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**Assessing Bread Consumption and Its Effects on the Consumer in the Tamale  
Metropolis of Ghana**

Katumi Alhassan<sup>1</sup>, Sulemana Belinda Alijata<sup>2</sup>, Alhassan Fatawu<sup>3</sup>

<sup>1</sup>Tutor, Kalpohin Senior High, Tamale Ghana Email: [kaduani@yahoo.com](mailto:kaduani@yahoo.com)

<sup>2,3</sup>Lecturer, Tamale Technical University, Hospitality and Tourism Management  
Department, Tamale Ghana.

<sup>2</sup>Email: [salijata@yahoo.com](mailto:salijata@yahoo.com)

<sup>3</sup>Correspondence: [afatawu@tamalepoly.edu.gh](mailto:afatawu@tamalepoly.edu.gh)

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**Abstract**

This study assessed consumers' knowledge on the nutritional value of bread and its effect and the challenges that bread makers encounter in their operations. One hundred and twenty five (125) respondents in the Tamale Metropolis were selected for the study. Twenty (20) of the respondents were bakers and the remaining were consumers of bread. The findings revealed that majority (78%) of the respondents agreed that bread was a good source of bran fiber and can help maintain a healthy weight. It was concluded that Special attention should be given to the quality of break at formal events since it impact the perception of entire events. Bread offers a positive effect on the human health due to the presence of many important nutritional components such as dietary fibers, minerals and vitamins and should be part of human meals taken periodically. There is also the need for bakers to identify the importance of ensuring that efforts are made to get their services right and prompt and also to meet or exceed consumer expectations in the delivery of their products.

**Keywords:** Expectations, Nutritional, Bakers, Bread, Metropolis.

## INTRODUCTION

Eliasson and Larsson (2012) described bread as a kind of food made of flour or meal that has been mixed with milk or water, made into a dough or batter, with or without yeast or other leavening agent, and baked. It is a staple food that is popular around the world and is one of humanity's oldest foods. According to Barrett (2005) bread, in all its various forms, is the most widely consumed food in the world. Not only is it an important source of carbohydrates, it is also portable and compact, which helps to explain why it has been an integral part of the human diet for thousands of years. In fact, recent scholarship suggests humans started baking bread at least 30,000 years ago. Revedinet *al.* (2010) indicated that bread making process originated in ancient times. The basis of the operation is to mix flour with other ingredients, for example, water, fat, salt and some source of aeration followed by baking. Pettitt (2005) emphasized that as long ago as 2,000 BC the Egyptians knew how to make fermented bread. The practice was to use a little old dough, or leaven, to start the new dough. These two doughs were mixed together and allowed to ferment (rise) for some hours before baking. They made an astonishing 50 varieties of bread, paid wages with bread, and painted breadmaking scenes in their tombs

According to Hill (2007), bread offers a positive effect on the human health due to the presence of many important nutritional components, such as dietary fibres, minerals and vitamins. Bread contains a wide range of important nutritional components which provide a positive effect on human health. Slavinet *al.* (2010) indicated that bread supplies a significant portion of the nutrients required for growth, maintenance of health and well-being. It is an excellent source of proteins, vitamins, minerals, fibre and complex carbohydrates. It is also low in fat and cholesterol. Bread is quite bulky so it takes longer to digest and is therefore more satisfying and less fattening than the fats, sugars and alcohols commonly consumed in excess.

Although bread is eaten by nearly all people, there are many criticisms associated with bread. The criticisms depend on the time and place. Whole grain bread has been criticized as being unrefined, and white bread as being unhealthfully processed; homemade bread is deemed unsanitary and factory-made bread is deemed adulterated, and so forth. Different types of bread are processed differently and have bunch of conditioners that keep it moist and fresh longer. These chemical components are

harmful to our health. Some bakers also use chemicals such as azodicarbonamide to bleach flour, and to make dough more elastic. Azodicarbonamide (ADA) which was actually brought in as a substitute for a much worse chemical, potassium bromate, which was phased out after it was called into question is possibly dangerous to human health and has been identified as a respiratory sensitizer which makes it a possible cause of asthma, brain disorders, cancer, and obesity. Eating of bread can also lead to constipation. The consumption of bread is therefore affected by factors such as changing eating patterns and an increasing choice of substitutes such as breakfast cereals and fast foods. The choice of bread therefore depends on consumer's beliefs and attitudes. It is for these reasons that this study seeks to assess and ascertain bread consumption and its effects on consumers in Tamale Metropolis of Ghana.

#### **Research Objectives**

The main objective of this study was to assess the effects of bread consumption on the consumer in the Tamale Metropolis of Ghana. The specific objective of the study is to assess the consumers' knowledge on the nutritional status of bread and its effects on the consumer

The study assessed the effects of bread consumption on consumers in the Tamale Metropolis of Ghana. This study assessed consumers' perception of the quality of bread. It gave an overview of the nutritional, health and sensory aspects of bread. The study included consumer's perception of bread and also the processes that bakers go through in baking their bread. The study was limited to the Tamale Metropolis in the Northern Region of Ghana.

#### **LITERATURE REVIEW**

##### **Historical Perspective of Baking**

Samuel (2000) described the first evidence of baking as occurring when humans took wild grass grains, soaked them in water, and mixed everything together, mashing it into a kind of broth-like paste. The paste was cooked by pouring it onto a flat, hot rock, resulting in a bread-like substance. Later, when humans mastered fire, the paste was roasted on hot embers, which made bread-making easier, as it could now be made any time fire was created. The Ancient Egyptians baked bread using yeast, which they had previously been using to brew beer. Bread baking began in Ancient Greece around 600 BC, leading to the invention of enclosed ovens.

Baking flourished during the Roman Empire (Revedinet *al.*, 2010). Beginning around 300 BC, the pastry cook became an occupation for Romans (known as the *pastillarium*) and became a respected profession because pastries were considered decadent, and Romans loved festivity and celebration. Thus, pastries were often cooked especially for large banquets, and any pastry cook who could invent new types of tasty treats was highly prized. Around 1 AD, there were more than three hundred pastry chefs in Rome, and Cato wrote about how they created all sorts of diverse foods and flourished professionally and socially because of their creations. Cato speaks of an enormous number of breads including; *libum* (sacrificial cakes made with flour), *placenta* (groats and cress), *spira* (our modern day flour pretzels), *scibilata* (tortes), *savaillum* (sweet cake), and *globusapherica* (fritters). A great selection of these, with many different variations, different ingredients, and varied patterns, were often found at banquets and dining halls. The Romans baked bread in an oven with its own chimney, and had mills to grind grain into flour. A bakers' guild was established in 168 BC in Rome.

Eventually, the Roman art of baking became known throughout Europe and eventually spread to eastern parts of Asia. By the 13th century in London, commercial trading, including baking, had many regulations attached. In the case of food, they were designed to create a system so there was little possibility of false measures, adulterated food or shoddy manufactures. There were by that time twenty regulations applying to bakers alone, including that every baker had to have "the impression of his seal" upon each loaf of bread (Revedinet *al.*, 2010).

Beginning in the 19th century, alternative leavening agents became more common, such as baking soda. Bakers often baked goods at home and then sold them in the streets. This scene was so common that Rembrandt, among others, painted a pastry chef selling pancakes in the streets of Germany, with children clamoring for a sample. In London, pastry chefs sold their goods from handcarts. This developed into a delivery system of baked goods to households and greatly increased demand as a result. In Paris, the first open-air café of baked goods was developed, and baking became an established art throughout the entire world.

Baking eventually developed into a commercial industry using automated machinery which enabled more goods to be produced for widespread distribution (Tannahill, 2007). In the United States, the baking industry was built on marketing methods used during feudal times and production techniques developed by the Romans. Some makers of snacks such as potato chips or crisps have produced baked versions of their snack products as an alternative to the usual cooking method of deep-frying in an attempt to reduce their calorie or fat content. Baking has opened up doors to businesses such as cake shops and factories where the baking process is done with larger amounts in large, open furnaces.

According to Issanchou (2006), the aroma and texture of baked goods as they come out of the oven are strongly appealing but is a quality that is quickly lost. Since the flavour and appeal largely depend on freshness, commercial producers have to compensate by using food additives as well as imaginative labeling. As more and more baked goods are purchased from commercial suppliers, producers try to capture that original appeal by adding the label "home-baked." Such attempts seek to make an emotional link to the remembered freshness of baked goods as well as to attach positive associations the purchaser has with the idea of "home" to the bought product. Freshness is such an important quality that restaurants, although they are commercial (and not domestic) preparers of food, bake their own products.

#### **Aspects of Bread Quality**

According to Heinio (2006), man learned the art of bread making more than 4000 years ago. Though not always in the same form or as we know it today, bread has been a popular staple food for ages. The nearly ubiquitous consumption of bread places it in a position of global importance in international nutrition. Bread products as indicated by Prattalaet *al.* (2001) vary widely around the world, as do their production techniques. Basic ingredients of bread as emphasized by Sluimer (2005) are cereal flour, water, yeast or another leavening agent, and salt.

According to Slavinet *al.* (2010), cereals provide important amounts of most nutrients and form an important part of a balanced diet, as it provides all the food groups in the nutrition education pyramid or plate and all recommended dietary intakes. In addition to their high starch content as energy source, cereals also provide dietary fibre, protein (high in proline and glutamine, but low in lysine) and functional lipids rich in essential

fatty acids. Important micro-nutrients present in cereals include vitamins, especially many B vitamins, minerals, antioxidants and phytochemicals .

Keogh *et al.* (2003) indicated that whole grain have several positive effects on human health. All the major scientific associations providing nutritional recommendations to prevent major diseases put carbohydrates in the first place of the pyramid for a health diet. Regular consumption of whole grain foods and dietary fibre has been associated with a reduction of bowel transit time, a reduction in the incidence of cardiovascular disease, diabetes, reductions in colorectal cancer and hypertension. Cereals can have a protective effect as a source of antioxidants and phytochemicals

The benefits of carbohydrates on the risk of cardiovascular diseases are mostly determined by their structure and content (Klopfenstein, 2000). Carbohydrate foods contain several nutrients that may reduce risk factors for cardiovascular diseases such as several phenolic acids with antioxidant properties, vitamin E, linoleic acid, and phytoestrogens. Actually, bread obtained with semi integral flour produced by stone mill and by acid leavening (sourdough) contains a large amount of vitamin B6 and folic acid, both B-group vitamins. Cereals, and in particular whole wheat products, are an important source of mineral and trace elements such as magnesium, iron, zinc, and copper. These elements are mainly present in the aleuronic layer of bread wheat grains.

#### **Harmful Additives Bakers add to Bread**

Ammaret *al.* (2009) indicated that store bread is processed differently and has a bunch of conditioners in it. The hydration is lower so the machines can process it without getting gummed-up. This according to Ammaret *al.* (2009) is offset by conditioners that keep it moist and fresher longer. Some of the ingredients added include soy lecithin. This helps with the shelf life and is a chemical component that may be harmful to our health.

There has been a lot of talks in recent times about banning the probable cancer-causing chemical BPA. BPA is the chemical building block used to make polycarbonate plastic and epoxy resins. Studies have linked BPA to hormone disruption, increased breast and prostate cancer cell growth, and early onset puberty, and obesity. BPA has received all the attention when countless other chemicals enjoy a scrutiny-free pass into our lives via our hands, mouth, nose and skin. The chemical azodicarbonamide which is banned in Europe, the UK and other foreign countries is used in the U.S. food industry. This

chemical is used by big institutions like McDonalds, Burger King, Subway, Panera, and Kentucky Fried Chicken to make bread bouncy and spongy. Azodicarbonamide's principal use however is in the manufacture of foamed plastics and has been identified as a respiratory sensitizer which makes it a possible cause of asthma, brain disorders, cancer, and obesity (Rosellet *al.*, 2013).

Some food vendors have announced they were dropping the ingredient from their production. But chances are that they are still being used and consumed daily. The chemical according to Rosellet *al.*, (2013) is in close to 500 foods still on the market and are being used domestically. Bread, bagels, pastries, pizza, tortillas, hamburger and hot dog buns often contain azodicarbonamide, which is used to bleach flour, and to make dough more elastic.

Azodicarbonamide (ADA) is mostly called the yoga mat chemical. This is as a result of the fact that its primary use is in plastic and rubber products like yoga mats and flip-flops, where it is used to make them softer and stretchy. Azodicarbonamide functions like champagne for plastics, aerating plastic with tiny bubbles to make it lighter, spongier, and more flexible. Azodicarbonamide is known to increase the risk of asthma, allergies and skin problems and some experts believe it hasn't been adequately tested in humans at the concentrations people may ingest if they eat numerous products that contain it.

In the U.S., the FDA has approved azodicarbonamide for use in food, and it is allowed in Canada too. But Australia and many European countries have banned its use in food. ADA has gotten a pass this far because it is not considered toxic by the FDA, as long as it is used in concentrations below 45 parts per million. However, the World Health Organization prepared a chemical assessment report that expressed concern about the effects on bakery and other food workers who handle large volumes, and who have reported respiratory symptoms and skin reactions. However, there hasn't been extensive testing to investigate ADA's health effects (Rosellet *al.*, 2013).

Interestingly, ADA was actually brought in as a substitute for a much worse chemical, potassium bromate, which was phased out after it was called into question as possibly dangerous to human health. But the question is whether to have a rubberizer in foods,

especially foods many people eat several times a day, especially since its long term effects really aren't known yet. There is no need to add chemical additives to keep bread soft and stretchy, what is needed is to eat fresh bread.

## **METHODOLOGY**

### **Research Design**

An exploratory design was adopted to assess the effects of bread consumption in Tamale Metropolis of Ghana. An exploratory design was used because according to Zikmund and Babin (2007), it involves the collection of original data for analysis with the main purpose of establishing a factual picture of the object of study.

### **Population and Sampling Technique of the Study**

The study population consists of communities in the Tamale Metropolis. Respondents from the Tamale Metropolis were targeted and different shades of opinion were solicited from these respondents. The simple random technique was used to select one hundred and twenty five (125) respondents for the administration of the questionnaires. Purposive random sampling technique was also used to select twenty (20) bakers in the Tamale Metropolis for the interview.

### **Data Collection Instruments and Analysis**

Both open-ended and Close-ended questionnaires were used. The questionnaires were self-administered. A semi-structured interview was also conducted with twenty (20) bread bakers in the Tamale Metropolis. The interview enabled the researcher to obtain large and detailed amount of data within a short time. Data for the research were obtained from primary and secondary sources. The study used Statistical Package for Social Sciences (SPSS) software to summarize the data and created appropriate tables, charts and graphs. The data analysis was done in relation to the research problem and the objectives.

## **RESULTS AND DISCUSSIONS**

### **Presentation of Data**

#### **Consumer's Perception and Attitude towards Bread**

Table 1 below depicts consumer's perception and attitude towards bread in the Tamale Metropolis.

When the respondents were asked to indicate whether bread was a good source of bran fiber and good for the health, 23% of the respondents strongly agreed that bread was a good source of bran fiber and good for the health. Whilst 55% of the respondents stated that bread was a good source of bran fiber and good for the health, 14% of the

respondents disagreed that bread was a good source of bran fiber and good for the health. On the other hand 6% of the respondents strongly disagreed that bread was a good source of bran fiber and good for the health.

**Table 1: Consumer's Perception and Attitude towards Bread**

Statement	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
Bread is a good source of bran fiber and good for the health	(27) 23	(65) 55	(3) 2	(17) 14	(7) 6
It is good to take bread daily	(18) 15	(51) 43	(7) 6	(29) 24	(14) 12
Bread can help maintain a healthy weight.	(15) 13	(48) 40	(12) 10	(33) 28	(11) 9
It is better to eat whole grain bread instead of white bread	(29) 24	(63) 53	(2) 2	(19) 16	(6) 5
It is not healthy to eat bread with lots of sugar in them.	(22) 19	(64) 54	(5) 4	(17) 14	(11) 9

**Source; Researcher's field study, 2017**

The responses gathered revealed that majority of the respondents agreed that bread was a good source of bran fiber and good for the health. This supports the assertion by Prattalaet *al.* (2001) that breads made with 100 percent whole grain wheat are a good source of bran fiber. The bran in wheat bread improves bowel movements by softening and increasing the bulk of the stool, making them easier to pass through the intestines. Fiber may provide relief from irritable bowel syndrome. Pettitt (2005) recommends that it is critical to increase fiber intake with whole foods instead of taking laxative medications. Adult males up to age 50 should have 38 grams of fiber daily and women 25 grams daily. Siega-Rizet *al.* (2000) on the other hand cautioned that too much fiber can cause gas and bloating and it is therefore critical to add whole wheat bread diet gradually.

With the issue of whether it was good to take bread daily, 15% of the respondents strongly agreed that it was good to take bread daily whilst 43% agreed that it was good to take bread daily. The responses gathered revealed that 24% disagreed that it was good to take bread daily with 12% of the respondents strongly disagreeing that it was

good to take bread daily. The responses gathered revealed that more than half of the respondents felt that it was good to take bread daily. Whole grains were found to reduce the risk of coronary heart disease in a study of 42,850 men, ages 40 to 75, over a period of 14 years. Siega-Rizet *al.* (2000) reported that men who included three servings of whole grains in their daily diet had a lower risk of coronary heart disease. Siega-Rizet *al.* (2000) recommended that half of daily grain intake be whole grains. For adult women ages 19 to 50, it is recommended that they take 6 ounces of grain daily; one slice of bread is equal to 1 ounce. Men should get 7 to 8 ounces per day.

The responses gathered further revealed that 13% of the respondents strongly agreed that bread can help maintain a healthy weight. 40% of the respondents agreed with 28% of the respondents disagreeing that bread can help maintain a healthy weight. 9% of the respondents on the other hand stated that they strongly disagreed that bread can help maintain a healthy weight. Verbeke (2002) stated that one slice of whole wheat bread contains about 2.8 grams of fiber. Bread made with whole wheat helps maintain a healthy weight. A study by Siega-Rizet *al.* (2000) revealed that women who ate more whole grains consistently weighed less than women who ate fewer whole grains. Approximately 74,000 females ages 38 to 63 were studied for 12 years. The women who ate whole grain foods, such as 100 percent whole wheat bread, had a 49 percent lower risk of weight gain than women who ate refined grain products, such as white bread.

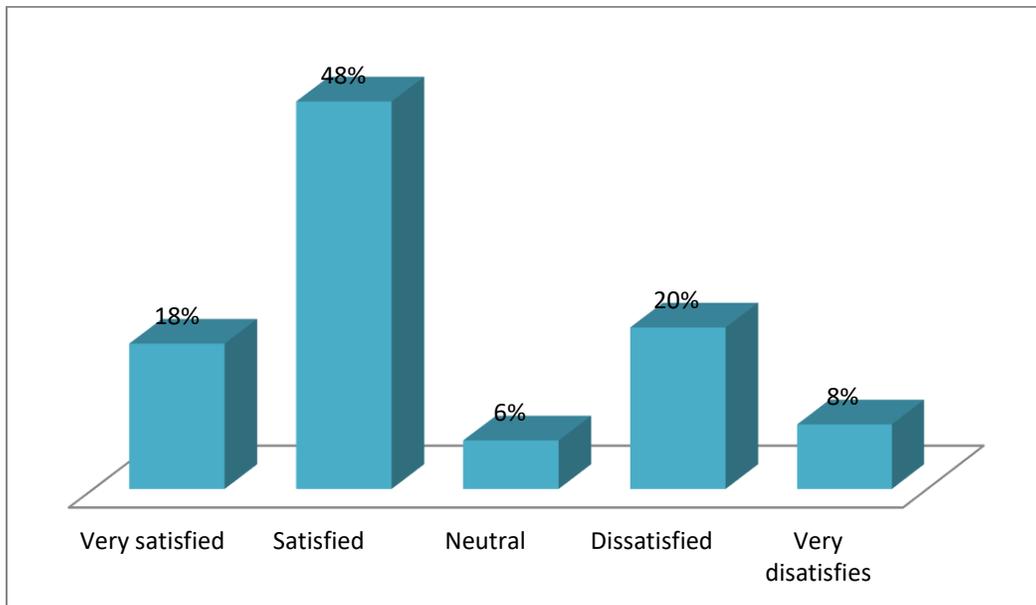
From the responses gathered it was revealed that 24% of the respondents strongly agreed that it was better to eat whole grain bread instead of white bread, whilst 53% also agreed that it was better to eat whole grain bread instead of white bread. The responses gathered also revealed that 16% of the respondents disagreed whilst 5% also strongly disagreed that it was better to eat whole grain bread instead of white bread. The responses gathered therefore showed that more than a third (77%) of the respondents believed that it was better to eat whole grain bread instead of white bread. The study revealed that within the whole wheat kernel is the vital wheat germ or embryo of the seed that contains B vitamins, vitamin E, magnesium, phosphorus, iron and zinc. Slavinet *al.* (2010) have suggested that B vitamins and vitamin E may protect against diseases of mental decline, such as Alzheimer's.

Eliasson and Larsson (2012) emphasized that bread offers a positive effect on the human health due to the presence of many important nutritional components, such as dietary fibres, minerals and vitamins. However, there are some disadvantages in eating some particular types of bread. White bread which has a fluffy texture may be preferred over dense whole grain bread, but white bread lacks many nutrients that unrefined bread provides. Sluimer (2005) stated that eating refined grains, such as white bread, offers fewer nutrients than whole grain options. Over time, this may lead to nutrient deficiencies.

The responses gathered also revealed that about a third of the respondents (74%) agreed that it is not healthy to eat bread with lots of sugar in them. Sanful (2011) indicated that commercial baked products are likely to contain refined flour and sugar. According to Houbenet *al* (2012), refined flours have had many of their nutrients and most of their fiber removed during processing. They are simple carbohydrates that are quickly metabolized by the body and can spike the blood sugar. The same is true for bread with lots of sugar in them. Rosellet *al* (2013) indicated that sugar offers no nutrients, but it can lead to weight gain, diabetes and heart disease. They indicated further that if one cannot give up baked goods, then they must ensure to take whole-grain flours and reduce the amount of sugar intake.

#### **Consumer's Satisfaction**

This was to find out how consumers were satisfied with bread production in the Tamale Metropolis. This was thought to be necessary because consumers' satisfaction is considered to be a critical success factor in any industry.



**Figure 1: Consumer Satisfaction**

Source; Researcher's field study, 2017

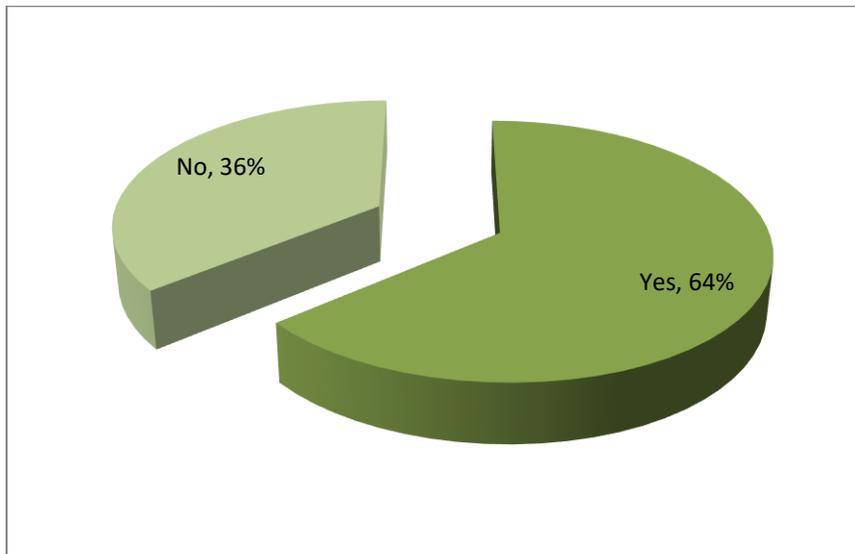
From the data gathered, 18% of the consumers indicated that they were very satisfied with bread production in the Tamale metropolis. Whilst 48% of the consumers were satisfied, 6% were uncertain, with 20% stating that they were dissatisfied with bread production in the Tamale Metropolis. Eight percent (8%) of the respondents on the other hand stated that they were very dissatisfied with bread production in the Tamale Metropolis.

### **Consumer Expectations**

With the issue of consumers' expectation of the products provided by the bakers in the Tamale Metropolis, 64% of the consumers indicated that the products meet their expectations, with 36% of them emphasizing that the products of the bakers do not meet their expectations. According to Reinartz and Kumar (2003), producers need to understand expectations of customers in order to offer best products to win their loyalty. When the consumers were made to give reasons for their responses, answers like "the bakers in the Tamale Metropolis have maintained their traditional taste", "bread in the Tamale Metropolis has always tasted good" and "it is healthy to eat bread" were some of the responses the respondents gave in support of the reason why bread production in the Tamale Metropolis meet their expectations. Some of the respondents who emphasized that the products provided by the bakers in the Tamale Metropolis did not

meet their expectations gave reasons like “bread nowadays look smaller”, “bakers have reduced the quantity of items they were using to make bread” and “bread nowadays don’t taste like they used to”.

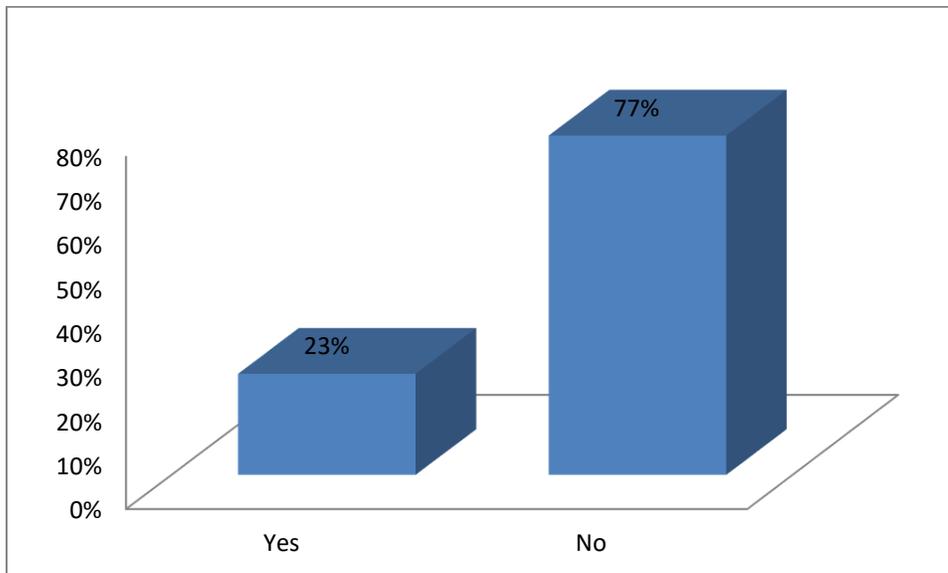
### Consumer’s Expectations



Source; Researcher’s field study, 2017

### Modernization of Operations

With the issue of modernization of the operations of bread bakers in the Tamale Metropolis, 23% of the respondents emphasized that the bakers in the Metropolis had modernized their operations whilst 77% of the respondents felt that the bakers in the Metropolis had not modernized their operations. The study revealed that most bakers in the Tamale Metropolis still resorted to the traditional way of making bread and that kneading cutting and baking were actually done the traditional way without adopting the modern ways of baking.



**Figure 3: Modernization of Operations**

Source; Researcher's field study, 2017

#### **Nutritional value of Bread and effects on the Consumer**

The study revealed that bread offers a positive effect on the human health due to the presence of many important nutritional components, such as dietary fibres, minerals and vitamins. The consumers indicated that bread is very critical and can be used as complements for various foods in the house. They further emphasized that to them most breads are nutritious and help in balancing their diet as it contains a lot of fibre and it is a main source of carbohydrate.

#### **Nutritional value of Bread and effects on the Consumer**

The bakers indicated that bread is usually produced by variety of ingredients including cereals. Cereal is known to provide important amounts of most nutrients and form an important part of a balanced diet. In addition to their high starch content as energy source, cereals also provide dietary fibre. There are some nutrients present in cereals that include vitamins and minerals.

Though bread offers a positive effect on the human health due to the presence of many important nutritional components, such as dietary fibres, minerals and vitamins, there are some disadvantages in eating some particular types of bread. White bread lacks many nutrients that unrefined bread provides. Eating refined grains, such as white

bread, offers fewer nutrients than whole grain options and this may lead to nutrient deficiency. Human body needs dietary fiber to help speed up digestion and can prevent constipation. Eating white bread instead of whole grain bread also means getting less of the essential minerals such as magnesium, phosphorus, potassium, zinc, copper and manganese. Over time, this lack of minerals may lead to nutrient deficiency and health complications.

The bakers indicated that bread that is to be kept for longer periods are processed differently and has a bunch of conditioners in it. This particularly happen in a situation where the bread is to be sent to shops and can spend days on the shelf. This, the bakers indicated they add conditioners to keep the moisture and this keeps it fresher for a longer period of time. The conditioners that the bakers add can be harmful.

According to the bakers there are also some chemicals added to bread which can be harmful to the health of the consumer. Azodicarbonamide which was brought in as a substitute for a much worse chemical, potassium bromate, which was phased out after it was called into question as possibly dangerous to human health can also be harmful to the health of humans.

#### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

##### **Consumer's knowledge on the nutritional value of Bread and effects**

It was realised from the study that bread is usually produced by variety of ingredients including cereals which is known to provide important amounts of most nutrients and form an important part of a balanced diet. In addition to their high starch content as energy source, cereals also provide dietary fibre. There are some nutrients present in cereals that include vitamins and minerals. The consumers indicated that bread is very critical and can be used as complements for various foods in the house. They further emphasized that to them most breads are nutritious and help in balancing their diet as it contains a lot of fibre and it is a main source of carbohydrate. Bakers also stressed on the harmful effects of chemicals that are added to bread to extend the shelf life and also to improve the texture of the bread.

The responses gathered revealed that majority of the respondents agreed that bread was a good source of bran fiber and good for the health. This was supported by 23% of the respondents that strongly agreed that bread was a good source of bran fiber and good

for the health. 55% of the respondents also agreed that bread was a good source of bran fiber and good for the health.

The results gathered also revealed that more than half of the respondents (58%) felt that it was good to take bread daily. The study further revealed that 53% of the respondents agreed that bread can help maintain a healthy weight.

It was also realised from the responses gathered that 77% of the respondents believed that it was better to eat whole grain bread instead of white bread. The study also revealed that about a third of the respondents (73%) agreed that it is not healthy to eat bread with lots of sugar in them.

## CONCLUSIONS

Baking, especially of bread, holds special significance for many cultures. Baked goods are normally served at all kinds of party and special attention is given to their quality at formal events. The importance of bread in the formation of early human societies cannot be overstated. Bread, in one form or another, has been one of the principal forms of food for man from earliest times (Samuel, 2000). The trade of the baker, then, is one of the oldest crafts in the world. Sigfried (1999) indicated that the history of bread goes back at least 30,000 years.

Man learned the art of bread making more than 4000 years ago and that bread has been a popular staple food for ages (Heinio, 2006). The nearly ubiquitous consumption of bread places it in a position of global importance in international nutrition. Bread products as indicated by Prattalaet *al.* (2001) vary widely around the world, as do their production techniques. Bread offers a positive effect on the human health due to the presence of many important nutritional components, such as dietary fibres, minerals and vitamins. Bread is usually produced by variety of ingredients including cereals (Siega-Riz (2000). Cereals provide important amounts of most nutrients and form an important part of a balanced diet. In addition to their high starch content as energy source, cereals also provide dietary fibre, protein that is high in proline and glutamine, but low in lysine; and functional lipids rich in essential fatty acids (Klopfenstein, 2000).

Even though bread offers a positive effect on the human health due to the presence of many important nutritional components, such as dietary fibres, minerals and vitamins, there are however some disadvantages in eating some particular types of bread. Many minerals are lost during the processing of white bread. Iron, which helps transport

oxygen in the body and prevents anemia, is one essential mineral that is reduced during processing. Many B vitamins are lost during the refining of white flour to make white bread. The B complex vitamins play a role in growth, energy metabolism, protein and red blood cell production and help to maintain healthy skin, digestive tract, immune system and nervous system. White bread may or may not be enriched with certain B vitamins, but eating whole grain bread ensures one gets these essential nutrients.

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