Health Risk Communication and Awareness of Bad Cholesterol Build Up Among Sedentary Workers: A Qualitative Analyses

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Abstract: **The growing culture of sedentary living has remained a subject of concern in the contemporary time given its grave implication for the health wellbeing of individuals and society at large. Interestingly, research has over time demonstrated that sedentary lifestyle is associated with a host of health risks, including: obesity, high blood pressure, diabetes type two, weight gain, metabolic syndrome, mental health, depression and anxieties among others. However, among health risks of sedentary lifestyle is high cholesterol build-up, also known as hypercholesterolemia. Cholesterol is a fatty substance produced in human body; it may be considered good or bad. Research has shown that the build-up of bad cholesterol in human body poses a very serious health risk which causes ones arteries to become thicker, harder and less flexible and as a result slowing down, and sometimes, blocking blood flow to ones heart. This condition literature has shown, often leads to stroke and consequently death. This research work carried out investigation into the awareness of bad cholesterol build up among sedentary workers in universities in the South-East part of Nigeria. The study made use of Key In-depth Informant research design; a qualitative research method. The sample size of 18 key informants was purposively selected and interviewed. The study was anchored on the Health Belief Model. Findings demonstrated that university workers in the South East Nigeria are very aware of health risk communication on bad cholesterol build-up. That these university workers were predominantly aware of bad cholesterol messages through the social media and internet. That a significant number of the university workers were not aware that their work is a predisposing factor towards bad cholesterol build-up. The study discovered that these university workers did not really comply with the health messages on the measures to control bad cholesterol build-up among them. It is against the above finding that the researchers recommended among others that organizations with predominantly sedentary workforce should from time to time invite experts to educate their personnel on cholesterol build-up wellness to enhance their knowledge and/or encourage healthy lifestyles, healthy diets and physical activities. Furthermore, they recommended that messages on bad cholesterol build-up be developed by health campaign managers in a very clear manner for the audiences' better understanding.**

Keywords: **Sedentary workers, awareness, bad cholesterol build-up, exposure**

I. INTRODUCTION

WHO (2018) identifies bad cholesterol build up "as a global public health concern" Sadly, Nigeria is implicated in this regard (Aderigbe, Sule, Olatona Goodman & Sekoni, 2017). On the other hand, the increasing urbanization and other cultural changes have led to corresponding increase in sedentary lifestyle among people (Crichton & Alkerwi, 2015) and there is ample empirical support showing significant relationship between sedentary lifestyle and bad cholesterol build-up (Shehu, Abdulahi & Adekeye, 2010; Mfrekemfon, Inyang & Orji, 2015; Crichton & Alkerwi, 201Bad). Bad cholesterol build-up, as it were, predispose one to risk of coronary diseases and death (Crichton & Alkerwi, 2015; WHO, 2018).

As a result, sedentary lifestyle and the risks thereof have formed the subject of health campaigns globally including in Nigeria (Ogungbenle, Omeonu, Aduroja & Kukoyi, 2017). Studies have increasingly demonstrated that there is strong relationship between exposure to such communication and awareness/knowledge of health risk of sedentary lifestyle (Jones & Hoang 2005; Adeotun, Akinwusi & Jacob, 2018). Nevertheless, there is ample evidence that the risk of sedentary lifestyle have not received adequate attention as a health campaign issue globally, this is also the situation in Nigeria (Inyang & Orji, 2015; Jones & Hoang 2005). The implication of the foregoing is that this situation is likely to affect the level of exposure and consequent awareness of risks associated with sedentary lifestyle. Therefore, this study focuses on the exposure of sedentary workers in universities in South-East Nigeria to health risk communication on bad cholesterol build-up and the level of their awareness of these risks.

Statement of Problem

Extant literature has shown that as a subject of health campaign, sedentary lifestyle has not received adequate attention that is given to some other health campaigns like: Tuberculosis, HIV and malaria. This situation is even worse in a developing country like Nigeria (Robin, 2017; Adepoju, 2016). The probable implication of this scenario is that there could be little or no exposure to communication on health risk of sedentary lifestyle than communication on these other health risks, thus leading to concern as to possible effect on public awareness of such risk. This is given that exposure is critical to awareness (Adepoju, 2016).

Furthermore, the growing incidence of cardiovascular illnesses linked to bad cholesterol build-up in the country (Dawodu, 2018) points to possible low awareness and/or lack of compliance with safe practices. This statistics most likely suggests that members of the public are yet to be adequately exposed to health risk communication as related to bad cholesterol build-up. However, the fact that these studies failed to also focus on awareness of health practices to forestall bad cholesterol build-up from sedentary lifestyle may constitute a vital gap in understanding the level that people are informed regarding to this health problem.

Research Objectives

The goal of this study is to discover the exposure of the sedentary workers in universities in South-East Nigeria to health risk communication on bad cholesterol build-up. In more precise terms, the following objectives were sought pursued:

i. To discover the extent that sedentary workers in universities in South East Nigeria are aware of health risk communication on bad cholesterol build-up.
ii. To find out the channels through which the sedentary workers got such awareness to this sort of communication.
iii. To discover the extent that sedentary workers are aware that the nature of their work exposes them to the risk of bad cholesterol build-up.
iv. To discover the extent that sedentary workers in South East Nigerian universities comply with precautionary measures to reduce their risk of bad cholesterol build up.

Research Questions

Sequel to the study objectives, the following research questions were handled in the study.

i. To what extent are workers in universities in South East Nigeria aware of health risk communication on bad cholesterol?
ii. Through which channels are the sedentary workers aware of this sort of communication?
v. To what extent are sedentary workers aware that the nature of their work exposes them to the risk of bad cholesterol build-up
vi. To what extent do sedentary workers in South East Nigerian universities comply with precautionary measures to reduce their risk of bad cholesterol build up?

II. LITERATURE REVIEW

Bad Cholesterol Build Up: A Global Health Concern

The body of humans needs a number of substances to grow and develop; one of such substances is cholesterol (Tobas, 2002, p.123). Cholesterol is one of those needs of the body that play a major role in the heart of humans. This substance is fatty in nature, and particularly comes from two sources in human body – first is the liver and the food derived from animals. Good examples of food that contain cholesterol are: meat and full dairy products; cholesterol derived from food is referred to as dietary cholesterol (American Heart Association, 2017).

Contrary to the popular belief of cholesterol as an undesirable substance to human body, longevity and good health, the substance to a very large extent remains vital to the proper function of the human body. It helps in synthesizing bile acids, which assists in absorbing of fats (Bullion, Okamura & Norman, 1995; Girao & Mota, 2000). Beyond that, cholesterol is also required to produce Vitamin D – a very important ingredient for the growth of, and beauty of human skin (Girao & Mota, 2000, p.234). It is also an essential element of cell membranes that provides structural support and serves as a protective anti-oxidant (Girao & Mota 2000). These and so many others are the importance of cholesterol in the body.

Being that cholesterol is naturally water-insoluble, it must be transported inside a substance known as lipoproteins (lipoprotein is a bio-chemical substance whose purpose is to emulsify fats). Various types of lipoproteins exist, but the two most abundant are the low-density lipoprotein (LDL) and the high-density lipoproteins (HDL). The main function of LDL is to transport cholesterol from the liver to tissues into cell membranes, while HDL carries old cholesterol that has been discarded by cells back to the liver for recycling and excretion (Coplo, 2005).

Cholesterol is either considered good or bad, “good or bad cholesterol” (Coplo, 2005, p.122). High-density lipoprotein (HDL) is known as “the good cholesterol” this type of cholesterol is empirically proven to be good for human health, while the low density lipoprotein (LDL) is referred to as “the bad cholesterol” (Stryer, 2002). The bad type of cholesterol is regarded as bad because research has established it to be hazardous to human heart in particular and health in general (Tabas, 2002; Stryer, 2002; Clin, 2000). The high density lipoprotein (HDL) is a heart-friendly lipoprotein; it is known to counter the action of the low density lipoprotein (LDL) by removing cholesterol from the arteries and transporting it back to the liver for safe disposal. Contrarily, the low density lipoprotein (LDL) forms fatty deposits in arterial walls and eventually becomes plaques that grow, rupture and stimulate the formation of artery-blocking blood clots (Nishi, Itabe & Uno, 2000, p.234). In other words, the build-up causes arteries to become thicker and less flexible, slowing down, and sometimes, blocking blood flow to the heart, consequently leading to high restriction of blood flow. Studies have clearly demonstrated that low density lipoprotein is largely related to stroke (Molla, Manser, Lalani, Badrddin, Muhammad & Khurshid 1990; Murrel, 2017). Similarly, high cholesterol is linked to peripheral vascular disease and diabetes (Beckerman, 2017).

Extant literature has also shown that bad cholesterol remains the second highest contributor to the total burden of heart disease, accounting for more than a third (46.3%) of the total burden (Global Burden of Diseases Injuries and Risk Factor, 2010; National Cholesterol Education Programme, 2011; Center for Disease Control and Prevention, 2013). American Heart Association (2017, p.123) also notes that "having high blood cholesterol makes humans vulnerable to heart disease" People with high cholesterol have about twice the risk of heart disease as people with lower levels.

In Nigeria, bad cholesterol build-up has become an important public health issue as it has affected millions of the population. It is identified as one of the major killer diseases in the country. Many people have in the past few years been found to suffer from coronary disease as a result of unchecked sedentary lifestyle which leads to accumulation of bad cholesterol (Emiko, 2011, p.121). Worse still, in Nigeria, there are probably more misconceptions about the challenge of cholesterol build-up than any other health problem (Emiko, 2011, p.123). In addition, Oladipo, Ugbaja and Rotimi (2008) observe that the incidence of chronic degenerative diseases like stroke is somewhat on the increase, and the rate of cardiovascular diseases among Nigerians found to have significant correlation with high accumulation of bad cholesterol (49.9%).

Sedentary Work and Bad Cholesterol Build-Up: What Correlation?

Sometimes referred to as sitting disease, sedentary lifestyle is a term used to describe individuals who engage in prolonged period of sitting (WHO, 2017). While sitting down all day may seem harmless, one may be surprised by the negative impact it has on one's health. These impacts may include: the risk of type 2 diabetes, certain cancer; increase in bad cholesterol build up, heart disease and others (WHO, 2017).

Hilary (2016) provides the following statistics:

> *65% of Americans watch 2 or more hours of television every day. 300 deaths occur annually only in America due to inactivity or sedentary lifestyle and poor dieting habits. 20% of all deaths of people 35 and older are attributed to lack of physical and social activity. Sedentary lifestyle is responsible for an estimated $24 billion in direct medical spending.*

What the above statistics suggests is that sedentary lifestyle remains a huge health challenge to humans around the globe. Nigeria is not an exception. Today the growing culture of sedentary living has remained a subject of concern given its grave implications for the health wellbeing of individuals and society at large (Knight, 2012; Shehu *et al.,* 2010; David, 2002). However, among the health risks of sedentary lifestyle is high cholesterol problem also known as hypercholesterolemia or hyper-lipidemia. Cholesterol, a fatty substance produced in human body, may be considered good or bad depending on its make-up. Thus, there is good cholesterol and bad cholesterol. Research has increasingly demonstrated that the build-up of bad cholesterol in the body poses a serious health risk to an individual (American Heart Association, 2017). Bad cholesterol forms fatty deposits in arterial walls which may eventually grow, rupture and stimulate the formation of artery-blocking blood clots (Nishi, Itabe & Uno, 2000). Stated differently, bad cholesterol build-up causes arteries to become thicker, harder and less flexible, therefore slowing down, and sometimes, blocking blood flow to the heart. This blockage consequently restricts blood flow to the heart possibly leading to chest pain and subsequently to heart attack (CROI Heart and Stroke Center, 2014; Murrel, 2017). It is instructive to note that regular activity remains an essential part of human existence; this is so because it is an important characteristic of every living organism. Human body movement is important for maintaining appropriate body weight, healthy body density; physiological wellbeing, as well as reducing the production of bad cholesterol (Meyers, 2003).

In other words, sedentary workers who are characterized of inactivity, long sitting and/or little or no physical activity are largely exposed to the risk of high cholesterol build-up and coronary disease (Ma & Shiehk, 2006; Mfrekemfom, Inyang & Orji, 2015). Kraus, Houmard, Duscha, Knetzger Wharton and McCartney (2005, p.166) also corroborates the above point when they note that "the systemic practice of physical exercise seems to be an important stimulus to decrease the size of LDL (bad cholesterol), dropping its ability to penetrate the sub-endothelial space"

Recent studies have indicated that the change in lifestyle, like adopting a lifestyle that emphasizes physical exercise is the first frontline to fight dyslipidemia. Also establishing the relationship between sedentary work and cholesterol build-up, Casey (2011) in a cross-sectional study carried out among workers from the *Royal Mail Glasgow* who delivered mails showed that between 2006 and 2007, "There was little or no statistical relationship between the physical activity of mail workers and such conditions like stroke, coronary heart disease and hypertension" This evidence, the researchers argued demonstrated the importance of physical activities towards high cholesterol build up and reduced coronary and heart diseases. Studies have also shown that sedentary disposition has in certain cases led to dyslipidemia, a condition characterized by alterations in the concentration of one or more lipid/lipoproteins in the blood. These changes are closely related to the process of arthrosclerosis development (Diaz, Frei & Keani 1997).

From the foregoing, it becomes clear, based on research evidence that there is strong relationship between sedentary work and cholesterol build-up. Put differently, it is empirically substantiated that there is obvious statistical correlation between increased high cholesterol build up in human body and little or no physical activity which naturally might be engendered by ones nature of work. Only a few studies have shown conflicting results. This correlation has

since become generally acceptable by the scientific community (Crichton & Alkerwi 2015; American Heart Association, 2019; Park, Joh, Lee, Je, Cho, Kim, Won Oh, & Kwon, 2018).

Bad Cholesterol Build-Up, Sedentary Work and Campaign Awareness

Change of behavior remains the utmost priority in any public health campaign, however, in other to do this, the mass media remains a very key tool as it is wielded to inform, and as it were, raise awareness of the public (Matamoros, 2015, p.112). Theoretically, the mass media are supposed to be effective in achieving awareness (Matamoros, 2015). It is in fact, one of its major roles (Matamoros, 2015).

Daniel (2009, p.39) argues that, "for any target audience to be aware of a mass mediated health campaign programmes, the importance of being exposed to such messages remain vital" What this suggests is that awareness remains a very crucial variable in health communication, it works closely with exposure to place the target audience in better position to understand health messages (Daniel 2009, p.38). It is a crucial ingredient to achieving behavior change.

The words awareness and knowledge are sometimes juxtaposed in public health research literature. This is so because they often refer to the general information and perception that people possess and exhibit (Jelani & Sabesan, 2015, p.12). Awareness is the ability to directly know and perceive. It means to feel or be cognizant of events. More broadly, awareness is the state of being conscious of something. Cambridge Dictionary (2000) explains awareness as "the knowledge that something exists, it is acquaintance, conciseness; understanding of a situation or subject at the present time, based on information or experience" Similarly, Merriam Webster Dictionary defines awareness as, "knowing of something (such as awake, conscious, vigilance, watchful and wary). In the same vein, Oxford Dictionaries (2000) says awareness is "the knowledge or perception of appreciation, consciousness, familiarity or fact - the concern about, and well informed interest in a particular situation or development). From these dictionary definitions, it becomes conceptually clear that there is a relationship between awareness and knowledge, because being "aware" is the "knowledge" or information that something exists – hence, when one is aware of a situation, there is the greater possibility of such person being informed or knowledgeable Nwosu, Okeke and Chiaghana (2020) citing (Maker, 2008). However, in a broader perspective awareness is the ability to integrate sensation from the environment with one's immediate goals and feelings, in order to guide behavior. Awareness is a term used to denote "knowledge created through interaction of an agent and its environment - the knowledge of what is going on Nwosu, Okeke and Chiaghana (2020) citing Don (2000)

The above said, awareness is meant to convey how individuals monitor and perceive information surrounding them and the environment they live in. Interestingly, this information is usually deemed as very useful and critical to the survival, performance and success of the target audience. In the present study, awareness can be said to mean the sedentary workers consciousness about bad cholesterol build up. This consciousness usually comes as a result of exposure and attention to cholesterol messages in the mass media – the radio, television, print media, internet, books and at other times, consultation with health and medical professionals. The reason that this awareness remains increasingly important on bad cholesterol, Abugu and Dunu (2020) citing Nuebig (2013) note, "is because high cholesterol does not produce symptoms, so most people are really not aware on the level of their cholesterol- whether it is high or low, unless they are screened for heart disease risk through "lipoprotein profile" a blood test that helps to measure total cholesterol – bad cholesterol (LDL), good cholesterol (HDL) and triglycerides. The implication of this awareness is that there is consciousness of one's cholesterol level and therefore translates to engaging in healthy eating habits, engaging in daily exercise or physical activities.

Cholesterol related awareness campaigns are today conducted in Nigeria by healthcare professionals. Manufacturers of cholesterol containing products in hospitals, schools, work places and market places, especially during health seminars, workshops and international health days. For instance, the Nigerian Heart Foundation organizes a health work and road show with music and dancers offering free health screenings for staff of the Nigerian Union of Road Transport Workers (NURTW) and Market men and women (World Heart Federation 2010). Today in Nigeria, even though campaign messages on bad cholesterol build-up and its negative effects appears infrequently in the media, awareness and knowledge about it seems to be created mostly through products advertisements (Abugu & Dunu 2020), the reason being that manufactures of products that contain oil are mandated to specify the cholesterol compositions of their products (NAFDAC Fats and Oils Regulation, 2005; Codex Guidelines 1993). This development, Abugu and Dunu argues, "have led to the rampant use among certain producers such slogans like 'no cholesterol', 'heart friendly', 'low cholesterol' 'cholesterol free' It is in reaction to this that most buyers of vegetable oil and dairy products prefer cholesterol free products (Okpuzor, Okochi, Ogbunugafor, Ogbonnia, Fagbayi and Obidiegwu, 2009).

In addition, awareness has also been created from Disease Awareness Advertising (DAA) (Dunu & Abugu). This type of campaign occurs when pharmaceutical organisations promote disease or conditions rather than named treatments. This kind of advertising however has been criticized for providing unbalanced information, or exaggerating the prevalence or severity of a condition which may cause consumer anxiety (Hall & Jones, 2006; Hall, 2008). It is used in creating awareness about cholesterol build up in Western countries like: the US, Australia, Canada etc. Although presently, awareness and campaigns on bad cholesterol build up among Nigerians is in the media, there seems to be barrage of

contradictory cholesterol information received from the media and this seems to pose a challenge.

Compliance a Critical Variable of Health Behaviour Change

The main purpose of every health campaign message is to effect change that will bring about improved living. Compliance in this study would mean the acceptance of those messages that educate people on the challenges of bad cholesterol build-up and the careful application of those messages, with the view that when applied, they will help address the health challenge (Nwosu, Okeke & Chighana, 2020, p.21). When viewed from the prism of this study, compliance would simply mean when sedentary workers receive health campaign messages that harp on the importance of avoiding negative health habits that increase their cholesterol level, which may lead to heart problems and death. They not only internalize these messages, but strictly apply them to address their health problems. Interestingly, studies have shown that a number of health campaign messages fail completely to achieve their purpose (Gordon, 2002, p.2). Some of these factors Gordon (2002) notes includes: "perception of risks, perception of self, environmental conditions (physical and social), and perception of cost benefits" Further Okoro, Nwachukwu and Ajero (2015) concurs with Nwosu, et al when they argue that "the success of health campaign messages is not guaranteed by surfeit of factual messages on any health issue, sometimes, health communication can raise public awareness on a health issue without a corresponding adoption of the promoted health intervention". The authors argue that "there are a number of intervening variables that may impinge on the receptivity, acceptance and adoption of health intervention campaigns" Such factors Okoro et al. opine may include "culture, socio-economic factors, efficacy of promoted interventions, education and the message" In other words, when health campaign managers fail to put these factors into consideration while planning health campaign programmes, there is the possibility that such programmes will fail.

Put differently, and in line with the present study, cholesterol campaign programmes aimed at educating the audience on the relationship between sedentary work and bad cholesterol build up must bring the identified intervening factors to table while embarking intervention programmes – this would to a large extent ensure positive attitude change on the target audience.

III. THEORETICAL FRAMEWORK

This study is supported by the Health Belief Model (HBM). The model is a theory developed in 1950 by Geoffrey Hochbaum with further work done on it by Becker, Haefner and Maime in 1977. The model addresses personal knowledge and beliefs used in health promotion to design intervention and prevention programmes, with focus on assessing health behaviour of individuals through examinations of perceptions and attitudes someone may have towards a disease and negative outcomes of certain actions (Burke, 2013, p.1).

The Health Belief Model tries to explain why sometimes many people, despite advertised benefits would not participate or comply with health programmes. The model assumes that people are likely to accept and adopt health interventions if they:

1. believe that they are susceptible to the condition (perceived susceptibility)
2. believe that conditions has serious consequences (perceived severity)
3. believe that taking action would reduce their susceptibility to the condition or its severity (perceived benefits)
4. believe that cost of taking actions (perceived barriers) are outweighed by the benefits
5. Are exposed to factors that prompt action (e.g. television, advert or a reminder from ones physician to get mammogram) (cue to action) (National Cancer Institute, 2005, p.24).

Health belief model clearly explains why sometimes people do not respond positively to health campaigns, irrespective of the benefits derivable from them. From the foregoing therefore, it becomes reasonable to argue or speculate that sedentary workers in South East Universities of Nigeria would consequently accept, adopt and as it were, comply with bad cholesterol build-up campaign messages to bring about attitude change, when they believe that they are susceptible to this condition. Similarly, when they find bad cholesterol build-up as factor that causes serious consequence for their improved living. Or when they believe that their actions would improve their health conditions. Furthermore, when they believe that there are benefits derivable from their positive health actions and when they are exposed to media campaign messages that urge them to avoid risk factors that can lead to high cholesterol build up; a predisposing factor to heart disease.

IV. METHODOLOGY

The method adopted for this study was the key informant interview (KII). The Key Informant Interview (KII) is a qualitative method of research that enables the researcher to gather, analyse and interpret his/her data in a descriptive thematic method (Nwodu, 2017, p. 128). This type of research design involves transcription of the KII responses, critical reading of transcript to observe emerging themes on which analysis and interpretation will be based.

Population of Study

The population of the study is the staff members of universities in the South-East Nigeria. These comprise both teaching and non-teaching workers. By virtue of the nature of their jobs, university workers continuously spend long hours sitting. While the non-teaching staff members ordinarily carry out their administrative tasks on desk, their teaching counterparts spend a large part of their non-classroom time marking scripts, reading, writing and doing other tasks

requiring sitting. The sum of this population is 37, 192, according to the registries of the institution reflected.

Sample Size and Sampling Technique

There are about twenty universities in the five South-East States of Nigeria. They include: five federal, five States and ten private universities. Out of the five States of South East, the researcher randomly chose three: Anambra, Abia and Imo State, from the selected three states, three universities were randomly chosen for each state (For Anambra: Madonna University, Odumegwu Ojukwu University and Nnamdi Azikiwe University were chosen, Abia had Gregory University Uturu, Abia State University and Micheal Okapra University Umudike, Imo state had Hezekiah University, Imo State University and Federal University of Technology Owerri), this amounted to nine universities in all. At this stage, the researcher purposively chose two staff members (one teaching and one non-teaching staff of each of the universities) this produced eighteen key informant interviewees (nine teaching staff and nine non-teaching staff members). These people formed the respondents for the study.

V. DATA PRESENTATION AND ANALYSIS

In presenting and analyzing the data gathered from the key informants, the researcher thematically interpreted the data obtained. The analysis yielded the following:

Participants' Demographic Variables

The researcher purposively selected the KII interviewees to reflect the demographics relevant to the study. Therefore, 9 interviewees were teaching staff of the selected universities, while 9 of them were non-teaching staff members. Furthermore 10 of the interviewees were males while 8 of were females. 2 of the interviewees were between the ages of 18 - 28 years, 3 fell between the ages of 29 to 30 years, 7 fell within the age range of 40 to 50 years, while only 6 were above 50 years. 10 of the participants were in the senior staff category, while 8 were in the junior staff category.

Participants' Awareness to Health Risk Communication on Bad Cholesterol

RQ 1: To what extent are workers in universities in South East Nigeria aware of health risk communication on bad cholesterol build up?

The interviewees generally showed that they have been exposed and are aware of health risk communication on bad cholesterol build up. A significant number indicated that they have in one way or the other encountered and are aware of media messages on cholesterol build-up.

Interviewee 1, for instance, said:

> *Yes, I think I have encountered different messages, or do I say messages that revolve around bad cholesterol build up a number of times, and aware of the health implication of the condition. Most of the time, the reception of such messages that create awareness on bad cholesterol build-up are not planned, they are just accidental, and I have received it on regular bases. (Teaching staff, male, 29)*

Furthermore, interviewee 3 (Teaching staff male, 34 years) seem to also agree with the position of interviewee 1. He has this to say:

> *I am certainly aware of messages on bad cholesterol build up and this has been on many occasions; when I say "many occasions, I mean on the bases of at least five or six times every month. The nature of these messages have particularly revolved around such themes like "avoiding food that contains a lot of fat" "avoiding red oil" Such African delicacies like abacha (African salad) made with sapolified oil, "isi-ewu" and "nkwobi" African delicacies. Things like "red oil soup" are no go areas. I am also aware of such messages that encourage one to avoid drinking alcohol, avoidance of red meat and to partake in routine exercise.*

However, it might be instructive to note that it is only interviewee 4 (non teaching staff, female 30 years) that expressed surprise on being aware of any message that lay emphasis on good or bad cholesterol build up. All the same, she also indicated that she is aware of messages on just cholesterol build up and not necessarily the 'bad or good cholesterol" Hear her:

> *I am a bit confused about the bad in cholesterol, I say this because I am not aware that there is bad and good cholesterol. But as for cholesterol which I feel has become a nagging health issues in the recent time, I am sure that I have encountered media messages on them, and as such aware of them. When I say media messages, I mean messages from different platforms or channel of media. These messages have come severally, that is not once, twice thrice or even four times but on several occasions. So based on your question, I will say that I am very much aware of health messages on cholesterol build up*

From the foregoing therefore, it is inferred that most of the interviewees indicated that they are aware of media messages on cholesterol build up. This is demonstrated by the fact that almost all of them answered in a positive manner that they have been exposed in one way or the other to messages on bad cholesterol build up, and as such aware of the situation.

Thus, the interviewees could said to be generally aware of health risks communication on bad cholesterol build up. Based on the foregoing, the first research question is answered by stating that, to a significant extent, workers in universities in South-East Nigeria are aware of health risks communication on bad cholesterol build up.

Interviewees' Channels of Awareness

RQ 2: Through which channels are the sedentary workers aware of this sort of communication?

This research questions sought to discover the channels of communication that university workers dominantly received the awareness on bad cholesterol build up. Interestingly, all the interviewees noted that they received awareness of bad cholesterol build up from one media channel or the other – while a little number of interviewees indicated that they received these messages through interpersonal channels, radio and television, a significant number noted that they particularly got such messages from social media platforms like: whattsapp, Facebook, Twitter, ToGo, Pininterest and some health blogs online. It might be instructive however, to note that 15 out of the 18 interviewees mainly emphasized the social media as the dominant media channel they accessed media messages on bad cholesterol build up.

The response of interviewee 11 is enlightening here:

> *I particularly encounter these messages on bad cholesterol build up on the internet and the social media like: Facebook and Twitter, at other times, whatssApp and even online health blogs. I usually receive such messages on malaria, HIV/AIDS, lassa fever and even the present Covid-19 pandemic more on traditional media like the radio and television and even newspapers, but I frequently receive messages on bad cholesterol build up on social media (teaching staff, male, 35 years).*

Furthermore, interviewees 13, 14, 15 and 16 also noted that they also got messages on cholesterol build-up more from the social media. However, it might be worthy to note that some of these respondents noted that they accessed other health problems particularly from traditional media or interpersonal communication, but usually messages on cholesterol build up were received from the social media. Interviewee 17 (Non-teaching staff, 27) has this to say:

> *Yes, I have encountered a lot of messages on bad cholesterol build up, mostly on the internet. There is this websites known as marioclinic.com and healthline.com, I have encountered loads and loads of these messages on them. The internet remains the place I have received messages on cholesterol build up.*

However, a particular interviewee had a different answer that to some extent provided an insight into the way health messages on bad cholesterol are brought to people. This is what she said:

> *I encountered the message through these mobile health practitioners that come to different places to advertise their products. It was not particularly a health seminar, but one on one, or do I say interpersonal communication but those people particularly sold their drugs. Most times, they are armed with very deep knowledge on health issues and as they sell their drugs, they used that opportunity to educate their audience on the health issues and challenges that people face.*

What the above presupposes is that beyond the internet, traditional media and maybe, print- media platforms, these messages are also passed, especially in Nigeria, through health practitioners who advertise their products and make use of such opportunity to educate their audience. From the data gathered here, it is clear that significant number of the interviewees noted that their dominant channel of receiving messages on cholesterol build-up is the social media and internet. This is followed by the interpersonal channels like friends, families, personal doctors and sometimes through people that advertise health products. This is followed by the television, which only very few people indicated as channel of receiving bad cholesterol messages. Consequently, it may be stated that sedentary workers in universities in the South-East predominantly are aware of this bad cholesterol messages through social media and internet. This is closely followed by interpersonal channels and television.

Extent of sedentary workers Awareness that the nature of their work exposes them to risk of bad cholesterol build up

RQ 3: To what extent are sedentary workers aware that the nature of their work exposes them to the risk of bad cholesterol build-up?

This particular research question tried to find out the extent that sedentary workers in South East universities are aware that the nature of their work exposed them to bad cholesterol build up. The data gathered from the interviewees provided the bases for analyzing the question. Interviewee 5 (teaching staff, male, 50 years) notes the following:

> *I don't know that sitting down for a long time predisposes one to the risk of cholesterol build up. In all sincerity, I am not aware of this. I am learning this for the first time.*

Another interviewee, 6 (non teaching staff, female, 30) provided her answer this way:

> *Believe you me Sir; I must really be sincere with you that I am not aware that my job predisposes me to risk of bad cholesterol build-up, or that long hours of sitting due to my work exposes me to risk of bad cholesterol build-up But from what you are saying now I feel it is the truth. I say so because cholesterol is something that comes with fat and when someone eats a fatty food a sits in one place for a long time, I think ordinarily this fat will build up because of the absence of exercise, which I feel, burns fat.*

Surprisingly, out of the 18 interviewees who were presented with this question on their level of awareness on the nature of their jobs as a predisposing factor to the increase of bad

cholesterol, only three of them were aware that sedentary nature of their work was a risk factor towards accumulation of bad cholesterol. One of them, interviewee 11 who said he was aware put it this way:

> *Yes I am aware that sedentary work, which affects one from carrying regular activities or exercise is a predisposing factor towards the accumulation of bad cholesterol; a risk factor towards heart sickness. The truth remains that when someone is sedentary, he/she sits for long hours and because it affects one's ability to have regular exercise, it builds the persons cholesterol. (Teaching Staff, male, 35 years)*

What the ongoing data suggests is that a significant number of the respondents were not aware that their work is a risk factor towards the bad cholesterol build-up in their body. In other words, it becomes logical to state that a significant number of sedentary workers in the South East universities are not aware that the nature of their work exposes them to the risk of bad cholesterol build-up? This is very instructive, as the present data reveals that one might be aware of a particular health condition and yet not aware of practices that increases such condition.

Compliance with precautionary measures to precautionary measures to reduce their risk of bad cholesterol build-up

RQ 4: To what extent do sedentary workers in South East Nigerian universities comply with precautionary measures to reduce their risk of bad cholesterol build up?

This research question sought to discover the extent that sedentary workers in South East universities complied with messages on precautionary measures to reduce bad cholesterol. The data gathered from the interviewees showed that a significant number of the interviewees were aware of the precautionary measures to avoid bad cholesterol build up, ironically, more than half of the same interviewees did not actually comply with these precautionary measures to reduce the risk of bad cholesterol. Almost all the interviewees said that they were aware of the precautionary measures to avoid bad cholesterol build up but less than half of them said that they either comply with these precautionary measures partially, or fail to comply at all. Hear interviewee 2 on this:

Yes, I am really very aware of the precautionary measures that people should take in other to avoid increase of bad cholesterol, but putting those precautionary measures into practice has remained the problem. Many times, it's either that I find it difficult to run away from junk food, so much fat and have little or no time to carry out exercise. This is a big challenge

Interestingly almost 13 out of the 18 Key informants had similar answer with the above informant. They all indicated their awareness of the precautionary measures that they may take to reduce their risk of bad cholesterol build up, but said that they seldom comply with these measures. From the foregoing it is clear that although the informants are very much aware of the precautionary measures that they may take to reduce their risk of bad cholesterol build up, a significant number of them don't really comply with these measures.

VI. DISCUSSION OF FINDINGS

The study came up with four findings which are discussed in this section. The first finding showed that a significant number of workers in universities in South East Nigeria are aware of health risk communication on bad cholesterol build up. This finding eventually is in congruity with that of Abugu and Dunu (2020), who found out in their study of bankers in Nigeria that about 73.8% of the respondents are very much aware of cholesterol build up as they have at least encountered such message once in a while, read or listened to such information. Similarly Calvani, Sisto, Tosato, Martone and Ortolani (2018) study agree with the present study as they note that more than half of the respondents were aware of the health implication of bad cholesterol build up. Such was also the discovery of Aranmolate and Obayemi (2018) who found out that 69.8% of Hispanic whites were aware of the implication of high cholesterol build up. Ironically, the same study however, indicated that their non-Hispanic black counterparts had low awareness – the researchers therefore extrapolated that race appeared to have played a role in their level of awareness. The second research finding showed that the university workers in South East Nigeria were predominantly aware of bad cholesterol messages through the social media and internet. The above finding lends credence to the fact that the Internet, especially in the 21st century has become the dominant channel of disseminating health messages (Weser, Bradshaw, Gualtieri, Gallagher, 2010; Parnett, Lima, Tamayo, Gutierrez & Sanchez 2010; Mo 2012). Likewise, in a more precise manner (Vance, Howe, Dallavalle, 2009) found that cholesterol message were disseminated more predominantly through the internet than any other media channel. Dunu and Abugu (2020) differed in this direction as they note that cholesterol awareness messages were distributed more through such traditional media like advertising platforms. This somewhat demonstrates to a large extent the importance of the internet, social media and traditional media in creating health awareness among people. The third research question shows that a significant number of the interviewees were not aware that their work is a predisposing factor towards bad cholesterol build-up. This finding is important as it shows clearly that one can be aware of a particular sickness without corresponding knowledge of the things that cause such sickness. Ugo (2020) discovered the same when he carried out an investigation on knowledge and awareness of Covid 19 pandemic. He notes that "respondents were very much aware of the ravaging pandemic, but could not provide answers to what causes the sickness" In the same manner, respondents in the present study were aware of the implication of bad cholesterol build, yet were not aware that their sedentary work was a predisposing factor to bad cholesterol build up. Finally, the last research question indicated that the informants were very much aware of the precautionary measures that they may take to reduce their risk

of bad cholesterol build up, a significant number however did not really comply with these measures. Okoro, Nwachukwu and Ajero (2015) provide an insight on which the researchers extrapolate that there might be a number of intervening factors that affected the respondent's compliance to bad cholesterol messages. Research has shown that such factors like culture, education, the message, socio economic factors can affect people from complying with health messages (Okoro, Nwachukwu and Ajero, 2015).

VII. CONCLUSION AND RECOMMENDATION

The result of this study demonstrates that university workers in South East Nigeria are aware of health risk communication on bad cholesterol build-up. That these workers were predominantly aware of bad cholesterol messages through the social media and internet. The study on the other hand discovered that a significant number of the interviewees were not aware that their work is a predisposing factor towards bad cholesterol build-up. It also found out that university workers in the South East did not really comply with the health messages on measures to control bad cholesterol build-up. From the foregoing therefore, it becomes obvious that there is the possibility for people to be bombarded with health messages, which they understand, but fail to comply with.

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

i. Health messages on bad cholesterol build-up and its health implication should be developed by health campaign managers in a very clear manner and lay emphasis on adoption of measures to proactively manage the situation as well as highlight consequences for failing to do so.
ii. There is the need for careful follow up by health media campaign managers who enlighten people on the implication of bad cholesterol on individuals. This follow-up would somewhat help in creating more consciousness on the importance of complying with measures to cope with this bad cholesterol build up.
iii. Organisations with predominantly sedentary workforce should from time to time invite experts to educate their personnel on cholesterol build-up wellness to enhance their knowledge and/or encourage healthy lifestyles, healthy diets and physical activities.
iv. The media should engage more in reportage and discussions on cholesterol research, findings and debates to present the public with up-to date authentic bad cholesterol build-up and awareness information.
v. The media should ensure that cholesterol build-up news and wellness information targeting sedentary workers are adequately available online, since sedentary workers rely more on internet/social media for their exposure and awareness.

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