



EXPOSURE, PERCEPTION AND RESPONSE TO KETOGENIC DIET INFORMATION AMONG WORKING CLASS ADULTS FEMALE IN ANAMBRA STATE

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ABSTRACT: *Ketogenic diet is used in weight control. This study aimed at finding out exposure, perception and working-class adult females' response to Ketogenic diet information. The specific objectives are: To examine the exposure level of the working-class adults in Awka Anambra state to ketogenic diet information, to determine how they perceive the ketogenic diet information, and finally, to examine how the working-class adult females respond to Ketogenic diet information. This study was designed as a survey. Using an online sample size calculator, a sample of 384 civil servants was drawn from 21 Ministries in Anambra State. The study was anchored on the health belief model and uses and gratification theory. Findings from the survey indicate that a greater number of working-class adult female in Awka Anambra are exposed to ketogenic-diet information through the social media and interpersonal communication. It was also discovered that majority of the working-class adult females in Awka Anambra State sees the ketogenic – diet information in a good light but respond to it minimally due to some challenges mention in this work. The study recommended that the influencers of the ketogenic diet on the internet should be properly informed on the benefits and effects of this diet while disseminating necessary information. And as well let the dieters know beforehand that in as much as there are benefits of engaging in the diet plan there are also some unpleasant experiences they might encounter. It has been established in this study that ketogenic information helps the respondents make informed decision concerning their health. This study however also recommends that Ketogenic diet ingredients should be made available and affordable at all time.*

KEYWORDS: Exposure, Perception, Responses, Ketogenic, Diet, Information, working class.



INTRODUCTION

Ketogenic diet (KD) is a high fat and protein diet with very restricted source of carbohydrates. Paoli, Bianco and Grimaldi (2015). Biologically, it mimics the starvation or fasting state in the body. Historically, KD was used to alleviate the symptoms of epilepsy. According to Lee, Kossoff (2011) this type of diet is currently getting an increasing popularity due to its promise of weight management. Alarim, Alasmre, Alotaibi, Alshehri, and Hussain (2020) pointed out that KD are also used for controlling of hyperglycemia in Type 2 diabetics, maintaining of muscle strength for athletes, decreasing the burden of metabolic syndrome and finally, alleviating the symptoms of autism.

However, as stated by Altamimi, Badrasawi, & Khaled, (2021) the power of the traditional mainstream media and the social media in producing reliable and factual content is crucial especially as it concerns health communication. This is deemed crucial so as to help people make informed decisions as regards their health status. The social media invariably carries the Ketogenic diet information in multiple layers which is frequently supported with photographs, images, audio and video clips of health experts and trainers who in one way or the other tries to inform their followers on what is expected of them so as to achieve their desired aim in living the Keto lifestyle (Masood, Annamaraju & Uppaluri, 2020). Also, blogs, twitter, instagram and facebook are few tools which keep regular updates and attract the followers, members as peers on social media.

Facebook and instagram however, attracts the maximum and could be considered as power house for such information. It is assumed that some of the groups loading daily dose of fitness might not exist without facebook. (Karami, Dahl, Shaw, Valappil, Turner-McGrievy, Kharrazi & Bozorgi, 2021).

Study has also shown that people get exposed to ketogenic diet information through interpersonal communication which according to Okunna and Omenugha (2012, p.16) is information that takes place when two or more individuals are involved. It is therefore, communication that goes on between persons mostly on face to face basis. As people relate to each other, they tend to develop likes or dislikes for certain healthy life style. This type of communication could take place between family members, friends, and colleagues as the case maybe.

Ketogenic diets gained momentum here in Nigeria from 2015 and have since started to increase in popularity as doctors and researchers investigate the potential benefits as well as the risk involved in embarking on this lifestyle. Nutritional ketosis which is the aspirational endpoint of ketogenic diets, according to studies are achieved by restricting carbohydrate intake, moderating protein consumption, and increasing the number of calories obtained from fat (Rejeki, Lutvyani, & Tjempakasari, 2021)

Ketogenic diet has been controversial from decades. Controversial in the sense that most individuals think that these diets because they are high in fat, cause cardiovascular diseases and raise cholesterol and triglycerides level While some other people as opined by Oh and Uppaluri (2019) see it as one kind of diet which is broadly used to lose body weight and manage chronic health conditions. However in nutrition science, most of the studies show that Ketogenic diet is healthy and beneficial. Therefore this study aims to find out how



female working class ladies in Anambra state are exposed to, perceives and responds to ketogenic diet information.

Statement of Research Problems

Ketogenic diet is used in weight control. (Kennedy, Bickerdike, Berge, Dick, & Tochera, 2001, as cited in Omozee and Osamuyimen, 2018). Ketogenic diet is not only useful in weight control but also it has shown to result in improvement of metabolic syndromes.

Studies have shown that changing of diet from high carbohydrate low fat diet to high fat low carbohydrate diet resulted in a significant reduction in body weight, improved glycemic control and also led to a reversal of a six years long decline of renal function in patients with type 2 diabetes.

Therefore, consumers who are health conscious usually engage in healthy behaviors (Nguyen, Nguyen, & Vo, 2019). They care about the desired state of their well-being thereby shifting to the consumption of products from natural ingredients, which contain natural vitamins and minerals rather than additives and artificial ingredients (Ling, 2019; Takaya, 2019).

However, with the help of the traditional mainstream media, interpersonal communication, the internet, and probably the physicians,' information on ketogenic diet has indeed spread far and wide like wild fire in a heavy harmattan. The social media most importantly is playing a significant role in generating and transferring information voluminously every day. As such, it is flooded with unaccountable information on all forms of diet plans and health information generally (Simran, 2018). The ketogenic diet information has therefore gained momentum among females worldwide and specifically the working-class adults' females in Awka Anambra state in recent times. Most women in a bid to look trendy, slim and probably remedy their health problems through dieting, opted for ketogenic diet through information gathered on the diet. Forgetting the fact that information related to science and health is important only when health experts, patients or users of such information are constantly in touch. This paper however intends to fill the gap in literature by finding out how these women get exposed to the ketogenic diet information, how they perceive such diet information, and then probably respond to it.

Objectives of the study

The general objectives of this study are to examine how the working-class adults in Awka Anambra state are exposed to, perceive and respond to ketogenic diet information. Essentially, the specific objectives include the following;

1. To find out how the working-class adult female in Awka Anambra state are exposed to ketogenic diet information.
2. To determine the perception of the working-class adult female to ketogenic diet information.
3. To ascertain the response of the working-class adult female to Ketogenic diet information



Research Questions

Based on the above objectives, the paper sets out with the following research questions:

1. How are the working-class adult female exposed to ketogenic diet information?
2. How do these respondents perceive the ketogenic diet information?
3. What is the response of the working-class adult female to ketogenic diet information?

Significance of study

The study remains significant because it contributes towards filling the existing contextual and locational gap in the literature on the working-class adults' exposure, perception and response to ketogenic diet information in Awka, Anambra state. For instance, quite a number of studies on ketogenic diet were conducted in foreign countries with very few of it emanating from Nigeria. Previous studies were on either the effect or benefits of the ketogenic diet on the adherents. But this study is basically on ketogenic diet information. The findings have the potential to contribute to the body of knowledge about how the respondents are exposed, their perception and response to the ketogenic diet information.

Scope of the study

This study focused on the issue of the exposure, perception and response to ketogenic diet information. This study was restricted to measuring how the working-class adults in Awka, Anambra state Nigeria is exposed to, perceive and respond to ketogenic diet information. Any region in Nigeria could have sufficed for the purpose of this study. Anambra state was therefore chosen with the belief that further studies revolving around the subject could be conducted elsewhere.

Brief Historical Overview of ketogenic diet

Ketogenic diet is a term that shows dietary therapy with diet composition that result in ketogenic state in human metabolism. Ketogenic diet contains very low carbohydrates (20-50 gram per day), high fat, and enough protein. Macronutrient intake from ketogenic diet has 55-60% fat, 30-35% protein, and 5-10% carbohydrate composition (Oh and Uppaluri, 2019). Ketogenic diet was originally used as therapy for epilepsy patient both in children and adults. Then this diet was later used for people with diabetes, cancer, cardiovascular disease and weight loss.

Ketogenic diet according to (Meira, Romão, Prado, Krüger, Pires, & Conceição 2019) is one of effective non pharmacological measures for intractable epilepsy since 1920. Some literature shows that fasting is a therapy to reduce the symptoms of seizures in epilepsy sufferers. At the beginning of 5th century BC, Hippocrates wrote that fasting was useful for controlling seizures (Caraballo and Vining, 2012). In 1911, Guelpa and Marie, medical doctors from Paris noted the use of fasting as therapy for epilepsy.

Later In 1921 Dr. Russel Wilder, a medical doctor in Mayo Clinic Minnesota formulated the idea that high fat and very low carbohydrate diet can cause ketonemia (effect like fasting). Dr. Wilder however, built classic ketogenic diet concept consisting of ketogenic and anti-ketogenic component that can be useful for epilepsy therapy (Meira et al., 2019; Caraballo



and Vining, 2012; Roehl and Sewak 2017). As Caraballo & Vining (2012) asserts that “In 1925, a pediatrician named dr. Peterman made improvements to ketogenic diet and determined minimum daily calorie requirement of 75% of nutritional adequacy rate for certain height and weight and protein as much as 1 g/kg body weight.” (as cited in Diana and Atmaka 2020, p. 185).

Calculation of classic ketogenic diet until this day is still the same as initial formulated composition by Mayo Clinic, which is 1 gram protein/kg body weight, 10–15-gram carbohydrate, and remaining calories come from fat (Roehl and Sewak, 2017).

Ketogenic diet began to be considered as diet for weight loss after development of low carbohydrate diet, such as Atkins diet. In 1970, Robert Atkins developed diet to lose weight by limiting carbohydrate intake (Atkins diet), then this diet was also used for seizure therapy in people with epilepsy (Meira, et al. 2019). Since 1972 low carbohydrate diet has been used as one strategy for weight loss. Currently, attention to low carbohydrate diets continues to grow, including ketogenic diet.

Conceptualizing Ketogenic Diet

Ketogenic

It is a diet high in fat and low carbohydrates (sugar) that causes the body to breakdown fat into molecules called ketones. Ketones circulate in the blood and become the main source of energy for many cells in the body.

Ketogenic diet

Ketogenic diet is a specific type of diet in which low carbohydrates are taken but the content of fats and proteins is kept high in food. So the body's weight is reduced with high fats. This way of dieting according to Ding, Xu, Wu, Huang, Kong, Liu, & Liu, (2019) has also been in process for several years and it increases the biochemical effect of fasting. As the intake of carbohydrates is reduced, the body is then forced to switch to fatty acid oxidation. As in this type of dieting, calories are restricted so it also gives benefit by reducing the risk of different diseases. However, in recent time, as opine by Kayode, Kayode and Oyeboode, (2021), there seems to be a lot of buzz about the ketogenic diet in Nigeria because many, especially women believe it will help them get their desired body shape, cure nearly any health problems, and help them live longer They therefore use ketogenic diet as a means of weight control and health management procedures. According to Kayode, et al., (2021) Nigerian Keto dieters in other to achieve their desired goal of dieting eat the following; Avocado, coconut and coconut oil, olive oil, palm oil, nuts and nut butters, egg yolks, butter, cheese, a small amount of protein like meat, poultry, fish, seafood, eggs and very low- carb and non-starchy vegetables. Like kale, spinach, lettuce, Brussels sprouts, broccoli, onions and cucumber.

Types of Ketogenic diet

1. Standard Ketogenic diet (SKD): This is high fat, moderate protein and very low carbohydrate diet. It contains 70-75% fat, 20% protein, and 5-10% carbohydrates.
2. High protein Ketogenic diet: This diet includes more protein and their macronutrient ratios are fat 60%, protein 35% and 5 % carbohydrate.

3. Cyclic Ketogenic diet: This diet includes regular periods of high carbohydrates days in Ketogenic diet. For example 5 days ketogenic diet followed by 2 high carbohydrate day as a cycle.
4. Targeted Ketogenic diet: This diet contains more carbohydrate around the intensive physical workout duration to increase workout stamina and prevent muscle loss. However, the percentage of carbohydrates depends of types and duration of workout.

Ketogenic diet according to the following studies are currently used for weight loss (Kirkpatrick et al., 2019), diet therapy for cancer (Weber et al., 2019), mitochondrial dysfunction (Hasan-Olive et al., 2019), alzheimer (Rusek et al., 2019), inflammation, oxidative stress (Pinto et al., 2018), and movement disorders and severe or traumatic brain injury (McDougall et al., 2018).



Source: *KetoNaija facebook wall (2023). An example of Nigerian ketogenic diet*



Source: *ketogenic world facebook wall 2023 Egg shawrama and unsweetened almond milk.*



Ketogenic Diet Information

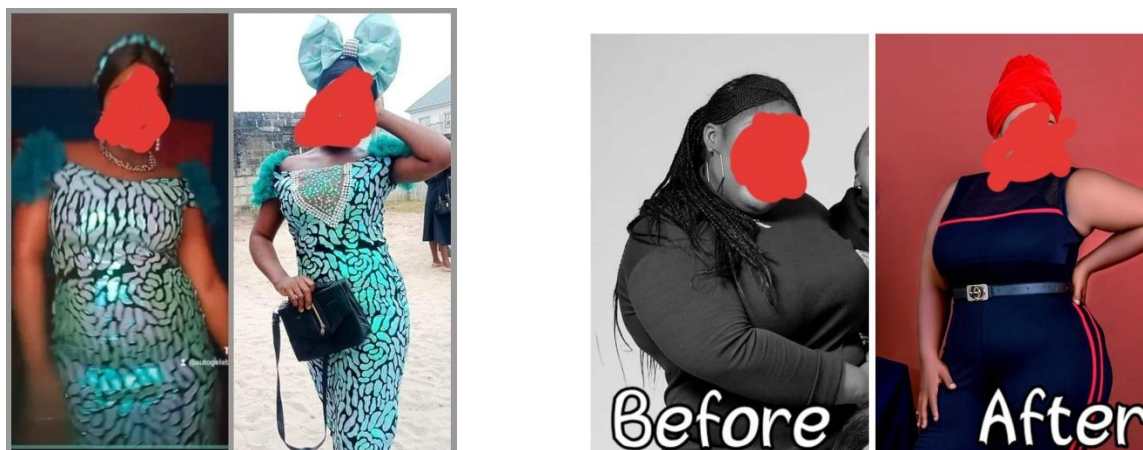
Social Media as a Tool of Exposure

Social media has fundamentally changed the way we communicate, collaborate, consume, and create content. The ease with which content can be shared according to (Lynn, Rosati, Leoni Santos & Endo, 2020) has resulted in a rapid increase in the number of individuals or organizations that seek to influence opinion and the volume of content that they generate. The nutrition and diet domain is not immune to this phenomenon. And unsurprisingly, it has emerged as a major source of health information. (Silver, Huang, & Taylor, 2020).

In recent times, social media sites have become mainstream channels of communication, with growing popularity across the U.S. in the last decade (Karami, Lundy, Webb, & Dwivedi 2020). Ketogenic diet information therefore is disseminated on these platforms. However, the social media platforms as opined by (Akram, Nasar & Arshad-Ayaz, 2022) have served the definition of a global village through a click of an internet connection. It has consequently emerged as a significant source of information for its users. The interactive interface of social media platforms as assert Akram et al, (2022) has enabled its users to influence the cognition of potential audiences. However, working class Adults use at least one social media site or another that is readily available on their mobile devices in accessing information on the social media. The ketogenic diet information can be accessed on facebook, instagram, twitter, telegram, you Tube among many others. Furthermore, there are many ketogenic diet groups on facebook. These online groups are formed and owed by Nigerian adult female. And they go by the names “Ketogenic world”, “Keto 9ja” “Ketogenic lifestyle” etc.

These online ketogenic groups are specifically for weight loss and sparsely for health management. Many working-class women want to look good for themselves and husbands respectively. So, information on how to achieve their dream body shapes are disseminated through these social media platforms (Karami, & Shaw, 2019). The ketogenic dieters both consume and share ketogenic diet information, not only from the traditional more authoritative public health information sources, but also from their own experience, as well as personal and commercial sources (Lynn, Rosati, Santos & Endo, 2020). In addition, the ease with which content can be shared has resulted in a rapid increase in the number of ketogenic dieters. The incessant pictures of dieters who has shaded weights and successfully managed their health issues using ketogenic diets, clusters the social media and you tube walls of these influencers. Via the “before and after pictures” posted constantly on these walls, the influencer indirectly propels these working-class adults’ to hunger more for the ketogenic lifestyle.

According to Simran (2018), Pinterest, which is a visual discovery engine for finding ideas like recipes, home and style inspiration etc has numerous knowledgeable audio video clips of fat burn, weight loss magic techniques which lure the netizens to click and dive into ocean of vast information. . Below are examples of such pictures.



Source: Keto9ja, facebook wall 2023

Interpersonal Communication as a Source of Exposure

Interpersonal communication which is defined by Okunna and Omenugha, 2012, (p.16) as a communication that goes on between persons, mostly in a face -to-face situation can also be looked at as a source of exposing working class adults to ketogenic diet information. Studies has shown that interpersonal communication is a pre-requisite for effective communication because it is a process of conveying ideas, opinions, attitudes, feelings, sentiments, beliefs, or impressions on others. It however makes swapping of information, feelings and impart from one person to another through verbal and non-verbal means easier.

It was observed that through interpersonal relationship among working class adults, they become exposed to Ketogenic diet information. This could be attributed to adequate application of interpersonal communication in their work places. (Anyim, 2018). Furthermore, People are exposed to different forms of information through interpersonal communication, and ketogenic diet is not an exception. However, the major advantage is immediate response, which may provide signal for the encoder to modify his subsequent message to achieve a determined objective

Dieters' Perception on Ketogenic Diet Information

What Negative Effect does Ketogenic Diet Have?

Health effects experienced by people on ketogenic diet can vary depending on tolerance and the amount of carbohydrate restrictions (Goswami & Meghwal, 2021). Starting of Ketogenic diet, according to studies, shifts one's body energy source from sugar to body's stored fat. In the process of body fat breakdown, the body produces ketones, which are then is removed by the body through frequent and increased urination. This may leads to dehydration and keto-flu. Its symptoms include fatigue, dizziness, insomnia, irritability, nausea, muscle soreness, acidosis, and light headache (Abbasi, 2018). With this frequent urination loss of electrolytes occurs, causes numbness, brain fog or difficulty in concentration. These short term side-effects of the Ketogenic diet are well reported and established (Alharbi & Al-Sowayan, 2020). However, the long term side effects of Ketogenic diet are still not well established due



to limited studies. Never the less some of its long-term side effects are kidney stones, hypoproteinemia, macronutrient deficiencies.

Health Benefits of KETOGENIC Diet

Ketogenic diet has been controversial from decades. Most of the individual think that these diets which are high in fat causes cardiovascular diseases and raise cholesterol and triglycerides level. However, in nutrition science most of the studies show that Ketogenic diet is healthy and beneficial.

A known effect of ketogenic diet is a decrease in blood pressure, most likely due to sodium excretion and water loss. In individuals with high blood pressure (hypertension), this may be beneficial. Studies indicates that low carb diet or Ketogenic diet reduces appetite and control hunger cues due to cutting down on carbohydrates and consumption of high fat leads to end up satisfaction with fewer calories intake. Almost without any exception low carb Ketogenic diet leads to more short-term weight loss as compared to low fat diet, this is because Ketogenic diet which is a low carb diet act to get rid of excess water from body, lowers insulin level, fewer calories consumption due to high fat content in diet.

Studies have shown that cutting down on carbs and eating low carb diet like ketogenic diet drastically reduces blood glucose and insulin levels, and can reverse type 2 diabetes. Elevated blood pressure or hypertension is a significant risk for many diseases like heart attack, stroke, and kidney failure. Following low carb ketogenic diet significantly reduces blood pressure and prevents people from certain diseases. It also improves human skin complexion, through the increase of mitochondrial glutathione (GSH) level in the body.

Dieters' Response to Ketogenic Diet Health Information

For most dieters, adherence to healthy food is a constant challenge due to numerous reasons and probably challenges faced by them. Ketogenic diet information no matter the assurance cannot encourage the consumers to adhere strictly to it if the consumer has little monthly earnings that is not enough to rely on traditionally cooked food not to talk of purchasing ketogenic food items. (Uchenna, Ijeoma, Pauline, & Sylvester, 2015). No matter the health information given out, if the ketogenic diet food items are expensive, to the dieters they will not buy them. The purchasing power of an individual will definitely have a decisive influence on how he responds to any information. The price of a commodity also goes a long way to determine if a dieter will buy or not especially if it is too expensive compared to the alternative brand. (Hasan, 2014). Ketogenic diet food items like almond nuts, psylum husk, presidential butter, olive oil, eggs, almond milk, avocado, cabbage etc are terribly expensive. In other to comply with the ketogenic diet information for informed health decision, you see some Keto dieter using Ogbono as binder for their keto swallow instead of psylum husk. Why? Because a tin of psylum husk is sold for eight thousand naira, and low-income earners that will want to adhere to this diet information cannot afford to do otherwise.



EMPIRICAL LITERATURE REVIEW

Omozee & Osamuyimen 2018 conducted a study to determine the effect of high fat ketogenic diet on some cardiovascular and renal parameters in 40 Wistar albino rats their findings clearly showed that intake of high fat ketogenic diet is not harmful to the heart. It however pointed out that increased urinary sodium excretion could lead to increased loss of fluid which can also give an impression of weight loss.

El-rashidy et al. (2017) conducted research on the use of ketogenic diet to alleviate the symptoms of autism. The study reported significant improvements in speech, social and cognition parameters when applied modified Atkins diet was used on autistic children. Consequently,

Hasan & Ghazi (2019) conducted research on the knowledge and perception towards Keto diet among general population in Baghdad city, Iraq. The study however discovered that out of the 203 respondents sampled, 98.5% of the respondents have heard about the ketogenic diet, 41.8% are currently on keto diet, and 26% have been on keto diet for the duration of one month, 44.3% took supplements while on keto, 44.8% reported that they indulged on keto diet to lose weight, A bulk number of respondents 70.9% said they don't know long term keto diet leads one into ketosis and then some negative effects. Regarding perception, 42.8% affirmed that keto diet should be prescribed by the doctors or nutritionist only, while 40% said ketogenic diet is safe and should be practice for a lifelong. The study therefore concluded that Keto diet is a popular weight loss diet, that the general populations have good knowledge and perception about it, but that more health promotion and education are needed.

Jain, Singhla, Kapoor, Panda, Kumar and Goyal (2020) exploring the perception about Ketogenic Diet among young adults found out that out of the 240 students sampled in the age group of 18 – 25 years to check their awareness. 64.9% were not aware about Ketogenic diet and believed that ketogenic diet helps in weight loss, body building and muscle toning, which is not the purpose of ketogenic diet. 51.2% of respondents did not know about its other emerging therapeutic potentials. The findings show that there is a gap in knowledge and awareness.

Theoretical framework

This study is situated within the basic assumptions of the health belief model and uses and gratification theory. The rationale for using these theoretical approaches is contingent on the focus of the exposure, perception and response of working class adults female to ketogenic diet information in Awka, Anambra state.

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. The model was developed in response to the failure of a free tuberculosis (TB) health screening program. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS.



Core Assumptions and Statements the HBM is based on the understanding that a person will take a health-related action if that person:

- 1) Feels that a negative health condition can be avoided.
- 2) Has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition.
- 3) Believes that he/she can successfully take a recommended health action.

The HBM was spelled out in terms of four constructs representing the perceived threat and net benefits: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. These concepts were proposed as accounting for people's "readiness to act." An added concept, cues to action, would activate that readiness and stimulate overt behavior. A recent addition to the HBM is the concept of self-efficacy, or one's confidence in the ability to successfully perform an action. This concept was added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating.

Uses and gratification theory

Uses and gratifications theory of mass communication talks about the importance and active part of the people as consumers or audience of media content. This theory focuses on why people use particular media rather than concentrating on contents presented by media. Most of the theories related to field of media and communication discuss the effects of media in narrow and broader spectrum while this theory distinct itself from others by giving an understanding of why and how people actively choose some media to gratify their needs.

Uses and gratifications is basically an audience-centered approach by pointing its focus on "what do people do with the media?" instead of the traditional researches which focus on "what media do with the people?"

Assumptions of theory Uses and gratification theory clearly depicts the importance of media consumers and termed them as active media users who get exposed to any media content with their own consent. This approach has uniqueness in its nature as compare to other traditional approaches. The assumptions of U & G are:

- The audience is active.
- Audience is goal oriented.
- Audience member has choice to gratify his/her need by choosing medium according to his/her consent.
- Different types of media compete against each other and against other sources of gratification for viewers' attention.
- The medium that provides the most satisfaction for a person will be used more often than other types.
- People are well aware of their media use and their interests.



- Value judgments of media content can only be assessed by the audience.

Relating the health believe model to this study simply showed that the health of individuals within any given society or community is dependent on their ability to identify the risks for specific health problems. It then follows that working class adult females have the likelihood to adhere to Ketogenic diet information which they believe could help them manage their health conditions and then also help them achieve their desired body shape. While uses and gratification on the other hand is relevant to this study because it shows how the working class adult females selectively exposed themselves to mass media contents (i.e. Ketogenic information) by choosing only the media messages that could serve the function of satisfying or gratifying their needs of losing weight, curing and preventing chronic health diseases, and probably making informed choice concerning their eating habits.

METHODOLOGY

The research design adopted for this study was survey. The population of this study covers only the Anambra State Senior Civil Servants. The target Civil Servants in Anambra State were between grade levels 07 and above. Anambra State Civil Service has staff strength of 3,598 from grade level 7 to 16 which forms the population of this study. **(Data from Anambra State Civil Service Commission Annual Report 2020)**

A sample size of 384 was statistically determined for this study using online calculator for determining sample size; specifically, calculator.net.

This calculator computes the minimum number of necessary samples to meet the desired statistical constraints. Sample size: 384

This means 384 or more measurements/surveys are needed to have a confidence level of 95% that the real value is within $\pm 5\%$ of the measured/surveyed value.

The multi-stage sampling technique was used. At the first stage, 21 Ministries in Anambra state were divided into 3 groups or clusters according to their functions as follows; Administrative sector, Economic sector and social sector. To ensure that every civil servant within the ministries in the clusters had equal chance of being sampled; a simple random sampling technique was adopted, using a “**Statistical Random Numbers Table**”. Randomly, each group in the population of study was assigned a number. From the numbers in the random numbers table, two ministries from each sector were randomly chosen as shown in the table below. From each of the Ministries, a particular number of respondents were chosen based on the proportion represented by each ministry in the sample (384) calculated as follows:

$$NR = n \times 384$$

N

Where NR = number of units (to be selected from a cluster)

n = total number of units in cluster.



GROUP	MINISTRY	POPULATION	SAMPLE SIZE
Administrative Sector	Office of the Head of Service,	168	47
	Ministry of Diaspora Affairs, Culture and Tourism	134	38
Economic Sector	Ministry of Agriculture,	321	90
	Ministry of Lands	215	60
Social Sector	Ministry of Health,	133	37
	Ministry of Education	270	76
TOTAL	6 Ministries	1241	384

N = population

In distributing the questionnaire, the researcher used a Non- Probability Convenience Sampling, whereby questionnaires were served only on respondents who were available at the time and showed willingness to be sampled, when the researcher visited each of the chosen ministries. Questionnaire contained 16 questions (open-ended and closed-ended) was used as the instrument for data collection. Data gathered were presented and analyzed using SPSS 19 data analysis software.

The Pre-test/ Validity The pre-test and validation of the research instrument involved 25 respondents, to test the validity of the field, to assess if the items in the instrument are best suited to address the measurable variables and to use the information generated to evaluate the preliminary research questions. The results from the pre-test show that the instrument was understood to a large extent by the respondents as virtually all the respondents could fill out the items. All the ambiguity was cleared before data collection.

Data Presentation and Analysis

Findings from this study were drawn from data obtained from 348 respondents from the 21 Ministries in Anambra state.

Demographic Data

The respondents within the ages of 30 to 34 age bracket were predominantly at 85.1% (N=296), More than any other age bracket. They were followed by age 40-44 bracket at 9.8% (N=34). Those who were 45 and above constituted 3.2% (N=11) of the respondents while between 35-39 age bracket were the least at 2.0% (N=7). The data therefore, indicated that the age bracket that dominated in the study was the age distribution from 30 to 34 representing 85.1% of the respondents. The age bracket is mostly young civil servants.

On gender status, 237 of respondents representing 68.1% were females while 111 respondents about 31.9% were males. This shows that the majority of the respondents are female. On marital status, 334 of respondents representing 96.0% were married, while 14 respondents about 4% were single. This shows that majority of the respondents are married. On Grade level of Respondents, out of the total 348 respondents surveyed, 222 respondents representing 63.8% were in grade levels 7-9, 86 respondents representing 24.7% of the entire



respondents were in grade levels 10-12, while 40 respondents 11.5% were in grade levels 13-16. From the foregoing analysis, a large number of civil servants that are in grade levels 7 to 12 responded to the questionnaire, possibly, because they are readily available and less busy unlike the top management cadre from grade levels 13 and above. On educational level of the respondents, 239 respondents representing 68.7% were degree holders, 102 respondents about 29.3% had master degree while 7 respondents, about 2% had PhD degree.

Research question 1: How are the working-class adult female exposed to ketogenic diet information?

Table 1

Variables	Response	Frequency	Percentage
Have you heard of the ketogenic diet before?	Yes	341	98%
	No	7	2%
Total		348	100%
How were you exposed to ketogenic diet information?	Facebook	111	32%
	Instagram	90	25.8%
	You tube	80	23%
	Twitter	5	1.5%
	Interpersonal communication	62	17.8%
Total		348	100%
How long have you been exposed to ketogenic diet information?	A short while	87	25%
	A long time	100	28.7%
	Very long time	161	46.2%
Total		348	100%
How often do you source for ketogenic diet information?	Often	82	23.5%
	Very often	214	61.4%
	rarely	52	14.9%
Total		348	100%
Did the sourced information propel you into ketogenic diet?	Yes	248	71.2%
	No	100	28.7%
		348	100%
Why did you decide to go for ketogenic diet?	Weight loss	117	33.6%
	healthier life	80	22.9%
	Prevention of chronic diseases	56	16.0%
	Curative purpose	95	27.2%
Total		348	100%



Responses to **table 1** above show that majority of the respondents 98% (N=341) have heard of ketogenic diet information. While 2% (N= 7) said they have not heard of such diet information. On how they were exposed to ketogenic diet information, 32% (N=111) of the respondents said through the facebook. 25.8% (N=90) said exposure was through the instagram, 23% (N=80) attested getting exposed through the You Tube, 17.8% (N=62) through interpersonal communication while 1.5% (N=5) affirmed they were exposed to this diet information through their twitter handle. On the duration of exposure, majority of the respondents 28.7% (N=100) attested to have been exposed to this diet for many years, 46.2% (N=161) said they are new on the diet while 25% (N=87) said they have been exposed to the ketogenic diet information for few years. Trying to find out how often the respondents source for information on ketogenic diet, majority of the respondents 61.4% (N=214) said very often. A large number of them 23.5% (N=82) said often while 14.9% (N=52) rarely source for ketogenic diet information. On if the diet information propelled the respondents into ketogenic diet, 71.2% (N=248) said yes while 28.7% (N=100) said no. On why they decided to go for ketogenic diet, 33.6% (N=117) of the respondents affirmed they want to lose weight, 22.9% (N=80) said they opted for the diet for a healthier living, 27.2% (N=95) said for curative purpose, while 16.0% (N=66) said they opted for Ketogenic diet so as to prevent them from developing chronic diseases.

The import here is that a large number of respondents (N=341) have heard about Keto diets, Majority of the respondents (N=111) are exposed to the ketogenic diet information through facebook. (N=161) of the respondents are new, and has just joined the diet plan recently, (N=214) of the respondents confirmed to have sourced Keto diet information very often, that they continued with the Keto diet to prevent developing chronic diseases.

Research question 2: How do the working class adult female percieve ketogenic diet information?

	Do you think Ketogenic diet information helps you make informed health decisions?	Do you take ketogenic information on the face value?	Do you think applying this information will help you loss the required body weight?	Do you think applying ketogenic information will help cure and prevent you from Developing chronic diseases?	Has the application of ketogenic diet information affected you negatively since you started dieting?
Yes	88.6% N=288	13.5% N=159	54.5 % N=210	78% N=300	64.2% N=247
No	11.4% N=96	86.5% N=225	45.5 % N=174	22% N=384	35.8% N=137
Total	100% N=384	100% N=384	100% N=384	100% N=384	100% N=384



Responses to **table 2** above show that majority of the working-class adult female 88.6% (N=288) have a positive perception about ketogenic diet information saying it helps them make informed health decisions. 86.5% (N=225) said they don't take ketogenic diet information on the face value. Furthermore, 54.5% of the respondents said Keto diet information has helped them lose their desired body weight, while 78% (N=300) affirmed it help them cure and prevent chronic diseases.

The import here is that majority of the working-class adult female in Awka Anambra state (N=288) believe that ketogenic diet information helps them make informed health decisions. It has also according to (N=247) of the respondents helped them lose their desired body weight and help them cure and as well prevents them from developing chronic diseases.

Research Question 3: What is the response of the working-class adult female to ketogenic diet information?

Table 3

Variable	Response	Frequency	Percentage
How often do you Consume this diet?	Often	175	45.5%
	Not often	200	52.0%
	Never	9	2.5%
Total		384	100%
Which of these Keto ingredients Do you often cook With?	Cabbage	155	40.3%
	Cauliflower	10	2.6%
	Egg plants	20	5.2%
	Eggs	80	20.8%
	Broccoli	5	1.3%
	Spinach	5	1.3%
	Brussels sprouts	2	0.5%
	Onions	20	5.2%
	Cucumber	18	4.6%
	Olive oil	10	2.6%
	Coconut oil	10	2.6%
	Avocado	10	2.6%
	Fish	13	3.3%
	Palm Oil	15	3.9%
Psylum Husk	11	2.86%	
Total		384	100%



Which of these have you experienced while on Keto Diet?	Dehydration	20	5.2%
	Keto-Flu	100	26.0%
	Fatigue	80	21.0%
	Insomnia	10	2.6%
	Nausea	50	13.0%
	Muscle soreness	4	1.0%
	Light headache	20	5.2%
	Frequent urination	30	7.8%
	Brain fog	20	5.2%
	Difficulty in concentration	50	13.0%
Total		384	100%
What are the major Constrains of Indulging in Keto Diet?	Cost	216	56.1%
	Scarcity of some Keto ingredients.	121	31.4%
	Rigours of cooking The meals	47	12.5%
	Total		384

Table 3 above shows the response rate of ketogenic dieters to ketogenic diet information. 45.5% (N=175) of the respondents said they consume ketogenic diet often, Majority of the respondents 52.0% (N=200) said they don't consume Keto diets often while 2.5% (N=9) affirmed that they have never indulged in any ketogenic diet before. On the ketogenic ingredients often used, majority of the respondents 40.3% (N=155) said they use mostly cabbages, 20.8% (N=80) of the respondents said they use more of eggs, while the rest of the respondents as illustrated in table 3 affirmed to have used other ingredients like cauliflower, egg plants, broccoli, spinach, Brussels sprouts, onion, cucumber, olive oil, coconut oil, Avocado, fish, palm and psylum husk.

Consequently, a large number of respondents 26.0% (N=100) have experienced Keto-flu. While on Keto diet, 21% (N=80) respondents have experienced fatigue, 13.0% (N=50) have experienced difficulty in concentration, 5.2% (N=20) dehydration, 13.0% (N=50) nausea, 2.6% (N=10) insomnia, 1.0% (N=4) muscle soreness, 5.2% (N=20) light headache, 7.8% (N=30) frequent urination, while 5.2% (N=20) experienced brain fog.

Despite the ketogenic diet information at their disposal, 56.1% (N=216) of the respondents points out that the major constrains of not indulging on Ketogenic diet often is because of its cost. The ketogenic diet plans according to these respondents are expensive and unaffordable. 31.4% (N=121) of the respondents opine that scarcity of some ketogenic ingredients is a constraint, while 12.5% (N=97) of the respondents considers the rigours of preparing the diet as a major constraint.

However, the import here is that 52.0% (N=200) of the respondents don't consume ketogenic diet often, the most used Keto ingredients as affirmed by 40.3% (N=155) of the respondents are cabbages, a great number of the respondents 26.0% (N=100) have experienced Keto-flu



among other negative body reactions to the diet, finally, 56.1% (N=216) of the respondents however attributes their non- strict adherence to this diet to cost pointing out that it is expensive and unaffordable.

ANALYSIS OF RESEARCH QUESTIONS

The first research question sought to find out how the working class adult female in Awka Anambra state are exposed to ketogenic diet information. To answer the research question, reference was made to Table 1. This table shows that a large number of respondent (N=111) are exposed to the ketogenic diet information through facebook. Therefore the data in Table 1 however indicates that the respondents have heard about Keto diets, joined the diet plan newly, and have sourced Keto diet information very often

The second research question sought to determine how the working class adult females perceive Ketogenic diet information. Here, reference was made to Table 2. Table 2 shows that (N=288) of the respondents have positive perception about Keto diet. They feel ketogenic diet information helps them make informed health decisions. Similarly, the respondents also attested that Keto diet information has helped them with the knowledge of how to lose their desired body weight and has also helped them to cure and prevent chronic health diseases.

The third research question sought to ascertain the response of the working class female adults in Awka to the ketogenic diet information. Data in Table 3 indicate that a good number of the respondents (N=200) don't consume ketogenic diet often, this table also show that the most used Keto ingredients are cabbages, Consequently, a great number of the respondents, have experienced Keto-flu among other negative body reactions associated with the diet. The respondents however attribute their sparse adherence to this diet to cost. Pointing out that Keto diet is expensive and unaffordable.

CONCLUSION

This study concludes that working class adult female in Awka Anambra State is exposed to ketogenic diet information, Have a positive perception of the diet. But their response to the diet is minimal because of the high cost of the ketogenic ingredients needed for the diet.

The study recommends as follows;

1. The influencers of the ketogenic diet on the internet should be properly informed on the benefits and effects of this diet while disseminating necessary information. And as well let the dieters know beforehand that in as much as there are benefits of engaging in the diet plan there are also some unpleasant experience they might encounter.
2. It has been established by this study that ketogenic information helps the respondents make informed decision concerning their health. This study however recommends that Ketogenic diet food items should be made available and affordable at all time.



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