raise awareness on the health risks of CVDs. For example, through participatory processes at the local community level, community members are empowered on how to interpret food labels in order to identify healthier options (Ejiofor, Beth & Moira, 2018).

### Review of Empirical Literature

Cardiovascular disease ranks second in Africa's causes of death (Mbewu&Mbanya, 2006) and is the leading cause in Europe (Narine, Manlio, Jose & Francisco, 2020). A study by NseTemilade, Emmanuel, and Olurafemi (2021) found a rising trend in CVD and its risk factors in developing countries, particularly affecting younger individuals, attributed to limited prevention knowledge and poverty. Similarly, Essien, Andy, Ansa, and Udoh's 2014 study revealed Coronary Artery Disease as the primary contributor to morbidity and mortality in Southern Nigeria.

Prior research on cardiovascular diseases in Africa, particularly in Nigeria, has concentrated on prevalence, causes, risk factors, and treatments (Misbau, 2010), as well as syndrome presentations and areas of attack, exploring potential solutions (Lavisa, Tedesco, &Angelollo, 2015). Some studies have specifically examined communication interventions (Ejaz et al., 2018). This current study also emphasizes communication and information as strategies for addressing CVDs.

This study, focused on men's exposure and attitude to cardiovascular disease (CVD) information in Nigeria, aims to address the underexplored dimension of CVD prevention. Misbau's 2010 research in Nigeria, titled "the incidence and patterns of cardiovascular disease in Northwestern Nigeria," examined 4,103 patients in Aminu Kano and Usman Danfodio Teaching Hospitals between 2001 and 2005. Of these, 52.60% were males suffering from various CVDs. The study found the highest incidence (22.09%) among individuals aged 40-49, with the lowest (3.97%) among those aged 19. It also revealed a consistent rise in CVD incidence in Northwestern Nigeria (Misbau, 2010).

In line with the focus of the present study, Misbau (2010) recommended that there was need for increased awareness and exposure to information on cardiovascular diseases and risk factors. Narine, Manlio, Jose and Francisco (2020) recommended that hence, the risk factors of CVD can be prevented, treated and controlled; there is the need for early detection of risk factors among adolescents and young adults, which can best be achieved through adequate health information and knowledge of the disease

The study, examining cardiovascular disease (CVD) information, its sources, credibility, recall, and factors affecting attitudes, highlights the importance of media exposure and its impact on CVD attitudes. Changing public attitudes toward CVD is a key goal in health campaigns (Asemah& Akpabio, 2022).

Literature on exposure to CVD media messages is limited, with some focusing on general health information or awareness of mass media campaigns (Asemah& Akpabio, 2022). Exposure and awareness are interconnected, as media exposure leads to campaign awareness. For instance, Agbana et al. (2016) found high CVD awareness among workers at Ajanla Farms in Nigeria. Lavisa et al. (2015) reported low exposure and attitudes toward CVD information in Italian women. They recommended increasing knowledge, utilizing television and physicians, and involving health educators to improve CVD awareness and behaviour. Aminde, Dzudie, and Veerman (2017) found that people in Buea, Cameroon have poor knowledge of cardiovascular diseases, but relatively good knowledge of risk factors. The study also found that people with high income, education, and family history of CVD, and those who do not smoke, are more likely to have moderate knowledge of CVD. (Aminde et al., 2017)

The study of Uzochukwu, Nwosu, and Okeke (2022), investigated the audience exposure to and awareness of COVID-19 pandemic messages and not on CVD. Using a survey method, the researchers selected a sample of 400 respondents in Anambra State. Their study though not on CVD provided relevant connections/implications valuable to this present study as their findings also revealed that residents of Anambra State are significantly exposed to messages on COVID-19 pandemic. The underlying idea behind the relevance of their study here is to contextualize CVD. By placing CVD within the larger framework of health challenges, this study hopes to help scholars understand its significance in the context of broader health issues.

According to Agbana, Asuzu, Fasoro, and Owoeye's (2016) study, the primary source of information on cardiovascular risk factors for most Nigerian workers (57.8%) is the media. Gehrau, Fujarski, Lorenz, Schieb, and Blobaum's 2021 survey, which involved 629 respondents, revealed that traditional mass media also serve as the primary channel for health-related information. Similarly, a cross-sectional survey conducted by Sanuade, Kushitor, Awauh, Asante, Agyemang, and Aikins in 2021, encompassing 775

respondents aged 15-59, found that radio and television were the predominant sources of CVD knowledge.

Tedesco, Giuseppe, Napolitano, and Angelillo's (2015) study further supported this trend, with 53.7% of participants citing radio/television as their primary information source, followed by physicians (46.1%) and family (34.8%). In contrast, Muhihi, Anaeli, Mpembeni, Sunguya, Leyna, Kakoko, Kessy, Sando, Njelekela, and Urassa's 2020 research in Morogoro, Tanzania, reported that relatives/neighbours (64.8%) and radio (53.0%) were the main sources of CVD information for young and middle-aged adults. Only 28.3% mentioned health care providers as their source. Serban's 2004 study indicated a preference for interpersonal sources like medical professionals and personal connections, with mass media as a secondary choice for information on healthy eating and physical activity. Lastly, Uzochukwu, Nwosu, and Okeke's 2022 study noted that social media played a prominent role in accessing COVID-19 information among Anambra residents, followed closely by television and radio. In contrast, Gehrau et al. (2021) found that social networks and alternative media were rarely used for seeking health information.

Rosediani, Ranimah, and Harmy (2012) examined CVD knowledge among 448 women, finding only half had good knowledge scores. Muhihi et al. (2020), Tedesco et al. (2015), Vaidya et al. (2013), Odunaiya et al. (2021), and Awad and Al-Nafisi (2014) also found low CVD knowledge levels in their studies. Boateng et al. (2017) synthesized evidence from five databases, revealing generally low knowledge levels of CVDs and risk factors among participants.

Health information aims to change health behaviour, with professionals exploring mass media's role. Debates surround its effectiveness, with some discouraging results and pessimistic findings (Flora, Maibach, & Maccoby, 1989). Serban (2004) found newspapers negatively impacted physical activity and healthy eating attitudes, while TV and radio had no effect on cardiovascular attitudes. In contrast, Rosediani, Ranimah, and Harmy (2012) reported 55.1% of women had a positive attitude, emphasizing the importance of knowing blood pressure, reducing sugar and fat intake. Tedesco et al. (2015) found over half believed CVDs can be prevented, with 83.5% and 81.4% endorsing diet and exercise but had a low risk perception.

Vaidya, Aryal, and Krettek (2013) assessed cardiovascular health knowledge, attitudes, and practices in a Nepali semi-urban community. Among 777 respondents, 25% of men and 30% of women saw lifestyle risk, with 65% men and 55.4% women unwilling to change habits. 23% wanted to eat less, 82% felt overweight (more so in men), 32% lacked time for self-care, and 60% doubted behaviour change could lower heart risk. About 25.3% of men and 27.2% of women attributed health to a higher power. Most believed in the benefits of healthy foods and recreational facilities, but 4% disagreed with smoking bans. Voros et al. (2018) found that many patients planned lifestyle changes, with weight loss as a common goal.

The implication of these studies reviewed above is that attitude towards cardiovascular diseases is not always a consequence of media campaign messages, suggesting that there could be other factors responsible for determining attitude to CVDs. The study of Sanuade, Kushitor, Awauh, Asante, Agyemang, & Aikins (2021) reported that the determinants of CVD knowledge are ethnicity, alcohol consumption, self-reported health and sources of CVD knowledge. The study of Tedesco, Giuseppe, Napolitano and Angelillo (2015) also showed that educational level is factor that influences attitudes of participants' risk perception level of CVD. It was revealed that respondents with a lower educational level, those who have three or more children, those who need more information about CVDs, and those who self-perceived a worse health status were most likely to have a positive attitude toward the perceived risk of developing CVDs.

The study of Crawford, Jakub, Lockhart and Wold (2023) used an interpretative description qualitative design to explore Georgian young adults' knowledge, attitudes, and beliefs of CVD preventive practices and life experiences. A convenience sample of 19 ethnic Georgian participants aged 18-40 years from local private university was used. Results showed that health literacy, culture and society influence the attitudes of respondents towards CVD.

### **Theoretical Framework**

The Health Belief Model (HBM), developed in the 1950s by Hock Baum, Rosen Stock and Kegels gives details and predicts health behaviours based on the attitudes and belief of individuals. It is designed to explain the nature of individual preventive health actions (Okpoko, 2013). The Health Belief Model recognizes media campaigns as one of the environmental cues to action (Wogu, 2018). The model assumes that the tendency to health behaviour depends on the perceived threat associated with an action such as the decision to seek information or to engage in risky behaviour. In other words, the model is based on the assumptions that people are more likely to act to protect their health if they believe that they are susceptible to a disease, that the disease is serious, that the benefits of acting outweigh the costs, and that they are capable of taking effective action.

The HBM is a relevant theoretical framework for this study because it helped to explain how exposure to media messages about cardiovascular diseases could influence men's attitudes towards these diseases and their likelihood of taking steps to protect their health. The HBM suggests that men in North-Central, Nigeria who are exposed to media messages that emphasize the seriousness of CVDs and the benefits of taking preventive action are more likely to believe they are susceptible to these diseases and that taking action is worthwhile. This can lead to changes in their attitudes towards CVDs and their likelihood of taking steps to protect their health, such as changing their diet, exercising more, or getting regular check-ups.

### **Data and Methods**

The study was conducted across 12 urban communities from three out of the six states of North-Central Nigeria, namely, Niger, Kogi and Nasarawa. The study made use of the survey research method. The sample size for the study was 385 respondents. Due to expected instrument mortality, (EIM), the sample size was marked up by 40% (Wimmer and Dominick, 2010). Going by 40% advised by Wimmer and Diminick;  $EIM = 40\%/100 \times 385 = 154$ . Therefore,  $385 + 154 = 539$  copies of the questionnaire were administered out of which 520 copies were retrieved.

The state capitals were purposively selected to ensure the addition of urban perspective to the study. Three wards were selected through the simple random sampling technique from the official list of electoral wards in each state. The convenience sampling technique was used to select the respondents in each study area.

A structured questionnaire, containing both open-ended and closed-ended questions, was used to collect data from the 520 respondents. Questionnaire items were measured with likert-type items grouped as follows: to a very low extent, to a low extent, to a moderate extent to a very large extent and never to examine exposure and attitudes of men towards messages on cardiovascular diseases in North Central Nigeria.

The major independent variable for this study was exposure to mass media campaign messages on cardiovascular diseases. The respondents were asked, the level of exposure to mass media messages, their message recall and knowledge level of information on CVDs among men in North-Central Nigeria. The media message was derived from the following channels: radio, television, newspaper/magazine, internet and interpersonal media. The socio-demographic variables included in the study are 1. Age (36-45; 46-45; 56-65 and above 65), marital status (Never married, married, widowed, and divorced), education (no academic qualification, primary, secondary and tertiary); occupation (civil servant, unemployed/student, farmer/business man, and artisan (crafts)); income level (below 30,000-100,000, 101,000-170,000, 171,000, - 240,000 and above 241,000); place of residence (Kogi Niger and Nasarawa). Descriptive and inferential statistics were used in analysis of data for the study. Among the descriptive statistics, simple percentages and frequency counts were used to describe the study population and exposure to cardiovascular diseases. The results of these descriptive analyses were presented in tables. Inferential statistics of chi-square test was used to investigate the extent to which demographic variables and independent variable predicted exposure and attitude towards media messages on cardiovascular diseases among men in North-central Nigeria. All analyses were done with the use of the statistical package for the social sciences (SPSS).

## Results

From a total sample of 539 of men in North-Central, Nigeria, survey was completed with 520, for a response rate of 96.5%. In other words, out of the 539 copies of the questionnaire administered, 520 copies were retrieved and used for analysis. Data generated from the questionnaire were conducted using simple descriptive statistical tools such as frequency tables and percentages. Analysis of the socio-demographic variables is presented in Table 1. The demographic characteristics of the survey sample showed that of the 520 respondents studied, 166 (31.9%) were from Kogi State, 185 (35.6%) from Niger State and 169 (32.5%) from Nasarawa State, majority of whom are within the age bracket of 46-55 (35%) and 56-65 (25%). Just 286 (55%) of the respondents which is the majority, reported completing tertiary education, and 163 (31%) with income level of above #240,000

### Exposure level of men in North-Central, Nigeria to mass media on cardiovascular diseases

Table 2 displays exposure levels to CVD media messages and primary information sources. Most respondents had high exposure to general CVD messages (66.5%). However, exposure to media messages on specific CVD risk factors were low for hypertension (45.8%), stroke (41.9%), heart diseases (45.8%), and arrhythmias (40.2%). On their sources of CVD information, 9.9% of the respondents receive most of their CVD information from social media, and 22.9% receive their CVD information from ordinary discussions with family and friends. This suggest that respondents' major sources of CVD information lie away from social media and interpersonal communication and therefore they do not rely on them for CVD information. The implication of this result is that while there is a high exposure to general CVD messages, exposure to specific CVD risk factors is low. This result also underscores the importance of interpersonal communication sources like family and friends in providing CVD information even though majority do not use them as primary sources of information.

### Knowledge levels of men in North-Central, Nigeria on health information programmes on cardiovascular diseases

Table 3 presents data on CVD knowledge across media programmes. Analysis showed that 41.9% of the study participants' knowledge of CVDs is through "Health Matter" programme on Channels TV. 45.8% indicated that what they know about CVD comes from "Health Line" programme on radio Nigeria. While 39% are aware of at least one United Nations day devoted to men related diseases, 37% have heard about CVDs in the media mainly on international days. Finally, 58.3% of the study participants know about other programmes on CVDs. Therefore, it is evident that majority of the study participants are aware of other programmes on CVD. However, results indicate that there is a low to moderate level of awareness and knowledge about CVD across the study participants.

### Influence of Cardiovascular Diseases health information on the attitudes of men in North-Central, Nigeria to Cardiovascular Diseases

Table 4 presents data on responses related to behaviours, actions, and attitudes influenced by cardiovascular health information. Around 37% of the study participants have once attempted to stop risky behaviour as a result of what they learnt from the media. 42.1% have not been able to implement health information on cardiovascular disease, despite trying to do so. 66.5% indicated that they have not yet taken any action after receiving health information on cardiovascular disease. Only 43% admitted that the health information they received simply increased their knowledge on cardiovascular diseases. Meanwhile, 41.9% of the study participants felt like stopping some risky habits, but could not just do it. 45.6% reported that they have not been well informed about what constitutes cardiovascular diseases. 58.3% have been able to make others learn from them after receiving health information on cardiovascular disease. Finally, 40.2% encouraged listeners to avoid risky behaviours. The analysis suggests that health information on cardiovascular diseases has little or no influence on the attitude of study participants towards the disease itself. In other words, the cardiovascular health information that the participants are exposed to has not influenced them.

## Discussions

This study made three cardinal findings on exposure to, knowledge of and attitude towards CVDs. On exposure level, the study's findings indicate varying levels of exposure to different sources of information related to cardiovascular diseases (CVDs). Notably, 66.5% of participants had a high extent of exposure to media messages about CVDs, which is higher than what was observed in previous research (Lavisa, Tedesco, and Angelollo, 2015). However, when it comes to specific CVD topics such as hypertension, stroke, heart diseases, and arrhythmias, participants had low exposure. This suggests a potential lack of specialized or targeted messaging on these specific CVD conditions in the media, which may lead to inadequate awareness of CVD risks and symptoms, potentially resulting in delayed diagnosis and treatment and an increased risk of complications.

Interestingly, interpersonal communication sources, primarily involving interactions with family and friends, were used as information sources. While these sources weren't dominant, a substantial percentage of participants relied on them. This contrasts with previous evidence from Muhihi et al. (2020) and Serban (2004), which indicated that relatives and neighbors were the main sources of CVD information. Nonetheless, the reliance on interpersonal communication suggests that people are more likely to trust information from familiar and trusted individuals, making it an effective way to disseminate CVD-related information.

Additionally, social media played a role as an information source, although it was not the primary one. Nevertheless, it was more prominent compared to interpersonal sources of CVD information. This finding aligns with research by Uzochukwu et al. (2022) and Gehrau et al. (2021), which found that social media is a predominant source of CVD information. The increasing role of social media in disseminating information about CVDs is noteworthy, as it offers a means to reach a large audience. However, it also poses a risk of misinformation, emphasizing the importance of critical evaluation and trust in information from credible sources on social media platforms.

Previous studies have consistently highlighted television and radio as dominant sources of CVD information (Tedesco et al., 2015; Agbana et al., 2016; Gehrau et al., 2021; Sanuade et al., 2021). This suggests that traditional media, including television, radio, newspapers, and magazines, continue to be primary sources of CVD-related information. Despite the rise of alternative media, such as social media, these traditional channels maintain their significance in disseminating information about CVDs.

Analysis of the levels of knowledge paints a picture of relatively low awareness among respondents regarding various aspects of CVDs. This finding aligns with the results of previous studies conducted in the past in which some of them used women as study participants (Vaidya, et. al., 2013; Awad& Al-Nafisi, 2014; Tedesco, et. al., 2015; Lavisa, Tedesco &Angelollo, 2015; Boateng, et al., 2017; Aminde, Dzudie&Veerman, 2017; Muhihi, et. al., 2020; Odunaiya, et. al., 2021), all of which consistently reported low levels of knowledge in similar contexts. This consistency across studies suggests that the issue of limited awareness about CVDs is widespread and not unique to a particular region or population.

Results further reveal the potential effectiveness of certain media channels in disseminating information about CVDs. Specifically, Health-matter channel TV and CVDs Health-line on Radio Nigeria appear to have garnered substantial attention and awareness among respondents. This insight presents a valuable opportunity to further engage these media outlets to reach a broader audience and improve CVD awareness.

Another noteworthy finding is the awareness, albeit limited, of United Nations days related to men's diseases. While the percentage of respondents who knew about these observance days is not high, it indicates the potential significance of leveraging such days for educational initiatives and public health campaigns. This insight underscores the importance of aligning health awareness efforts with globally recognized events.

Attitude towards cardiovascular diseases based on the data is generally negative, implying that health information on CVDs has little or no influence on peoples' attitude towards CVDs. The results showed that most people have not taken any action to stop risky behaviours after receiving health information on

cardiovascular diseases. In fact, a significant number of people have not even been well informed about what cardiovascular diseases are.

Findings also showed that some people feel like they cannot stop risky habits, even though they know they should. This suggests that there is a lack of motivation to change unhealthy behaviours. Overall, the data suggests that people have a negative attitude towards cardiovascular diseases. They are not motivated to change their unhealthy behaviours, and they are not well informed about the risks of cardiovascular diseases. This is consistent with the study of Vaidya, Aryal and Krettek (2013) which found that people have a poor attitude towards CVDs. Only 14.7% of the people with highly satisfactory knowledge had a highly satisfactory attitude. This suggests that people are not motivated to take steps to prevent CVDs. As opposed to men, the study of Rosediani, Ranimah and Harmy (2012) revealed that 55.1% of women had good attitude, and majority of them reported that they should know their level of blood pressure, blood sugar and blood cholesterol.

This paper findings do not support the relevance of the HBM theory in this context. For example, the study found that although men in North-Central Nigeria were more exposed to media messages about CVDs, they had low to moderate knowledge of the diseases. In addition, their attitudes towards the diseases was negative. This shows that their exposure to media messages to CVDs had little or no influence on their predispositions towards this disease. And this is antithetical to the tenets of the HBM theory which presupposes that individuals who are exposed to media messages on the risk of certain diseases and the benefits of acting against it are more likely to believe that they are susceptible to the diseases and that taking action is worthwhile.

#### **Limitation of Study**

The smallness of the sample and exclusion of women from the study despite the fact that they are also affected by cardiovascular diseases may affect the extent to which the results can be universally generalized.

#### **Conclusion**

Men in North-Central have a high level of exposure to media messages on CVDs as evident from the findings. The Health Belief Model used in this study by implications predicts that when people perceive a health threat and see themselves as vulnerable to the threat, there is likelihood that they will adopt a positive behaviour. However, knowledge level needs to increase to match level of awareness and exposure where cardiovascular disease prevalence levels are high. This condition presents a lot of challenges to the media in developing appropriate media messages on CVDs. Messages should take into consideration the socio-cultural factors and risk factors, which exacerbate CVDs in North Central Nigeria. Such factors include the influence of peers, family members and personal beliefs. It is on the basis of the above that the research recommends that the media, government and health professionals should take cognizance of the socio-economic and cultural factors in designing media messages on cardiovascular diseases in North-Central Nigeria.

#### **References:**

1. Adewale, A. J. and Rufus, B. A (2005). *Cardiovascular diseases: Emerging threat to sub-Saharan Africa. African Journal of Biomedical Research*, 8(2): 49-54. ([www.ajol.info](http://www.ajol.info))
2. Agbana, R. D., Asuzu, M. C., Fasoro, A. A., and Owoeye, O. O (2016). *Awareness and prevalence of cardiovascular risk factors among workers in an agro-allied company in Nigeria. IOSR Journal of Dental and Medical Sciences*, 15(9): 122-127. ([www.iosrjournal.org](http://www.iosrjournal.org))
3. Ajukun-Chukwu, U. C., Adegoke, O. O. and Awolola, O. T (2018). *Media representation of cardiovascular diseases in Nigeria. The Nigerian Journal of Communication*, 15(2): 71-86. ([www.tnjc.org.ng](http://www.tnjc.org.ng))
4. Alexander, J. M (2005). *A theory of communication and community. Sociological Theory*, 23(3): 1-24.
5. Aliko, D. and Pedio, M (2018). *Cardiovascular diseases: A global perspective. Open Journal of Preventive Medicine*, 8(2): 23-29. ([www.scirp.org](http://www.scirp.org))

6. Aminde, L. M.; Dzudie, A.; Veerman, J. L.; Nuah, T.; Calypse, N.; Jean, J. N.; & Maxime, T. (2017). Population awareness of cardiovascular diseases and its risk factors in Buea, Cameroon. *BMC Public Health*, 17(545): 1-10. ([www.bmcpublichealth.biomedcentral.com](http://www.bmcpublichealth.biomedcentral.com))
7. Amoak, D., Konkor, I., Mohammed, K., Saaka, A. S. and Antabe, R (2023). Exposure to mass media family planning messages among men in Nigeria: analysis of the Demographic and Health Survey data. *Peer J*, 11:e15391. ([www.peerj.com](http://www.peerj.com))
8. Asemah, E. S., and Akpan, J (2022). Perception of media coverage of coronavirus outbreak (in select local government areas) in Edo State, Nigeria. *Mass Communicator Journal of Communication Studies*, 16(1): 4-11. ([www.researchgate.net](http://www.researchgate.net))
9. Awad, A., and Al-Nafisi, H (2014). Public knowledge of cardiovascular disease and its risk factors in Kuwait: a cross-sectional survey. *BMC Public Health*, 14, 1131. ([www.bmcpublichealth.biomedcentral.com](http://www.bmcpublichealth.biomedcentral.com))
10. Bangha, M. W. and Simelane, S (2007). Spartial differentials in childhood mortality in South Africa: evidence from the 2001 Census. *African Population Studies*, 22 (2): 3-21. ([www.aps.journals.ac.za](http://www.aps.journals.ac.za))
11. Boateng, D., Wekesah, F., Browne, J. L., Agyemang, C., Agyei-Baffour, P., Aikins, Ad-G, Smit, H. A., Grobbee, D. E., and Klipstein-Grobusch, K (2017). Knowledge and awareness of and perception towards cardiovascular disease risk in sub-Saharan Africa: A systematic review. *PLoS ONE* 12(12): 1-21. ([www.journals.plos.org](http://www.journals.plos.org))
12. Okpoko, C. C. and Aniwada, E. C (2018). Investigating Health Communication Interventions on Three Major Illness in Nigeria. *South Asian Journal of Social Studies and Economics*, 1(3): 1-9. ([www.journalsajsse.com](http://www.journalsajsse.com))
13. Valdivia, A. N., Tsfati, Y., and Cohen, J(2012). Perceptions of Media and Media Effects: The third – person effect, Trust in media, and hostile media perceptions. In *The International Encyclopedia of Media Studies*, A. N. Valdivia and E. Scharrer (Ed.). Blackwell Publishing Ltd. ([www.onlinelibrary.wiley.com](http://www.onlinelibrary.wiley.com)).
14. Crawford, K., Jakub, K., Lockhart, J. S., & Wold, J. L. (2023). Knowledge, attitude, and beliefs of cardiovascular disease prevention in young adults in the country of Georgia. *Journal of Nursing Scholarship*, 55(5): 903-913. ([www.pubmed.ncbi.nlm.nih.gov](http://www.pubmed.ncbi.nlm.nih.gov))
15. Denis, W. (2009). *Fundamentals of Human Communication* Stirling-Horden Publication Lagos Ibadan. Benin City, Jattu-Uzairue.
16. Ejaz, S., Afzal, A., Hussain, N., Sarwar, M. and Amir, A (2018). Smoking as a risk factor for cardiovascular diseases: A case-control study in Pakistan. *Journal of Pakistan Medical Association*, 68(10), 1456-1461. ([www.pjph.org](http://www.pjph.org))
17. Essien, O. E., Andy, J., Ansa, V., Otu, A. A. and Udoh, A (2014). Coronary artery disease and profile of cardiovascular risk factors in southern Nigeria: A clinical and autopsy study. *Cardiology Research and Practice*, 2014. ([www.hindawi.com](http://www.hindawi.com))
18. Essin, B., Anoy, C., and Udi, J. (2014). Cardiovascular disease in Nigeria: A general review. *Journal of Public Health and Epidemiology*, 6(8), 223-227.
19. Finnegan, K. R., Viswanath, K., Kahn, E., & Hannan, P. (1993). Exposure to sources of heart disease prevention information: Community type and social group differences. *Journalism Quarterly*, 70(3), 569-584
20. Flora, J. A., Maibach, E. W., & Maccoby, N. (1989). The role of media across four levels of health promotion intervention. *Annual Review of Public Health*, 10, 181-201
21. Hadiza, G. (2018). Non-communicable diseases and cardiovascular diseases in Nigeria. *Journal of Medicine and Medical Sciences*, 9(6), 46-52.
22. Ike, S. O. (2020). Cardiovascular diseases in Nigeria: A general overview. *World Journal of Cardiovascular Diseases*, 10(2), 77-84.
23. Kumar, A. (2017). Global burden of cardiovascular diseases: Part I: General considerations, the epidemiologic transition, risk factors, and impact of urbanization. *Circulation Research*, 121(6), 726-739.

24. Luisa, M. R. T.; Francesco, G. G. N.; & Angolillo, I. F. (2015). Survey on knowledge, attitudes and behaviour of 830 Italian women older than 18 years towards information on cardiovascular diseases.
25. Mayer, R. C. (1995). The mass media as social institutions. *Annual Review of Psychology*, 46(1), 357-387.
26. Mbewu A, Mbanya JC. Cardiovascular Disease. In: Disease and Mortality in Sub-Saharan Africa. 2nd ed. The International Bank for Reconstruction and Development / The World Bank, Washington (DC); 2006. PMID: 21290655.
27. Misban, H., & Asemah, E. S. (2011). Media ownership and agenda setting: A case study of Nigeria. *Global Media Journal*, 9(2), 1-20.
28. Mohan, B., Sharma, S., Sharma, S., Kaushal, D., Singh, B., Takkar, S., Aslam, N., Goyal, A., & Wander, G. S. (2017). Assessment of knowledge about healthy heart habits in urban and rural population of Punjab after SMS campaign—a cross-sectional study. *Indian Heart Journal*, 69, 480-484
29. Mondo, C. K.; Otomi, M. A.; Musoke, R.; Akoli, G.; & Orem, J. (2013). The prevalence and distribution of non-communicable diseases and their risk factors in Kesese district, Uganda, *Cadiovascular Journal of Africa*, 24 (3), pp52-57. *African Population Studies* 33, No. 2, 2019.
30. Narine, K. M.; Manlio, V.; Jose, R. M.; & Francisco, L. J. (2020). Cardiovascular disease in Central Eastern Europe: A Call for More Surveillance and Evidence- Based Health Promotion.
31. Nse, A. O.; Temibole, B. A.; Emmanuel, C. O.; & Oluwafemi, O. O. (2021). Towards cardiovascular diseases prevention in Nigeria: A mixed method of how adolescent and young adult in a university setting perceive cardiovascular disease and risk factors..
32. Nse, E. O., Emmanuel, A. A., & Durafemi, T. O. (2021). Risk factors for cardiovascular diseases in Nigeria. *Nigerian Journal of Cardiology*, 18(2), 124-131.
33. Odunaiya, N. A, Adesanya, T. B., Okoye, E. C., & Oguntibeju, O. O. (2021) Towards cardiovascular disease prevention in Nigeria: A mixed method study of how adolescents and young adults in a university setting perceive cardiovascular disease and risk factors. *African Journal of Primary Health Care & Family Medicine*, 13(1), a2200.
34. Okoro, N; Ekweme, I. E. & Ukuno, I. J. (2012). The role of mass media in health promotion: A Nigerian perspective. *Journal of Communication and Media Research*, 4(1), 64-72.
35. Olugbenga, A. O., Owolabi, O. O., Ezika, O. A., & Cross, S. S. (2016). Mass media campaign and smoking cessation: Evidence from Nigeria. *Journal of Preventive Medicine and Public Health*, 49(6), 443-448.
36. Rosediani, M., Ranimah, Y., & Harmacy, M. Y. (2012). Knowledge, attitude and practice on cardiovascular disease among women in North-Eastcoast Malaysia. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 4(1), 85-98.
37. Sanuade, O. A., Kushitor, M. K., Awauh, R. B., Asante, P. Y., Agyemang, C., & Aikins, A. D. (2021). Lay knowledge of cardiovascular disease and risk factors in three communities in Accra, Ghana: a cross-sectional survey. *BMJ Open*, 11:e049451.
38. Serban, L. (2004). Influence of mass media on Ohioans' knowledge, attitudes and behaviours regarding physical activities and health. An unpublished thesis submitted to E. W. Scripps School of Journalism.
39. Soola, E. O. (2004). Mass media and the challenges of national development in Nigeria. *Global Media Journal*, 3(1), 1-12.
40. Tedesco, L. M. R., Guisepppe, G. D., Napolitano, F., & Angelillo, I. F. (2015). Cardiovascular diseases and women: knowledge, attitudes and behaviour in the general population in Italy. *BioMed Research International*.
41. Tesfaye, B. (2018). *Research Methodology*; University of South Africa, PHD Thesis. DOI: The International Encyclopedia of Media Studies: Media Effects/Media Psychology, (1st edition).
42. Thorson, K. (2006). Mass media influences on everyday health: The uses and gratifications of health communication. In R. Nabi & M. B. Oliver (Eds.), *the SAGE Handbook of Media Processes and Effects* (pp. 367-380). SAGE

43. Udjo, E. O. & Lathapersad-pilly, P. (2014). Mortality from non-communicable diseases in South Africa, 1997-2009. *African Population Studies*, 28, pp. 601-609.
44. Ukonu, O. B. (2021). Perception of cardiovascular diseases and its risk factors among adult Nigerians. *Journal of Public Health and Epidemiology*, 13(4), 183-189.
45. Unite for Sight (2000-2013) Health communication strategies [Online] Available: [www.uniteforsight.org/healthcommunication-course/module1](http://www.uniteforsight.org/healthcommunication-course/module1). [Accessed: 25 September 2014].
46. Uzochukwu, C. E., Nwosu, C.J., & Okeke, A. O. (2022). Audience exposure, awareness and compliance with COVID-19 pandemic messages in Nigeria: A study of residents of Anambra State. *Journal of Communication and Media Studies*, 2(2), 1-19
47. Vaidya, A., Aryal, U. R., & Krettek, A. (2013). Cardiovascular health knowledge, attitude and practice/behaviour in an urbanising community of Nepal: a population-based cross-sectional study from Jhaukel-Duwakot Health Demographic Surveillance Site. *BMJ Open*, 2:e002976.
48. Wimmer, R. D.; & Dominick, J. R. (2011). *Mass Media Research: An Introduction (9<sup>th</sup> ed)*. Boston, M.A: Michael Rosenberg.
49. Wodu, A. K. (2018). The influence of mass media on public opinion and political behaviour in Nigeria. *The Nigerian Journal of Sociology and Anthropology*, 16(1), 1-12.
50. World Health Organization (WHO). (2010). *Global status report on non-communicable diseases*, World Health Organization. Geneva

**Table 1: Socio - Demographic Attributes of Respondents**

	Frequency	Percentage
<b>State</b>		
Kogi State	166	31.9
Niger State	185	35.6
Nasarawa State	169	32.5
<b>Age</b>		
Below 36 years	46	9
36-45 years	73	14
46-55 years	183	35
56-65 years	129	25
Above 65 years	89	17
<b>Education level</b>		
No formal education	59	11
Primary education	75	14
Secondary education	100	19
Tertiary	286	55
<b>Marital Status</b>		
Single	89	17
Married	230	44
Widowed	167	32
Separated	7	1
Divorced	27	5
<b>Employment</b>		
Civil Servant	176	34
Unemployed	35	7
Artisan/craftsman	70	14
Trading/business	105	20
Farming	43	8
Student	91	18
<b>Income level</b>		

₦30,000-100,000	35	6.7
₦101,000-170,000	98	18.8
₦171,000-240,000	146	28.1
Above 240,000	163	31.3
Don't have income	78	15
<b>Total</b>	<b>520</b>	<b>100</b>

**Table 2: Exposure to media messages**

Level of exposure	Very large extent	Large extent	Moderate extent	Low extent	Very low extent	Never
I have seen media messages on CVDs	193(37.1%)	153(29.4%)	103(19.8%)	47(4.0%)	11(2.1%)	13(2.5%)
I have seen media messages on hypertension	115(22.1%)	109(21.0%)	123(23.7%)	79(15.2%)	54(10.4%)	40(7.7%)
I have seen media messages on stroke	111(21.3%)	107(20.6%)	115(22.1%)	79(15.2%)	52(10.0%)	56(10.8%)
I have seen media messages on heart diseases	102(19.6%)	136(26.2%)	110(21.2%)	74(14.2%)	48(9.2%)	50(9.6%)
I have seen media messages on arrhythmias	108(20.8%)	101(19.4%)	126(24.2%)	83(16.0%)	61(11.7%)	41(7.9%)
I receive most information from social media	23(4.4%)	24(4.6%)	153(29.4%)	193(37.1%)	103(19.8%)	24(4.6%)
I receive most information from ordinary discussions with family and friends	40(7.7%)	76(15.2%)	109(21.0%)	123(23.7%)	115(22.1%)	54(10.4%)

**Table3: Knowledge on CVDS**

Knowledge level	Very large extent	Large extent	Moderate extent	Low extent	Very low extent	Never
I know about CVDs on Health - matter on channel TV	111 (21.3%)	107(20.6%)	115(22.1%)	79(15.2%)	52(10.0%)	56 (10.8%)
I know about CVDs Health-line on Radio Nigeria.	102(19.6%)	136(26.2%)	110(21.2%)	74(14.2%)	48(9.2%)	50 (9.6%)
I know at least one united Nations day devoted to men related diseases	102(19.6%)	101(19.4%)	133(25.6%)	84(16.2%)	61(11.7%)	13 (2.5%)
I know about other programmes on CVDs	160(30.8%)	143(27.5%)	124(23.8%)	60(11.5%)	20(3.8%)	39 (7.5%)
I hear about CVDs in the media mainly on international days	95(18.3%)	97(18.7%)	120(23.1%)	91(17.5%)	65(12.5%)	52 (10.0%)

**Table 4: Influence of Cardiovascular Diseases health information on the attitudes**

<b>Questions</b>	<b>VLE (%)</b>	<b>LE (%)</b>	<b>ME (%)</b>	<b>LoE (%)</b>	<b>VLoE (%)</b>	<b>Never (%)</b>	<b>N</b>
I have once attempted to stop risky behaviour in line with what I learnt from the media	95 (18.3)	97 (18.7)	120 (23.1)	91 (17.5)	65 (12.5)	52 (10.0)	<b>520</b>
Despite trying, I have not been able to implement health information on cardiovascular diseases	89 (17.1)	130 (25.0)	117 (22.5)	81 (15.6)	57 (11.0)	46 (8.8)	<b>520</b>
I have not yet taken any action after receiving health information on cardiovascular diseases	193 (37.1)	153 (29.4)	103 (19.8)	47 (9.0)	11 (2.1)	13 (2.5)	<b>520</b>
The health information I received simply increased my knowledge on cardiovascular diseases	115 (22.1)	109 (21.0)	123 (23.7)	79 (15.2)	54 (10.4)	40 (7.7)	<b>520</b>
I feel like stopping some risky habits, but I cannot not just do it	111 (21.3)	107 (20.6)	115 (22.1)	79 (15.2)	52 (10.0)	56 (10.8)	<b>520</b>
I have not been well informed about what can be called cardiovascular diseases	102 (19.6)	136 (26.)	110 (21.2)	74 (14.2)	48 (9.2)	50 (9.6)	<b>520</b>
I have made others learn from me after receiving health information or hearing from cardiovascular diseases	161 (31.0)	14 (27.3)	125 (24.0)	59 (11.3)	20 (3.8)	13 (2.5)	<b>520</b>