

Socio-cultural factors affecting egg consumption in selected municipalities of KwaZulu Natal Province, South Africa

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Moswane K and Oladele O.I .2024. Determinants of knowledge, practice, belief, and adherence, to socio-cultural reasons for egg consumption in KwaZulu-Natal Province, South Africa. (Accepted for publication by the African Journal of Food Agriculture, Nutrition and Development)

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ABSTRACT

Eggs are considered to be the cheapest source of protein. Hence, the support of their utilization among the open ought to be sought after more particularly in a nation like South Africa that's profoundly populated and where the masses are inclined to destitution. Recognizing and dissecting the socio-economic variables that prevent the utilization of eggs will allow the implantation of essential ventures that will address them, thus increasing the utilization per capita of eggs, which is moderately lower compared to the other European nations.

The aim of this study was to examine the determinants of knowledge, practice, belief, and adherence, to socio-cultural reasons for egg consumption in KwaZulu-Natal Province, South Africa because South Africa is one of the countries with the lowest egg consumption per capita. The study employed a descriptive and quantitative research design, and a multi-stage sampling technique and RaoSoft sample size calculator were used to select 125 households. The data was collected by interviewing the respondents using a structured questionnaire that was analysed using t-test statistics, Principal component analysis, and Probit regression analysis. The results have revealed that there is a significant relationship between egg consumption and sociocultural factors $\chi^2 = 78.59$; $p < 0.001$. Pearson, $\chi^2 = 259.28$, $p = 0.04$ and Deviance, $\chi^2 = 168.40$, $p = 0.99$ and Cox and Snell (0.467), Nagelkerke (0.542), and McFadden (0.318). Principal Components analysis extracted Factor 1 (taboo knowledge), Factor 2 (taboo consequences), Factor 3 (taboo practice), Factor 4 (taboo adherence), Factor 5 (taboo belief), Factor 6 (taboo negligence), and Factor 7 (taboo implications). Probit regression analysis has shown well fitted with Chi-square values of 9.86 x 125 (Knowledge), 463.64 (Adhere), 559.57 (Practice), 784 x 125 (Belief), 6.62 x 125 (constraints) at $p < 0.001$. The study has concluded that cultural reasons play a major role in influencing egg consumption than socioeconomic, economic, and availability factors.

It is therefore recommended that interventions such as educational programs that encourage healthier eating behaviours should be designed and implemented, these programs should be designed in a way that will incorporate culturally relevant approaches that people in Kwazulu-Natal can resonate with, to enhance their potential effectiveness in improving the frequency of egg consumption in the area. Furthermore, it is recommended that future research should delve deeper into the history of the

specific cultural norms, beliefs, and practices surrounding egg consumption within the region (Moswane & Oladele, 2024).

ACRONYMS AND ABBREVIATIONS

ADA	American Diabetes Association
AST	Aminotransferase
AMOS	Analysis of movement structures
CVD	Cardiovascular Disease
COVID-19	Coronavirus Disease 2019
CRP	C-reactive protein
HDL	High-density Lipoprotein
IEC	International Egg Commission
IFRC	International Federation of Red and Crescent Societies
KZN	KwaZulu-Natal
LDL	Low-Density Lipoprotein
PCA	Principal Component Analysis
TNF-a	Tumour Necrosis Factor-alpha
T1DM	Type one Diabetes Mellitus
T2DM	Type 2 Diabetes Mellitus
WHO	World Health Organization

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CHAPTER ONE : INTRODUCTION

Eggs are known to be on top of the list of the cheapest sources of animal protein in many countries across the globe, furthermore, they are the source of some of the important nutrients that are responsible for enhancing the growth and development of infants and young people. They are also considered to be the most economical source of protein due to their consistency in being affordable. Several studies have reported that eggs are one of the most popular rich nutrient foods that contain protein of high quality and fat-soluble vitamins such as vitamin A, vitamin D, and vitamin E, as well as water-soluble vitamins like vitamin B, furthermore, it was reported that they contain some of the critical minerals like copper, iron, and zinc which plays a vital role in ensuring that the body functions normally. The consumption of eggs has proven to be accompanied by a couple of health benefits which include assisting in reducing weight, improving the feeling of being sated, and helping in reducing short-term energy intake. Furthermore, the consumption of eggs provides the ability of the body to produce steroids to facilitate the mediation of fat digestion in the body performed by the bile. The nutrition content of the eggs, their popularity, and their ability or potential to serve as a whole meal are some of the factors that contributed to the promotion of commercializing the chicken egg production units globally. The laying or production circle of the chickens is 80 weeks and for most of this period they lay eggs and use crude protein more efficiently, thus making them more economically convenient to keep as compared to other poultry species. Furthermore, the prolonged lifespan of these laying chickens is secured or guaranteed because their early domestication made it possible for scientists to develop vaccines and medication that prevent and control diseases. The economical sufficient aspect of the egg as well as the nutritional sufficient part makes them one of the potential food products that can be used to eradicate food insecurity and malnutrition.

The available data from research has revealed that approximately half of the deaths of children whose age is below five years across the globe have occurred as the result of malnutrition, although this is seldomly singled out as the direct cause of the high death rate amongst the infant population; worldwide. The poor cognitive development in children and young adults is often associated with malnutrition, furthermore, it was reported that poor cognitive development affects their performance in school badly as well as their academic success which in turn reduces their chances of having a bright future. Based on the several side effects of malnutrition discussed above, it is recommended that an increase in egg consumption should be encouraged to help in reducing the burden since they are one of the affordable food products that offer high-quality protein content as well as several critical nutritious elements. Although the encouragement of increasing egg consumption is recommended to remedy the situation the implementation remains a challenge due to the existing misconceptions associated with the consumption of eggs, these include a popular belief that eggs are high in cholesterol and their frequent consumption leads to serious health-related problems in the society. In addition to these misconceptions, there are also taboos and cultural beliefs associated with eggs also inhibit their consumption.

The food taboos are very common, and they do exist, however, they vary with the community, society, or tribe. The reason for this is that almost every tribe or ethnic group in the world does not use the edible items that are available to them to their full potential, without any restrictions or taboos. A mere avoidance of a certain food item does not necessarily mean that it is a taboo, but studies revealed that certain norms that are well-established around food taboos have started as frequent avoidance of these foodstuffs and over the years they have been accepted formally as a taboo amongst a society or tribe in question. Thus, the food taboos exist due to different cultural practices, beliefs, and cultures of various communities and societies across the globe, hence these taboos differ from one country to another and from one region to the other. Some of the foodstuffs are classified as taboos basis that they are unclean, or their consumption can lead to curses while others are being classified as taboos based on the certain health effects on individuals after they have consumed them. The food taboos that are most common in societies are the ones that are affiliated with religious beliefs, for instance, some Christians believe that the consumption of pork is a sin, and some are associated with the cultural practices of

the people. It is important to note that the food taboos are not always restricted to their consumption, but they extend to their preparation and how they are cooked.

1.1 BACKGROUND OF THE STUDY

One of the most critical and prominent Sustainable development Goals (SDGs) is Zero hunger, which implies the eradication of hunger, improving nutrition, achieving food security as well as promoting sustainable food production in agriculture (Nations-United, 2015). This is based on the fact that the leading cause of death on a global scale is hunger is not solely caused by the lack of food but rather malnutrition is caused by the combination of several factors, and these can be classified as natural, social as well and political forces. Despite having natural resources in abundance, unequal access and inefficient handling of these resources remain the biggest contributing factors to the malnutrition of millions of people worldwide. It is further reported that this malnutrition leads to reduced or poor mental and physical development of an individual, it can also lead to diseases which will lead individuals to be economically inactive (Iannotti, Lutter, & Stewart, 2022). Eggs are important sources of amino acids, essential trace elements, and vitamins that have the ability to generate substantial cost-effective benefits in terms of nutrition and health energy therefore they are said to play a critical role in human nutrition. Furthermore, eggs are recommended as a portion of high complementary food products because of their nutritional value, their convenient preparation, and their relative ease of consumption (FAO, 2018).

The richness of high-quality proteins in eggs, their constant availability at low prices, as well as their highest value of protein digestibility of 97%, are some of the features that distinguish eggs as one of the most critical and widespread staple food products around the world. Furthermore, their richness in essential fatty acids, zinc, iodine, vitamins A and B12, and choline as well as bioavailable, with their best amino acid profile as a source of protein has led them to be consumed on a larger scale than any other dietary protein, they are consumed primarily for muscle synthesis (Lesnierowski & Stangierski, 2018). The average score of an egg was found to exceed one, as revealed by the protein digestibility-corrected amino acid score (PDCAAS), which means that it meets the necessities for all nine basic amino acids. Furthermore, eggs were singled out as one of the lowest-cost protein sources according to the Nutrient Rich Foods Index which is a nutrient profile model (Gadegbeku, Wayo, Ackah-Badu,

Nkupe, & Okai, 2013). With the presence of “hidden hunger” which is an insufficient or lack of intake of critical micronutrients which usually lead to the prevalence of various types of malnutrition in Africa, the problems of food insecurity and malnutrition remain some of the biggest challenges faced by the continent. These types of malnutrition include the inadequacies of vitamin A, Zinc and iron which at times prevail under conditions where there is sufficient intake of protein and energy. In South Africa the socio-economic characteristics such as low-income level, living in remote areas and lower educational status are often deemed to be the cause of undernutrition and malnutrition (Iversen, Marais, du Plessis, & Herselman, 2012). Although South Africa is considered to be one of the countries that is food secure, it still has a huge number of households that are without food with the country, the rate of malnutrition remains high across all age categories both in rural and urban areas. The purchasing of enough good quality food remains a challenge for most individuals in South Africa because approximately half of its population is living in poverty with its third living in extreme poverty and the little food that is available in the family, they are dictated by the existing cultural norms and taboos on who should consume them and how they must be consumed. South Africa is one of the countries in the continent with high egg demand because it serves as an alternative low-cost protein source of good quality and is estimated at 8 billion eggs per annum and the per capita consumption of approximately 145 eggs per annum. Eggs are ranked position four as the biggest animal source product in South Africa and it follows poultry meat, beef, and milk respectively. Despite the high demand for eggs in South Africa, their consumption is not widespread across all the provinces in the country studies have reported a great decline in consumption in most of the remote parts of the country (SAPA, 2021). The egg industry has been put under pressure lately and this was due to the factors such as the breakout of avian influenza which led to the shutdown of some laying units, the inflation which affected the feed and fuel prices as well as the rolling power outages but the need for people in South Africa to consume eggs remains crucial, in fact they are put in the same standard as that one of Gold in terms of its protein contribution to diet. The issue of cultural constraints and their associated taboos were reported to be a major contributing factor to this decline in egg consumption. Factors such as culture, society, environment as well as the economy are the ones that regulate the way food is selected, allocated, and consumed to a large extent.

The taboos and beliefs that are associated with the consumption of eggs during lactation, pregnancy, and early childhood development shows that cultural factors play a major role in many nutrition practices however most reports are based on personal experiences and there is inadequate qualitative and quantitative studies on this subject matter. (Contento & Koch, 2020) illustrated how dietary behaviors and food choice are influenced by social and environmental factors, especially where cultural and social factors are the major drivers.

Figure 1: Environmental and social influences at multilevel on dietary behaviours and food choice.

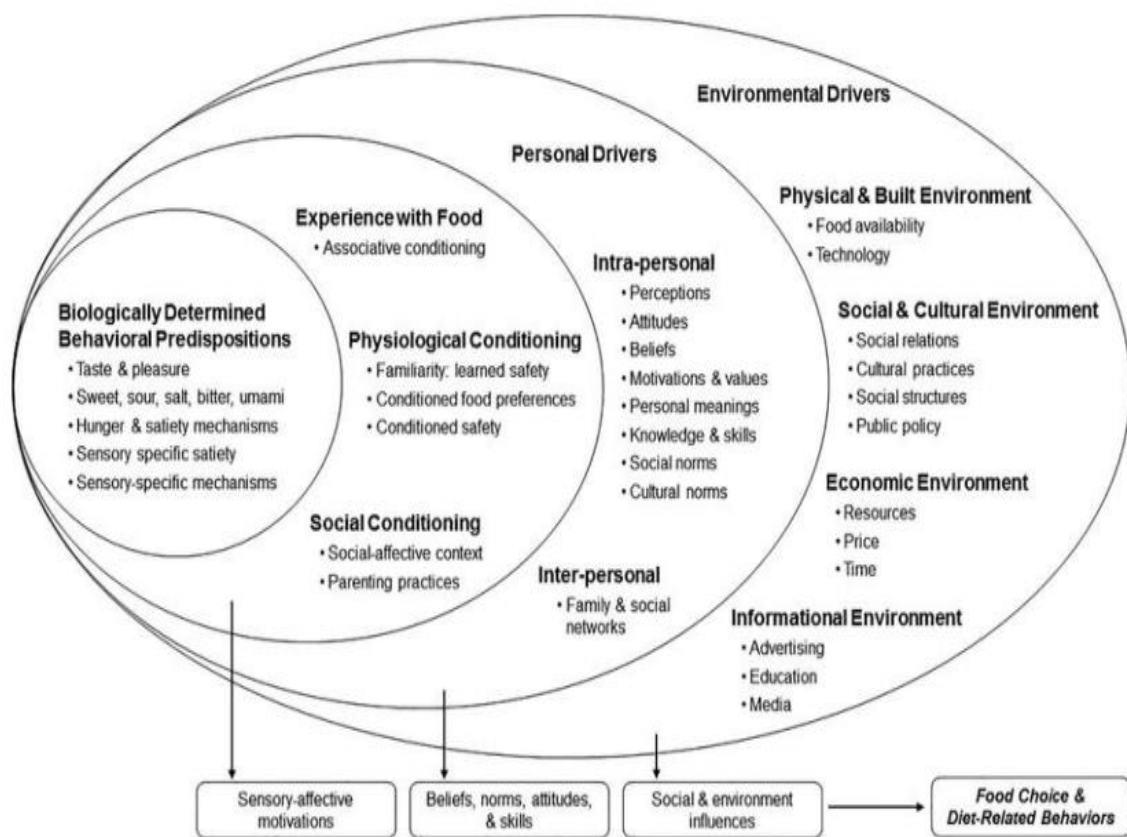


Figure 1: Environmental and social influences at multilevel on dietary behaviours and food choice (Contento & Koch, 2020).

Mojet’s model states that since the selection or choice of food is affected by several factors, the same model should be applied to the choice of egg as a food item (Rondoni , Asioli, & Millan, 2020). The figure below illustrates that the major determinants of egg consumption are sociocultural factors.

Figure 2: Essential factors and sub-factors affecting egg choice as food item

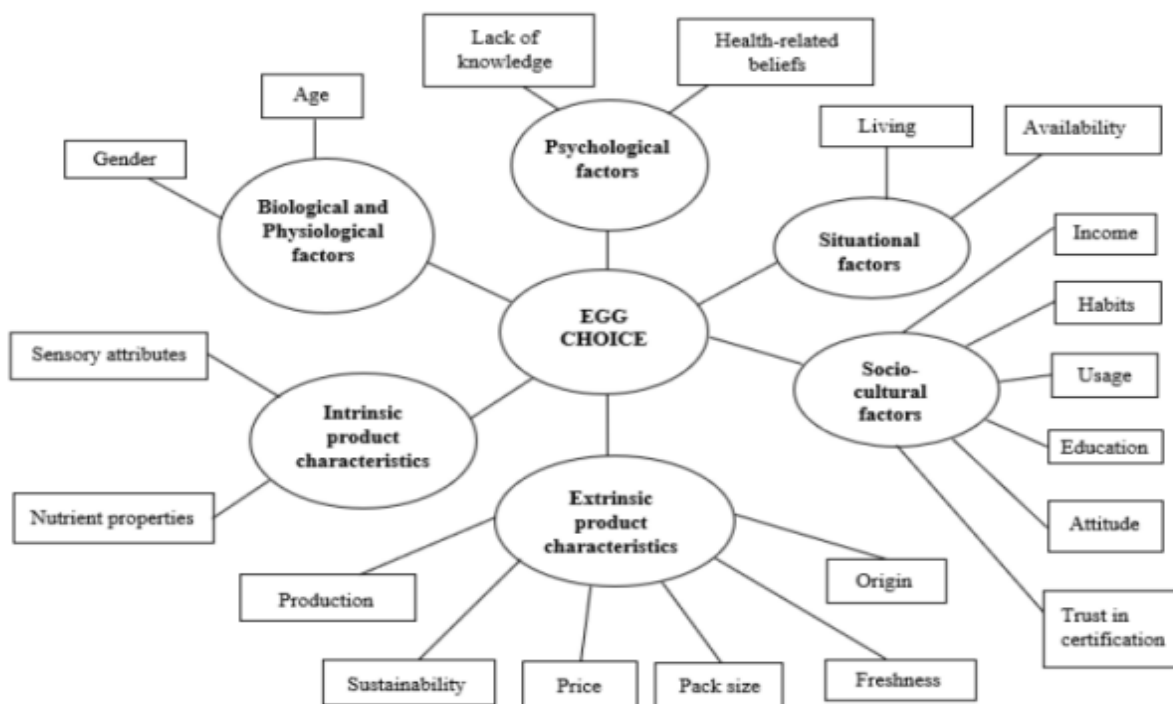


Figure 2: Critical components and sub-components affecting egg choice as food item (Rondoni , Asioli, & Millan, 2020).

1.2 PROBLEM STATEMENT

Food security and health are mostly affected by sociocultural factors such as food taboos and these taboos are said to be more prevalent in areas where there is a decrease in food supply and the consumption of the available food is restricted by the taboos that are in place (Medecins, 2022). People are denied an opportunity to consume food that is of nutritional importance because they believe in food taboos that are imposed. The report from the International Federation of Red Cross and Red Crescent Societies (IFRC) has revealed that food taboos that are culturally prescribed have a negative impact on access to nutritious food leading to nutrient inadequacies (IFRC, 2022). Each social group possesses conviction and hones that have amplified

activities to maintain a strategic distance from certain nourishments based on casual clarifications that may be supernatural, coherent, or in some cases troublesome to clarify normally. These activities are regularly delineated as nourishment taboos and are" part of a complex of state of mind, relating to the sense of taste, sentiments, and abstentions which are concerned within the creations and sustainability of culture differences, gender inequalities, and male authority “.

In a quest to effectively prevent and manage lifestyle diseases, the World Health Organization has emphasized the importance of scrutinizing the cultural, social, political, physical, and structural influences (WHO, 2000). Food taboos can pose a negative influence or even pose a serious threat to the physical health and nutritional needs of individuals, especially those who are vulnerable in society (Azumah , 2010). This study seeks to explore the sociocultural factors influencing the consumption of eggs in the KwaZulu-Natal province, which marks the point of departure for interventions that are culturally sensitive. Therefore, it is important that these food taboos are identified and thoroughly understood as well as the possible reasons that could have led to these prohibitions because these restrictions have a negative influence on the nutritional status of individuals and their communities.

1.3 MOTIVATION OF THE STUDY

Eggs are considered to be the low-cost animal source of protein of the highest quality across the globe, therefore the encouragement of their consumption among the public ought to be sought after, more particularly in a country like South Africa that is profoundly populated and where the masses are inclined to destitution. With much of the populace being unemployed and the unsteady economy that has contributed to the tall fetching of living among the citizens, nourishment uncertainty remains the greatest challenge that the nation is confronting as of now.

Recognising and dissecting the socio-economic components that prevent the consumption of eggs will give an opportunity for the implementation of essential ventures that will address them and hence improve the consumption per capita of eggs which is moderately lower compared to the European countries. When the egg consumption per capita has increased, the demand for eggs will automatically increase which will create more space in the egg industry for new participants because

the marketing channels will have been broadened. The advancement of the unused ventures within the industry will lead to job/employment creation which may be a step towards destitution lightening.

1.4 SCOPE OF THE STUDY

1.1.1 Aims and objectives of the study.

The aim of the study is to analyse the socio-cultural factors affecting the consumption of eggs in selected municipalities of Kwazulu-Natal province.

1.1.2 The objectives of this study are as follows.

- I. To examine egg consumption, patterns, and forms.
- II. Identify the socio-economic characteristics associated with food taboos on eggs in KZN.
- III. To identify the specific food taboos on eggs in KZN.
- IV. To identify factors underlining food taboos on eggs in KZN.
- V. Examine the effects of food taboos on egg consumption in KZN.
- VI. Examine the level of prevalence, and adherence to food taboos on egg consumption in KZN.
- VII. To ascertain the level of awareness, knowledge, and extent of belief in food taboos on eggs in KZN.
- VIII. Explore relationships among effects, prevalence, awareness, and knowledge constraints enhancing adherence to the food taboos on eggs in KZN.

1.5 RESEARCH QUESTIONS.

This study endeavours to address the following questions.

- I. What are the consumption patterns and trends of eggs in KZN?
- II. What are the socio-economic characteristics associated with
- III. What are food taboos on eggs in KZN?
- IV. What factors underline food taboos on eggs in KZN?
- V. What are the effects of food taboos on egg consumption in KZN?
- VI. What is the level of prevalence and adherence to food taboos on egg consumption in KZN?
- VII. What is the level of awareness, knowledge, and extent of belief in food taboos on eggs in KZN?
- VIII. Are there constraints enhancing prevalence, adherence, awareness and knowledge of food taboos on egg consumption in KZN?

1.6 The structure of the study

The first chapter of the study starts by introducing the study, which is followed by the background. The background is then followed by the problem statement which defines the problem that is being researched. This is followed by the motivation of the study then comes the scope of the study which is constituted by the aim and objectives as well as the research question that the study seeks to address. The second chapter is the review of literature where the literature of both studies conducted locally and internationally is reviewed. The third chapter is the methodology of the study, which is constituted by the study area, data collection, type of data, sampling procedure, and analytical technique; this is followed by the significance of the study and ethical considerations. Then follows chapter four which entails the analysis and interpretation of empirical results. The last chapter will be chapter five which marks the end of the report and entails a conclusion and recommendations.

CHAPTER TWO: INTRODUCTION

This chapter entails the review of different studies that were conducted in the past, the literature that is being reviewed is in context with the title of this study, and both the studies conducted locally and internationally were considered. This chapter begins by defining the important key concept of this study; some of the terms may have more than one definition or may not be defined the same way as in other articles or research papers. Therefore, the reader needs to take note that the concepts defined in this paper are defined in the context of this study.

2.1 LITERATURE REVIEW

2.1.1 DEFINITION OF KEY CONCEPTS

As a point of departure, the study will define the concept of socio-cultural factors drawing from (Berk, 2018) who defined these factors as the elements that shape the beliefs, behaviours, values, customs, and norms of an individual within a society or community. He further postulated that this factor includes a wide range of influences such as social cultures, tradition, language, religion, social expectations as well as the historical background of the society or community in question. He stressed that these factors have a significant influence on the identity and perception of an individual in their social environment. These factors play an important role in shaping a person's worldview, decision-making processes, and overall social integration.

Eggs are mostly laid by female species such as reptiles, fish as well and birds, the fowls were the ones that we domesticated first among other birds and they primarily served the purpose of producing eggs for human consumption they were preferred because of their biological circle of laying eggs an early age as well as their ability to lay eggs almost every day for most days of their production period (Bortsi, Baidoo, & Amiteye, 2022). When we speak of eggs in this article, we are strictly referring to table eggs, these are chicken eggs produced specifically for human consumption. Table eggs can either be brown or white depending on the type of the chicken breed and these eggs are mostly infertile.

2.1.2 COMPERATIVE ANALYSES OF EGG CONSUMPTION PATTERNS ON A GLOBAL SCALE

The FAO 2018 database as cited by (Van Horne, 2018) postulated that there is a huge variety within the utilization of eggs between nations around the world. He further stipulated that the normal egg consumption per individual per year was approximately 161 eggs per individual in the year 2018 when the whole world populace was sitting at 7.6 billion people. The information provided by the International Egg Commission (IEC) has revealed that in the year 2018, Japan and Mexico had the most noteworthy egg consumption per individual per year, that is approximately 337 eggs per individual per year individually whereas South Africa had the lowest consumption with an average of 130 eggs per individual per annually. There has always been a dynamic change in diet around the globe and this shift was worsened by the Coronavirus Disease 2019 (COVID-19) pandemic, consumers are continuously looking for alternative low-cost food that will yield high nutritious values to be added in their diet. The table eggs serve as the perfect examples of this diets; thus, they have been embraced across the globe for their high-quality content. The United States of America is listed as one of the countries that have the highest level of egg consumption per capita, the Department of Agriculture in the U.S have projected that the egg consumption in that country will reach approximately 290 eggs per capita in the year 2020 (Conway, 2020). The level of egg consumption continues to improve around the globe as they receive more attention due to their ability to provide high quality nutritional benefits at lower cost.

Despite a non-stop increment in egg consumption per capita in Western nations such as the United States of America, the normal annual egg consumption within the African countries remains low (Guyonnet, 2023). The fact that the African continent alone constitute 17.2% of the global population while it only it only contributes 4,1% of the table eggs towards the world aggregate production, illustrates that there is an opportunity to expand the egg industry in the African continent. Therefore, it is very crucial that the potential causes that led to this low egg consumption per capita be explored thoroughly in more depth before any attempts of improving the situation and the egg industry at large. However, each country in the African continent has its own

unique problems that contribute to the low egg consumption per capita, for an instance the egg industry in Mozambique is characterised by the lack of infrastructure that is sufficient enough to support the development and the sustainability of the industry (Guyonnet, 2021). On the other hand, there are other Sub-Saharan countries such as Malawi, Zimbabwe and Kenya that have a solid and adequate infrastructure that has the potential to support the improvement and the sustainability of the egg industry, however despite these countries having the necessary tools to develop the industry, they also experience a continuous decline in egg consumption per capita. The egg production system is different to the one that is common globally which is the cage system, majority of the producers are involved in cage free production method because they cannot afford the modern cage system. In the light of these circumstances, it is clear that African countries should take a different approach when it comes to the production and consumption of eggs. Studies has revealed that the main challenge of the egg industry in Africa might be rooted in the consumption part of the value chain, more especially consumer awareness on the nutritional value of eggs (Guyonnet, 2023). The majority of the egg producers as well as other producers all over the continent have a limited knowledge when it comes to the nutritional benefits of eggs, the protein they offer in terms of composition and bioavailability, therefore it highly recommended that the egg producers should have a sufficient knowledge about the nutrition value of the eggs so that they can transmit this knowledge to their consumers or the public at large, this will help them make an informed decision when purchasing the food stuff for their households. In a survey that was conducted in Rwanda concerning the consumption of eggs it was revealed myths have a negative influence on the consumer's perception towards egg consumption , when they were asked about how frequent they consume eggs this is how one of them responded “ I eat eggs only once a week because I believe that eggs are strictly for white people” the survey further postulated that in countries that were previously colonised the stigma like this one is way too common. The following paragraph will explore the consumer's perception in more detail as well as their influence on egg consumption per capita in the society.

2.1.3 EXPLORING FACTORS UNDERLYING FOOD TABOOS ON EGGS

One of the factors that has posed a serious threat to egg industry at large is the fact that consumers widely make important decisions concerning the consumption of eggs based on their personal experiences, emotions and perceptions rather than relying on scientific evidence. A classic example of “perception versus reality” can be given using the nutritional value of brown shell eggs and the white egg shell eggs because studies have revealed that consumers perceive the brown shell eggs to be more nutritious than the white shell eggs and the to make matters worse this was more prevalent in the countries where the majority of their egg produced is constituted by white shell eggs (Guyonnet, 2021). Another perception that is more common amongst the consumers is the belief that the eggs that were produced organically are more healthy/nutritious and safe to consume compared to the regular table eggs, in addition to this there are some of the studies that claimed that the unwanted chemicals like heavy metals and pesticides that are sometimes found in eggs are very minimal when it comes to organic eggs however some reports have argued that the same way the environmental contaminants are measured in the conventional production system it must also be equally applied in the production of organic food. Furthermore, the researches has revealed that the production systems of eggs does not enhance the quality of the nutritional contents of the final product rather it is the ration composition that is fed to the chickens that has the potential to improve the nutritional value of the eggs that are produced (Guyonnet, 2021). So far there are no scientific that has concluded that eggs that are organically produced are more healthier than regular table eggs or the other way round, despite the lack of scientific evidence on which types of eggs are more healthier than the other, the taboos and beliefs associated with the consumption of eggs in some societies continues to strongly persist, more especially in the third world countries where food insecurity and malnutrition are rooted in the society.

Before the myths and taboos associated with the consumption of eggs can be explored, it is important to lay out a brief outline of another angle that incorporates an eminent effect on egg consumption which is the consumer’s recognition and demeanour such as nutrition content, taste, and convenient preparation. These have been described as the foremost definitive determinants of nourishment choice which has been ceaselessly shifting over a long period depending on the number of

characteristics of an individual, such as the socio-economic status, age, educational level, sexual orientation as well as the frequency and convenient of accessing information (Gúney & Sangún, 2019). The studies have revealed that the size of the egg, its taste as well as its nutritional content are considered as the traditional determinants of consumers in food selection, and these are also said to play a critical role in influencing the individual's preference for table eggs. The socio-economic factors such as the habits of eating in various societies, the colour of the eggshell, packaging, brand as well as the production method employed to produce the product are the major drivers of the demand for eggs as well as their consumption. The other factors that have an impact on egg consumption are classified as socio-cultural factors, these factors include food taboos that are culturally set based on the specific culture of the population, fewer traditional cuisines as well as the attitudes and perceptions of the customers. The following chapter will give a brief outline of the origin and history of taboos and then explore the different taboos and beliefs that are usually associated with the consumption of eggs.

The fact that the food preferences of adults who belong to the same species, gender, and physiological structure vary is quite tricky. The intraspecific competition may incorporate various hunting methods, strategies, and skills that are gathered through discovery or learning. The ecologist and the zoologist never used the concept of "food taboo" to describe this kind of intraspecific food preference between animals, this concept was used only for the intraspecific food preference that exists amongst human beings. Thus, the concept of food taboo is used to describe the phenomenon where human beings practice the deliberate avoidance of certain foodstuffs and not just a mere dislike of food (Benno & Rochow, Food taboos: their origins and purposes, 2009). The food selection in the animal kingdom is mainly done by the superior animals and this is more common amongst the mammals where the weak ones and/or the subordinates are forced to comply and give in to the selected food items. Similar to what happens in the kingdom Animalia, in human society, the food selection is done by people who hold senior positions mostly, in many African countries these positions are occupied by elders and those in the tribal authority and they are the ones who impose these food taboos on the population. There is no ethnic group, community, or society on the face of the earth that utilises the food items that are available to them up to their full potential and as a result, the food taboos exist in all societies and

communities around the earth in different forms. The important point that should be noticed is that for as much as the consistent avoidance of food leads to a tradition that ends up being accepted as taboo, mere avoidance of a certain foodstuff does not necessarily indicate that it is a taboo (Benno & Rochow, Food taboos: their origins and purposes, 2009). These taboos have now become part of society's culture because they have been adhered to for a long time and the population group that is mostly affected by these taboos are the pregnant woman, the young ladies as well as the young children. Most pregnant women practice these taboos, especially pregnancy-related taboos because they fear that if they do not adhere to or disobey them it may cause complications for the unborn baby and it may even put the health of the mother in danger. These women adhere to these taboos because of the personal experiences of other women who were once pregnant or based on their previous pregnancy experiences while to others' adherence and practicing of these taboos are perceived as a sign of respect to their elders. However there are no scientific or medical facts that support the avoidance of certain foodstuffs, there is not even a clear specification of the type and the amount of food that should be consumed by pregnant women in order to ensure that maternal nutrition is safe (Ramulondi, De Wet, & Ntuli, 2021). The adherence to these taboos by pregnant women in most cases makes them disobey the medical prescriptions and recommendations from medical practitioners. The food taboos in each region, society, or community are made up of their culture therefore the taboo and taboo forms on the same food item may be different according to the society, region, or community. A perfect example of this scenario/ phenomenon can be given from what is going on in Zambia where it is widely believed that pregnant women should avoid consuming eggs as this will result in them giving birth to bald babies and even cause them to behave like chickens when giving birth while in Indonesia it is believed that the consumption of the very same eggs by a pregnant woman will prolong the period of the labour process. Furthermore, the majority of the population in Ghana believes that pregnant women should avoid consuming eggs by all means because it might lead to an overweight foetus which will cause complications during the process of giving birth and this can also put the life of the mother in danger. The infants and children are also restricted from consuming eggs and meat because it is widely believed that if they consume them, they will become thieves as these food items are usually stolen by dogs. However, the restriction of these nutritious foods amongst children is one of the causes of malnutrition in society.

2.1.4 THE EFFECTS OF FOOD TABOOS ON EGG CONSUMPTION.

The report obtained from the World Health Organization has indicated that approximately 45% of the mortality rate, which is equivalent to three million deaths annually, that occurs amongst the population of children that are below five years, is caused by malnutrition (Ramulondi, De Wet, & Ntuli, 2021). The lack of food is one of the causes of malnutrition but the major factor that contributes to this problem is inadequate feeding practices and cultural practices is one of the key factors that contribute to the myths and taboos associated with the consumption of certain food items.

The healthy growth and development of infants and young children require adequate nutrition. During the development of the body in young children, there is a need for complementary feeding and if this complementary feeding is inadequate, the ability of the child to achieve full potential growth will be compromised. Critical complementary feeding includes foodstuff that contains animal-source protein as these types of food are said to provide essential nutrients. A perfect example of an animal source of protein food items is an egg because they are considered to be nutritionally dense and have the ability to enhance early nutrition, they are critical sources of minerals, proteins as well as vitamins that are essential in the body development and growth of the child (Kase, et al., 2022). Furthermore, it is reported that eggs play an essential role in enhancing or promoting weight loss in individuals who are obese or overweight, they also play a vital role in reducing short-term energy intake and improving feelings of satiety (Bortsi, Baidoo, & Amiteye, 2022). In the areas where stunting is prevalent and persistent, the introduction of egg consumption during the process of complementary feeding has yielded good results, especially in terms of growth improvement. The availability of chickens, adequate land to erect proper facilities for egg production purposes, distance away from the markets as well as the food security status of each society were listed as some of the key factors that influence the consumption of eggs. The situation in Zambia can be taken as an example of how these factors influence the consumption of eggs, Zambian women do permit their children to consume eggs, but the prices of these eggs remain a stumbling block to their consumption, especially in the remote areas. In addition to the key factors that have a huge influence on the consumer's perception of egg consumption, there are sociocultural factors, they include the cultural-based norms, religious beliefs and

practices as well as the perspective of the caregivers. In Ethiopia, there is a phenomenon called fasting that is performed by the Ethiopian Orthodox Christian religious community and it takes approximately 180 days a year, during this period consumption of animal-source protein is restricted as a result these food items become scarce in the market for the duration of the process (Kase, et al., 2022).

Since chicken eggs are one of the affordable animal source food that is highly digestible with a low caloric matrix of complete protein, vital fatty acids as well as micronutrients, are reported to be contributing greatly to the adequate intakes of critical nutrients during infancy. Furthermore, the research has revealed that the consumption of eggs during childhood is associated with great improvements in growth in length, and weight as well as lowered risks of stunting and underweight or weight loss. Although the consumption of eggs during infancy is reported to be beneficial, they have not been included in the diet of many children for many decades and this is because of the fear and concern for the development of egg allergy. This type of allergy is the second most common food allergy in infants and it was reported that it affects approximately 2.5% of young children, because of this the avoidance of eggs during infancy has become a norm in many societies. However, recent research has revealed that the introduction of eggs in early infancy may help the child to develop an immune tolerance to the egg allergen and this is called an immunologic mechanism. The research also stipulated that the development of this immune tolerance is dependent on the quantity that is consumed, the frequency of consumption as well as the egg fraction, however, there is not enough research that is based on these factors. There is a call for more research that will help in identifying the optimal or minimal egg consumption during infancy to prevent the development of egg allergen (Wen, et al., 2023).

Infants or children in their early stages of development must get an adequate intake of high-quality nutritious foods so that they can enable them to achieve a wide range of outcomes such as behavioural and cognitive development as well as economic productivity and human capital in a later stage in life. The investigations have revealed that inadequate consumption of several foodstuffs that are diverse always has proven to be a risk factor for both micronutrient deficiencies as well as stunting which can be described as a measure that represents the effects of malnutrition. Lack of food affordability and accessibility as well as the broader and environmental variables that

impact dietary intake has been demonstrated in undernutrition among children in the country of Nigeria (Blum, Swartz, Olisenekwu, Erhabor, & Gonzalez, 2022). Although Nigeria is one of the African countries with the largest economy it was reported to be having some of the highest cases of child malnutrition compared to other countries in the world. According to (ICF, 2018) as cited by (Blum, Swartz, Olisenekwu, Erhabor, & Gonzalez, 2022) the number of children under five years with stunting is approximately 37% and the northwest zone states had a higher prevalence of child malnutrition where the cases of stunting ranges from 50% to 68% amongst children that are below the age of five years old. It is suggested that in order to reduce the global burden of malnutrition in low and middle-income countries it is important that we consider the integration of high quality and nutrient-dense animal-source food as a major source of protein, in the diet of the children. With the widespread poultry ownership across Sub-Saharan African countries, eggs have the potential to alleviate undernutrition among children in these countries. When compared with other animal sources food eggs are proven to have higher concentrations of essential fatty acids, proteins as well as other nutrients that play a vital role in reducing the risks of stunting in children, they are also considered to be the most affordable animal source food.

2.1.5 THE NUTRITIONAL AND HEALTH IMPACT OF TABOOS RELATED TO EGG CONSUMPTION.

Research has revealed that stunting affects approximately 22.2% of the children that are under the age of five years old, furthermore, it is stipulated that it contributes to the high morbidity, mortality, loss of potential development, increased risk of chronic diseases as well as poor educational performance. The factors that lead to the prevalence of tuning include inappropriate complementary feeding practices, lack of access to wide diverse types of foodstuff as well as insufficient intake of micronutrients. Infants with ages ranging from 6 to 12 months become vulnerable to growth faltering if the complementary food that is introduced to them is not nutritionally sufficient and has inadequate energy density. The statistics show that in low and middle-income countries only one child out of four has access to a nutritionally diverse diet, the complementary diet in these countries often lacks necessary key micronutrients, essential amino acids as well as fatty acids (Faber, et al., 2022).

Even though eggs are regarded as the cheapest source of good quality animal protein in many countries across the African continent, other countries such as Ghana associate the consumption of eggs with the misconceptions that they are the potential causes of some of the health problems that are experienced in the society at large and the unfortunate part is that this one of the African countries that are continuously battling malnutrition and food insecurity. The decision of the United States of America to disapprove of the consumption of eggs in the 1970s was based on these misconceptions and that is according to Drouin-Chartier *et al* as cited by (Bortsi, Baidoo, & Amiteye, 2022). According to the report obtained from the survey that was conducted in the Acra region in Ghana, the belief that egg consumption causes high cholesterol levels and that it also has the potential to cause individuals to be prone to cardiovascular diseases such as arteriosclerosis, stroke as well as diabetes is one of the most common misconceptions that is associated with the consumption of eggs. Eggs are one of the food items with a high level of cholesterol with each raw egg containing approximately 391mg per 100 grams. There two forms of cholesterols are found inside an egg, namely dietary and blood cholesterol and their carriers are High-Density Lipoprotein(HDL) and Low-Density Lipoprotein (LDL) respectively. It was scientifically proven that the High-Density Lipoprotein (HDL) that is found in eggs is not harmful at all, however the same cannot be said about the Low-Density Lipoprotein (LDL) that is commonly found in diets. Furthermore, there is scientific evidence that proves that the low levels of Low-Density Lipoprotein (LDL) that is derived from the consumption of two eggs per day is not adequate to lead to the prevalence of atherosclerosis and other related conditions in consumers (Bortsi, Baidoo, & Amiteye, 2022). It was further reported that there is no scientific evidence that suggests that eggs contain high saturated fatty acids, therefore this is just a popular opinion because eggs contain saturated fatty acids that are relatively low and a large part of the fat found in eggs is unsaturated, with approximately 44% of the fat being monosaturated and 11% polyunsaturated and all these are coupled by the low energy content of approximately 896KJ/214 kcal for each 100g and this makes it the most valuable source of many essential micronutrients when it is compared to meat. Now that the nutrition content of the eggs is described in thorough detail, it is of utmost importance that we discuss the health impact or effect associated with the consumption of eggs, to proceed with this discussion the study will draw from a food science journal titled

“Egg consumption and health effects: A narrative review”. With that being said, the study will discuss the influence of egg consumption on obesity as a point of departure.

Obesity can be defined as a multifactorial disease that develops as the result of excessive fat accumulation in the body due to high energy intake, this disease attacks both males and females of all age groups but it is more common in women and elderly people. Studies have revealed that lowered plasma C-reactive protein (CRP) as well as an improved level of adiponectin in overweight men can be achieved by the consumption of a dozen eggs per day for the period of twelve weeks. It is further reported that egg consumption plays a vital role in reducing body weight and improving inflammation in overweight or obese people by changing adipose tissue function that affects the bioactive components either directly or indirectly (Sanlier & Ustun, 2021).

The studies further stipulated that weight gain and fattening in animal species with type two diabetes can be relatively reduced by the regular consumption of eggs. According to the study by (Ruru, Yaling, Qiang, Shaonong, & Yan, 2020) as cited by (Sanlier & Ustun, 2021) a study was conducted involving 2241 adult individuals with the age that ranges between 18 and 80 years, the study compared people who were consuming eggs and those who were not consuming eggs and the results has revealed that those who consumed eggs proven to have lowered the risk of central obesity by 34% while they attributed 38% of lower risk of excess fat. Another study conducted by (Park, Jung, Choi, & Lee, 2018) as cited by (Sanlier & Ustun, 2021) has reported that the occurrence of abdominal obesity can be reduced or decreased by consuming one egg per day as a Mets component, it further postulated that the reduction in high-density lipoprotein levels can be reduced by consuming two to seven eggs per week.

Now that the relationship between egg consumption and obesity has been discussed in more detail, the study will attempt to give an overview of the relationship between egg consumption and Diabetes Mellitus. Diabetes Mellitus is distinguished into two types namely, Type one Diabetes Mellitus (T1DM) and Type two Diabetes Mellitus (T2DM). The American Diabetes Association (ADA) has described type one diabetes as the destruction of the autoimmune beta cell that usually leads to insulin deficiency while type two diabetes (T2DM) is the frequent occurrence of a progressive loss of beta cell insulin secretion on the background of insulin resistance. A randomised cross-study that was conducted amongst patients with well-controlled type two

diabetes has confirmed that consumption of one full egg per day reduces aminotransferase (AST) and tumor necrosis factor-alpha (TNF-a) parameters as compared to a breakfast meal that contains 40 grams of oats. Furthermore, the study has revealed that when individuals with type two diabetes consume two eggs per day which is considered to be a meal with high protein and cholesterol did not have any negative impacts on the T2DM and Cardiovascular disease (CVD) markers (Sanlier & Ustun, 2021). In a research that was carried out, (Jyrki, Jaakko, Tomi-Pekka, Heli EK, & Sari, 2015) it was reported that an inverse relationship is suspected to exist between egg consumption, fasting plasma glucose, and serum C-reactive protein concentration. The studies further confirmed that there is a negative correlation relationship between egg consumption and the risk of type two diabetes Mellitus in men.

2.1.6 SUMMARY OF LITERATURE REVIEW

The healthy growth and development of infants and young children require adequate nutrition. During the development of the body in young children, there is a need for complementary feeding and if this complementary feeding is inadequate, the ability of the child to achieve full potential growth will be compromised. Critical complementary feeding includes foodstuff that contains animal-source protein as these types of food are said to provide essential nutrients. A perfect example of an animal source of protein food items is an egg because they are considered to be nutritionally dense and have the ability to enhance early nutrition, they are critical sources of minerals, proteins as well as vitamins that are essential in the body development and growth of the child (Kase, et al., 2022). Furthermore, it is reported that eggs play an essential role in enhancing or promoting weight loss in individuals who are obese or overweight, they also play a vital role in reducing short-term energy intake and improving feelings of satiety (Bortsi, Baidoo, & Amiteye, 2022). In the areas where stunting is prevalent and persistent, the introduction of egg consumption during the process of complementary feeding has yielded good results, especially in terms of growth improvement. The availability of chickens, adequate land to erect proper facilities for egg production purposes, distance away from the markets as well as the food security status of each society were listed as some of the key factors that influence the consumption of eggs. The situation in Zambia can be taken as an example of how

these factors influence the consumption of eggs, Zambian women do permit their children to consume eggs, but the prices of these eggs remain a stumbling block to their consumption, especially in the remote areas. In addition to the key factors that have a huge influence on the consumer's perception of egg consumption, there are sociocultural factors, they include the cultural-based norms, religious beliefs and practices as well as the perspective of the caregivers.

Since chicken eggs are one of the affordable animal source foods that are highly digestible with a low-calorie matrix of complete protein, vital fatty acids as well and micronutrients, they are reported to be contributing greatly to the adequate intake of critical nutrients during infancy. Furthermore, the research has revealed that the consumption of eggs during childhood is associated with great improvements in growth in length, and weight as well as lowered risks of stunting and underweight or weight loss. Although the consumption of eggs during infancy is reported to be beneficial, they have not been included in the diet of many children for many decades and this is because of the fear and concern for the development of egg allergy. This type of allergy is the second most common food allergy in infants, and it was reported that it affects approximately 2.5% of young children, because of this the avoidance of eggs during infancy has become a norm in many societies. However recently the research has revealed that the introduction of eggs in early infancy may help the child to develop an immune tolerance to the egg allergen and this is called an immunologic mechanism. The research also stipulated that the development of this immune tolerance is dependent on the quantity that is consumed, the frequency of consumption as well as the egg fraction, however, there is not enough research that is based on these factors. Thus, the frequency of egg consumption has remained constant in most parts of the African continent.

The FAO 2018 database as cited by (Van Horne, 2018) postulated that there is a huge variety within the utilization of eggs between nations around the world. He further stipulated that the normal egg consumption per individual per year was approximately 161 eggs per individual in the year 2018 when the whole world populace was sitting at 7.6 billion people. The information provided by the International Egg Commission has revealed that in the year 2018, Japan and Mexico had the most noteworthy egg consumption per individual per year, that is approximately 337 eggs per individual per year individually whereas South Africa had the lowest consumption with an average

of 130 eggs per individual per annually. There has always been a dynamic change in diet around the globe and this shift was worsened by the COVID-19 pandemic, consumers are continuously looking for alternative low-cost food that will yield high nutritious values to be added in their diet. The table eggs serve as the perfect examples of this diets; thus they have been embraced across the globe for their high-quality content. The United States of America is listed as one of the countries that have the highest level of egg consumption per capita, the Department of Agriculture in the U.S have projected that the egg consumption in that country will reach approximately 290 eggs per capita in the year 2020 (Conway, 2020). The level of egg consumption continues to improve around the globe as they receive more attention due to their ability to provide high quality nutritional benefits at lower cost.

CHAPTER 3 : INTRODUCTION

This chapter outlines the way the research was carried out. It describes the area where the study was conducted which includes the geographical features, climatic features, vegetation as well as the infrastructure of the area. The chapter further explains how the purposive sampling method was used to collect the cross-sectional from the given sample size. The analytical techniques are listed, and they are also explained how they were used to address the specific objectives of the study. This chapter also outlines the significance of this study which explains the contribution of the study in the economy and lastly, it outlines the ethical consideration that marks the end of the chapter.

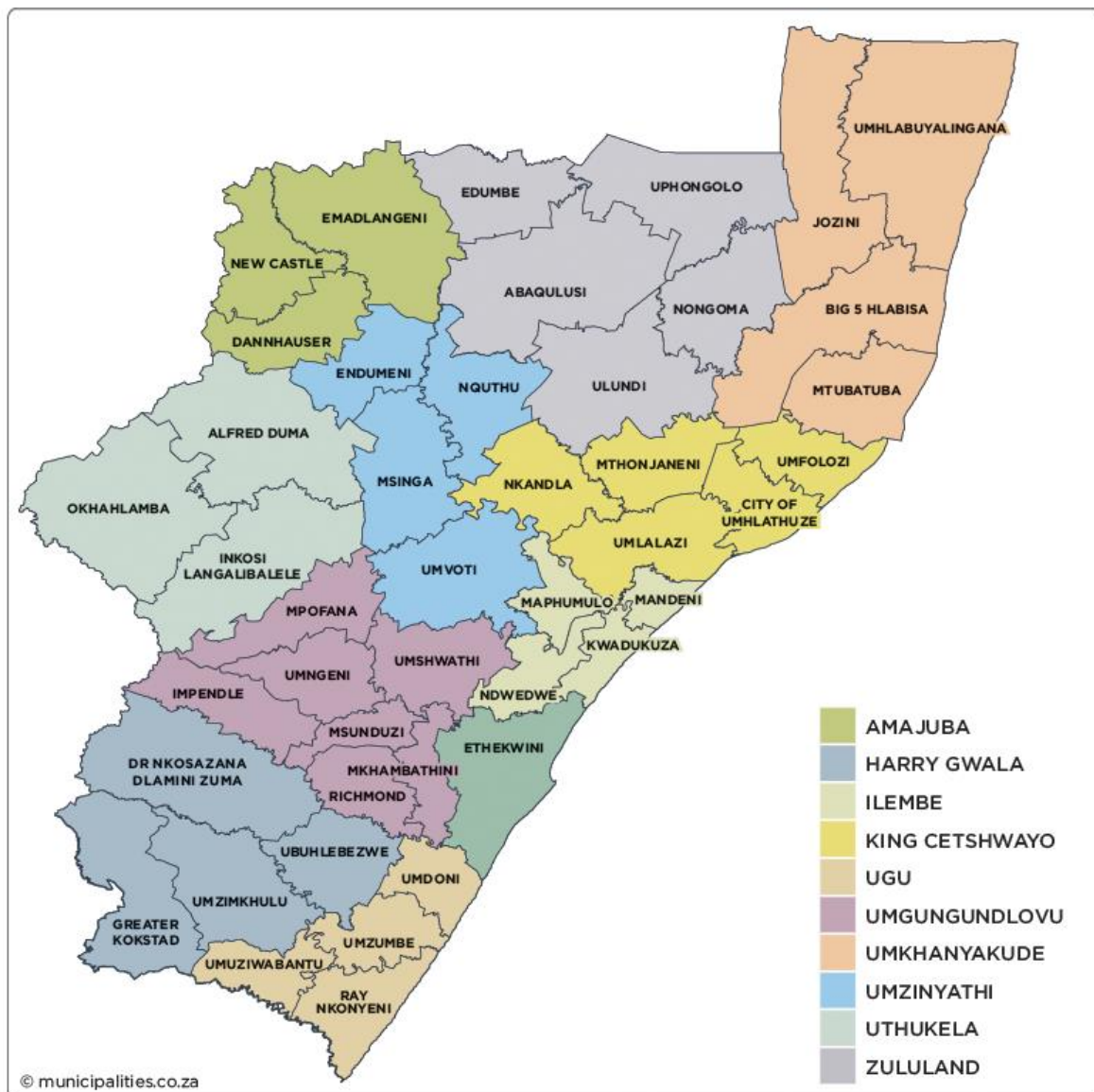
3.1 RESEARCH METHODOLOGY

3.1.1 STUDY AREA

The research was conducted in KwaZulu-Natal province of South Africa, and it is located in the south-eastern part of the country. In the country in the northern part of the country is bounded by Mozambique and Swaziland, the eastern part is bounded by the Indian Ocean, to the west by Free State Province and the country of Lesotho, and lastly to the northwest by the Mpumalanga province. One of the major economic activities in KwaZulu Natal province is primary Agriculture and the horticultural industry is the one that dominates in this field .This province is made up of 12 districts, the first one being the eThekweni Metropolitan Municipality which is part of Durban city, the second one is Zululand, then uMkhanyakude, Amajuba, Uthukela, King Cetshwayo, iLembe, Ugu, Harry Gwala, uMzinyathi as well as uMgungundlovu district. The study was carried out in selected districts across the province. The KwaZulu-Natal province has a varied climate and is rich in vegetation due to it's complex and diverse topography, the coast is subtropical with the inlands that are generally dominated by continuous coldness. The South Coast part has an annual rain fall approximately 1009 mm, with the daytime temperature peaking from a maxima of 28 °C (82 °F) and a minimum of 21 °C (70 °F) from January to March, the dropping daytime from June to August ranges from the maxima of 23 °C (73 °F) and the minimum of 11 °C (52 °F).

The North Coast of the province usually experience the warmest climate and the highest humidity which is convenient for the growth of sugar cane around the area. This province has by far the second largest economy in the country and the agricultural industry plays huge role in the economy of the province. The agricultural sector in the province is dominated by commodities such as sheep, beef, corn, cotton, citrus fruits, sorghum, pineapples as well as bananas and the biggest one is the sugar refinery.

Figure 3: map showing geographical location of Kwazulu-Natal province (photo cred: google maps)



3.1.2 DATA COLLECTION

The study has employed a descriptive and quantitative research design which (Bless & Higson-Smith, 2000) has described as the study that is associated with the beliefs and perceptions that are upheld and trends that are developing in the communities. Therefore, the study profiles the extent to which sociocultural factors influence the consumption of eggs in the KwaZulu Natal province.

The respondents or population of the study was the household members from remote areas from the selected districts, namely uMgungundlovu, uMkhanyakude and Harry Gwala in the KZN province.

A multi-stage sampling technique has been adopted to help in the selection of the specific households/respondents to be interviewed as part of data collection. The data was collected with the use of a structured questionnaire. The first stage of the sampling technique involved stratification of household at a district level, in the three selected districts, these districts formed the first strata. In the second stage the households were stratified by cosmopolitanism where households in each district were classified as rural or urban areas thus creating diverse groups within each district. The third stage was the sample size calculation using the RaoSoft, where the population was entered into RaoSoft calculator and the minimum of 40 respondents were selected per district using a large sample size technique of $n > 30$ which yielded a minimum sample size of 125 respondents for the study. The last stage was the distribution of respondents per district, where the number of respondents selected per district was proportional to the population of the district in question, 50 respondents were obtained from uMgungundlovu, 40 from uMkhanyakude and lastly 35 respondents were obtained from Harry Gwala.

The table below shows the summary of the selected number of respondents per district and the estimated population of each district, the calculated sample size as well as the final number of respondents selected in each district.

Table 1: summary of the population for the selected districts

District	Estimated Population	Calculated Sample (RaoSoft)	Final Number of selected respondents
uMgungundlovu	1 095 865	Proportional to population	50 respondents
uMkhanyakude	625 846	Proportional to population	40 respondents
Harry Gwala	510 865	Proportional to population	35 respondents
Total	2 232 576	125	125 respondents

A structured questionnaire with the survey instrument made up of five sections was used to collect data. Each section of the instrumental survey was focused on a specific objective of the study, the included sections are as follows: socioeconomic characteristics, specific food taboos, and their underlying factors, their effects, prevalence, adherence, knowledge of taboos as well as the extent of belief on food taboos associated with eggs in KZN. The section on socioeconomic characteristics is made up of variables such as age, gender, marital status, size of household, level of education, income level, sources of information, and religious affiliation amongst others. Under the section on specific food taboos and their underlying factors 35 food taboos are associated with the consumption of eggs according to the literature and the participants will affirm this or otherwise during the interviews.

The split-half technique of reliability and face validity was employed to establish the validity and reliability of the instrument. The descriptive statistics tools such as percentages, mean, frequency count, and ranks were used to analyse the collected data. Furthermore, the differences between household analysis, Principal Component Analysis as well as Probit regression model.

3.1.3 ANALYTICAL TECHNIQUE

The most common purpose of the t-test is to assess whether there is a statistical difference between the means of the two groups. In this case, the t-test was used to compare the mean scores of various categories under the section on socioeconomic characteristics. The variables were exposed to the equivalent analysis under non-parametric considerations at different measurement levels.

The equation to be used is as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} \dots\dots\dots (3.1)$$

(Koutsouyianis, 2003)

The explained formula as follows.

X₁ = Socio-economic characteristics of group of households, X₂ = Socio-economic characteristics of alternative group of households, S₁² = variance of X₁ variable, S₂² = variance of X₂ variable, N₁ = number of households in group, N₂ = number of households in alternative group.

The Probit regression analysis was applied to identify the determinants of knowledge, practice, belief and adherence to taboos associated with egg consumption. When it comes to the Probit regression model the assumption was that the respondents have two alternatives of yes or no for each knowledge, practice, belief and adherence as expressed by (Nagler S, 1994). The binary outcome variables were considered dependent variables with two possibilities such as yes or no. This model was deemed to be appropriate due to its ability to overcome heteroscedasticity and satisfies the assumption of a cumulative normal probability distribution. In the probit model, it is assumed that Y can be specified as follows.

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots\dots\dots \beta_{ki} X_{ki} + U$$

And that:

$$Y_i = 1 \text{ if } Y > 0$$

$$Y_i = 0$$

Where X_1, X_2, \dots, X_n represents a vector of random variables, β represent a vector of unknown variables and the U represents the random disturbance term.

The study has employed the multinomial logistic regression to analyse factors influencing the consumption of eggs as well as the frequency of consumption. The multinomial logistic regression has an ability to analyse data with more than two responses and it make use of the logit link (Greene, 2000) . The previous similar studies have commended this model for its appropriateness and conveniency when it comes to avoiding normality, linearity and homoscedasticity , furthermore the effect of the predictor variable is usually expressed in terms of the odds ratio which makes the model to be easily interpreted (Opondo, Dannenberg, & Willkom, 2017)

The key components of the structure were extracted using the Principal Component Analysis (PCA), which is described as the data reduction tool (Manyong, et al., 2006). The index that will be generated from the Principal Components Analysis will then be used as an independent variable when estimating the factors that influence the adherence of food taboos on the consumption of eggs. The model for Principal Component Analysis is illustrated below.

$$P_1 = \alpha_{11}X_1 + \alpha_{12}X_2 + \dots + \alpha_{1p}X_p$$

$$P_1 = \alpha_{21}X_1 + \alpha_{22}X_2 + \dots + \alpha_{1p}X_p \quad P_1 = \alpha_{p1}X_1 + \alpha_{p2}X_2 + \dots + \alpha_{1pp}X_{pz}$$

Where X_1, \dots, X_p represent the original variables of the composite taboos on egg consumption measured in number of households and P_1, \dots, P_p is the principal components which are uncorrelated linear combinations of the original variable. The component loadings were chosen on the condition that the principal components were not related, and that the first component would account for the maximum possible proportion of the total variation in the original variables.

Ethical Consideration

The highest possible ethical and professional codes of conduct will strictly be adhered to throughout the process of conducting this study. The prejudices, biases as well as sentiments that may threaten the objectivity and neutrality of the study will be eradicated at all costs. The anonymity and confidentiality of the participants are among the ethical issues that the study considered. The respondents were given the right to remain anonymous as their names or any form of personal identifiers were not solicited from them and the information that they provided was treated with confidentiality. The respondents were given the right to choose whether they would like to participate in the study or not. The objectives of the study were clearly stated for the respondents and their permission or willingness to participate was obtained through verbal consent. The welfare of the respondents was prioritised by the researcher throughout the study. The study did not in any way engage in anything that was hazardous to the environment and did not threaten the health and well-being of the respondents.

Expected outcome.

The analysis of the Socio-cultural factors affecting egg consumption in Kwa-Zulu-Natal Province, South Africa would lead to results on the comparison of respondents along different categorizations based on socio-economic characteristics. The variables at different levels of measurement will be subjected to equivalent analysis under non-parametric considerations. The key components and structure of factors influencing adherence to food taboos on eggs will be identified. The factors influencing awareness, knowledge, and effects of food taboos on eggs will be assessed, and the determinants of adherence to food taboos on eggs isolated. The inter-relationship that existed between the different constructs of the study will be specified and estimated such that the effects among measured variables and latent variables will be quantified and explained. The expected results will help to plan effective interventions to eliminate food taboos on eggs and change the attitude, knowledge, and skills associated with egg consumption as a mark to achieving the SDG goal of zero hunger.

CHAPTER 4 : INTRODUCTION

In this chapter, the study will be analysing the collected data and interpreting the results thereof. It will begin by presenting and discussing the frequency distribution tables, which are well-organized data of the number of individuals from each category that is presented in the form of tables or graphs. They enable the researcher to conveniently have a more vivid overview of the entire data, they indicate the low and high observations and also how the observations are spread across the scale or whether they are concentrated on one side (Manikandan, 2016), in this case, we will be having a total of six frequency tables and all the variables in each table will be discussed accordingly.

4.1 Socio-economic characteristics of the respondents

In the table 2 below it is observable that 35% which is the majority of the respondent is constituted by people who are between 30 and 40 years of age, at the time the survey was conducted. The probable reason for this might be that most young people have moved or migrated to the cities and other provinces to further their studies as well as to look for greener pastures in terms of job opportunities. Those who are over 50 years old are the least in the sample size constituting only 16.8%, this might be an implication that the life expectancy is low, in these areas where the study was conducted because the health facilities are very far from the communities and the sanitation in these areas is not proper, as some of them use the water from the streams and rivers. This study has covered almost all the age groups in the communities so that the data can represent almost every individual in the population. These presented here are in line with what was reported by (Berber & Alkan, 2022) when they were analysing the factors that determine the egg consumption behaviours of consumers in Bursa province where 68.7% of the participants were aged between 35 and 50 years.

The females constituted the majority of the population that was interviewed at 56% while males were only 44%, the probable reason might be that this population is made up of more females than males or it could be that when the study was carried out most of the males were at work, as it is very common in the rural areas, especially in Kwa-Zulu Natal where the cultures and tradition are well respected, it is believed that a man is the one who has to go to work while women remain behind to take care of the

household. Hence why they are the ones who were mostly available to answer the questions related to the study. However, the percentage of males is not that low thus it is safe to say both the views and perspectives of both genders were fairly represented in the study. These figures are similar to the ones that were reported by (Tolimir, et al., 2017) in their study, where majority of the population that has participated were females, however this results are in contrary to the ones that were reported by (Öğütcü & Elmas, 2020) where the number of male respondents were greater than that of females.

In the category of level of education, the study has revealed that 48% of the respondents have attained secondary education as their highest level of education, this is most of the population who participated in the study and only 4% of the population who participated in the study were reported to have no formal education. The reason for the lowest number of individuals with no formal education may be related to the age of the participants, for instance, most of the participants have been growing in times when the country had democracy and education was mostly free. Those who are above 50 which are the least or minority of the participants did not have opportunities to go to school while growing up due to the constraints that were imposed by the apartheid government. The reason why the majority of the participants attained secondary education as their highest level of education may be because most of them do not have relevant information with regard to the bursaries and admission prerequisite at the higher institution of learning as these communities are located in the remote areas with limited access to internet and network connection. The figures representing the educational level of the respondents conform with the one that was reported by (Bortsi, Baidoo, & Amiteye, 2022) in a way that it was only the lowest percentage of the respondents had no formal education although in this study the percentage of such individuals is 8.73% less compared to what was previously reported in the study that is cited above, these results however contradicts with the ones that were reported by (Berber & Alkan, 2022) where 65.2% of the respondents were found to be the university graduates. The study by (Bortsi, Baidoo, & Amiteye, 2022) furthermore reported that 42.27% which is the majority of the respondents only had basic education, while the majority (48%) of the respondents in this study had secondary education.

The study has revealed that 52% of the participated population was single while only 0.8 % was reported to be cohabiting. The reason for the lowest percentage of individuals who are cohabiting may be the fact that it is generally regarded as a taboo in Africa for a couple to stay together without being married and this is not an exception for the Zulu nation who are known to be culturally dependent people more especially in the remote areas where the study was conducted. The probable reason for the majority of the individuals in the study being single may be that the majority of them are still young as the study has revealed in the first category but apart from that the reason may be that they are not economically stable to start their own families. These figures contradict the ones that were reported (Olanyi, Adelayo, Mary, & Rasak, 2015) in their journal article that was titled "Determinants of the household consumption of eggs in Oyo State, a case study of Ibarapa Central local government" where 52% of the respondents which is the majority of the participated population were reported to be married and none of the respondents were reported to be cohabiting.

About 44% of the participants were reported to have a few children that ranged between one and three, while only 21.6 % were reported to have more than three children. The low number of participants that have a number of children above three may be related to the above category where the majority of the individuals are reported to be single in the study because most of the Zulu nation do not believe having a child out of the wedlock hence, they were not comfortable making more babies. These figures contradict the ones that were reported by (Olanyi, Adelayo, Mary, & Rasak, 2015) where the respondents that have the number of children ranging from 2 and 3 were only 6% which is the minority of the participated population, while 29% of the respondents were reported to have more than three children.

The study has revealed that 76% of the participants were earning less than R15 000 while 2.4% earned more than R25 000 and this might have to do with the fact that the majority of the population in the study only had secondary education as their highest level of education. These figures concerning the income level of the respondents conform with the ones that were reported by (Bortsi, Baidoo, & Amiteye, 2022) where 63.64% which is the majority of the participated population were earning less than 500GHS which is equivalent to R792.34, while 5.455 which is the minority of the participated population were reported to be earning between 1000 and 2000 which is equivalent to R1586.68 and R 3169.36 when converted to Rands.

The study has reported that 68% of the participated population is unemployed and this probably had to do with the fact that there are not many economic activities that take place in the communities where the study was carried out, for instance, there are no commercial farms, firms, factories and supermarkets anywhere closer to the communities. Most of the job opportunities that can be found in such areas are those that need highly skilled people like teaching and nursing this may also be a contributing factor to the high level of unemployment since it was revealed in category four that the majority of the participants possess secondary education as their highest level of education. The results of the employment status of the respondents in this study contradict the ones that were reported by (Bortsi, Baidoo, & Amiteye, 2022) where only 18.18% of the participants were reported to be unemployed while 61.82% which is the majority of the population were reported to be self-employed.

The study has revealed that 71.8% were involved in other occupations other than the ones that were listed in the questionnaire. This may imply that the majority of the individuals who participated in the study are self-employed or are mostly seasonally unemployed since the most common and popular economic activity in the KZN province is agriculture, especially crop farming. The individuals who are artisans have been reported to contribute 0.8% of the population that has participated in the study, this may be because being an artisan is one of the professional jobs that require highly skilled people or because people in the communities where the study was conducted are not familiar with these types of careers. On the contrary, (Olanyi, Adelayo, Mary, & Rasak, 2015) their study reported that 36 of the respondents were working as teachers and 28% worked as civil servants, which means that 64% which is the majority of the participating population worked for the government while only 3% of the respondents were reported to be farmers.

Although it is expected that in most remote areas or rural communities, more people are affiliated with their traditional beliefs, the study has revealed that about 58.4% of the population that participated in the study were affiliated with Christianity, the reason for this may be that Christianity has always been a dominant religion in many communities across the country including the remote areas. The study also revealed that the individuals who were affiliated with the Muslim religion contributed only 0.8% of the population the probable reason for this low percentage may be because they are not exposed to people who belong to this religion, in other words, it is not common

in these communities. The figures of religious affiliation in this study conform with the ones that were reported by (Bortsi, Baidoo, & Amiteye, 2022) where 89.09% which is the majority of the participating population were affiliated with Christianity while 7.27% were reported to be affiliated with Muslim, this is 6.47% more than the Muslim affiliates who were reported in this study.

The study has reported that 58.4% of the individuals who participated in the study depended on television as the source of information on health and food, this may be because television is the most convenient and accessible appliance that is also easy to operate, furthermore, it may be considered due to its ability to supply the most recent information and sometimes the information is provided in their native language so they don't have to translate it to understand it. Only 4% of the participants were reported to be relying on journals as a source of information on health and food, this may be because most people do not enjoy reading and again there are no libraries anywhere in the communities where the study was conducted hence convenience and accessibility may be the problem.

It was revealed that 82.7% of the individuals who participated in the study had no chronic disease or disorders, the probable reason for this may be that the majority of the households in the communities where the study was conducted had small gardens in their backyards where they practice subsistence farming, therefore the organic food that they plant in their garden are the ones that contribute to their good health, their exposure to the genetically modified food is very limited. The study also revealed that the percentage of the participants who suffered from obesity was only 1.2% and the reason for this low percentage may be that most of these people usually walk long distances when taking out the cattle for grazing or when they are accompanying learners to school thus this serves as some sort of exercise which in turn help to reduce that body fat. This results concur with the ones that were reported by (Öğütcü & Elmas, 2020) in their study of assessing the consumer perceptions and preferences on egg consumption via correspondence analysis where the majority of the respondents were found to be without any chronic diseases.

Table 2: Socio-economic characteristics of the respondents

Variables	Frequency	Percentage
Age		
Less than 30	27	21.6
30-40	44	35.2
41-50	33	26.4
Above 50	21	16.8
Gender		
Male	55	44
Female	70	56
Education level		
None	5	4.0
Primary	14	11.2
High school	60	48.0
College	37	29.6
University	9	7.2
Marital status		
Single	65	52.0
Married	52	41.6
Divorced	2	1.6
Cohabiting	1	0.8
Separated	3	2.4
No response	2	1.6
Number of children		
0	43	34.4
1-3	55	44
Above 3	27	21.6
Monthly income level		
No response	9	7.2
Less than 15000	95	76.0
15000 – 20000	15	12.0
21000 – 25000	3	2.4
Above 25000	3	2.4
Employment		
No response	2	1.6
Employed	38	30.4
Unemployed	85	68
Occupation		
No response	7	5.6
Artisan	1	0.8
Farmer	13	10.4
Government employee	9	7.2
Manager	4	3.2
Other occupation	92	71.8
Religious affiliation		
No response	2	1.6
Christian	73	58.4
Muslim	1	0.8

Hindu	3	2.4
Traditional	35	28.0
Other religion	11	8.8
Source of information on food and health		
No response	1	0.8
Television	73	58.4
Internet	26	20.8
News paper	6	4.8
Journal	5	4.0
Book	14	11.2
Do you have any chronic sickness/ known disorders		
No response	6	4.8
Cholesterol	3	2.4
Diabetes	5	4.0
Obesity	2	1.6
None	109	87.2

4.2 Egg consumption patterns in KZN

In the below table 3 that is named consumption pattern and trends, it is reported that about 70.4% of the individuals who participated in the study did own live chickens in their household while 29.6% did not rear chickens in their household. The probable reason for the high percentage of individuals who reared chickens in their household may be that they mostly prefer indigenous chicken meat to the genetically modified one, another reason might be that they prefer fresh chicken meat, and the markets are very far.

The study has revealed that 75.2% of the individuals who participated in the study were producing eggs in their households, while 24.8% were reported to not produce eggs in their households. The reason for the high percentage of participants who produce eggs in their household may be related to the fact that there are no egg-producing farms in the radius of the communities where the study was conducted and also the distance to the markets appeared to be far as the houses themselves are far apart from each other.

Although the study has revealed that the majority of the individuals who participated in this study do produce eggs in their household, however, it also revealed that only 17.6% of the population that participated were found to be consuming eggs daily while

55.2% were reported to only consume eggs once a week. The reason for the highest percentage of individuals who are not able to consume eggs daily may be that maybe the chickens that they are rearing are not producing eggs at the rate of the genetically modified chickens, again the reason may be that once the chickens lay eggs, they prefer to leave them to hatch so that they can have more chickens. Other reasons why many people do not consume eggs every day may be due to the common misconceptions and ideologies that are associated with the consumption of eggs. The probable reason for the lower percentage of the participating population that can consume eggs every day may be that they are educated enough to understand the health benefits of consuming eggs daily, maybe their level of income permits them, and they also have the means to travel to get them no matter how far they may be. These results are in line with the ones that were reported by (Öğütçü & Elmas, 2020) and (Olanyi, Adelayo, Mary, & Rasak, 2015) where the latter reported that 74% which constitutes the majority of the respondents who participated in the study were consuming eggs once a week, while 3% of the respondents were reported to be consuming eggs more than three times a week.

The study revealed that 40% of the individuals who participated in the study preferred extra-large sized eggs while 10.4% proved to prefer small sized, the reason for the majority of the participants to prefer extra-large sized may be that they want to maximize their utility from consuming only a few numbers of eggs so that they can save money. The probable reason for the lowest percentage of consumers preferring small-sized eggs may be related to the utilisation of eggs, maybe they are using the eggs in preparing certain meals according to a specific recipe or it might be that when performing rituals, they are instructed about the specific size of the eggs to be used. These results concerning the preference of the egg size by the respondents are in line with the ones that were reported by (Bortsi, Baidoo, & Amiteye, 2022) where 70.91% which is the majority of the respondents preferred large eggs, while only 3.65% of the respondents preferred small-sized eggs, this is 6.76% less of people who preferred small sized eggs than what is reported in this study. These results are however in contrast to the ones that were reported by (Berber & Alkan, 2022) who found out that majority of the respondents in their study preferred large eggs while only 3.5% of the respondents preferred extra-large eggs.

The study has reported that 70.4% of the population that has participated in the study pay attention to size over other attributes of an egg. The reason behind this might be because they do not know much about the eggs and thus the size appears to be the easiest and most convenient trait to distinguish the different types of eggs. The study furthermore revealed that only 4.0% of the participants paid attention to the type of bird that produced the egg, before purchasing the eggs and the reason for this low percentage might be that from the population that participated in this study only a few individuals have deep and thorough knowledge about the different types of chicken breeds that lay eggs. These results do concur with the ones that were reported by (Idrus, Nizam, Liew, Kamarudin, & Bakri, 2023) who reported that majority of the respondents in their study were looking at the size of the egg when making a decision to purchase.

Most of the population that participated in this study were proven to depend largely on the stores as their source of purchasing eggs and this may be because there are no farms that produce eggs anywhere around the communities thus, they buy the eggs at the stores where they purchase the rest of their groceries. The study also revealed that 23.2% of the participants were reported to be relying on the farm gate as their source of purchase for eggs and the probable reason for this, might be that only a few people have the means of transport to travel to the farms just to purchase eggs. These figures are in line with the ones that were reported by (Berber & Alkan, 2022) and (Kozelova, et al., 2018) where the latter has reported that 38% of the respondents preferred food stores as their source of purchasing eggs, however, they contradict the ones that were reported by (Mizrak, et al., 2012) were the 16.12% of the respondents which constitute the minority of the participated population were relying on the grocery stores to purchase their eggs.

Just as the study has previously revealed in the previous category that the majority of the population that participated in the study relied on the stores as their source of purchasing eggs, it further revealed that 57.6% of the participants depended largely on the stores they buy eggs from for the information regarding the price of the eggs and the reason for this may be that the stores are the most convenient source of information on egg prices for the majority of the participants. The study also revealed

that 7.2% of the individuals who participated in the study have been reported to be relying on their neighbours for information related to egg prices, the reason for this may be that some of the people cannot afford to go to the stores themselves due to the transport constraints thus they rather send their neighbours.

The study revealed that 56% of the individuals who participated in the study have reported that the eggs are always readily available in the market, this may be because there is an adequate supply of eggs from the producers and the farmers around the province can supply beyond the consumer's demand. Only 8.8% of the participating population have reported that the eggs are not available at all in the market, the reason for this might be that these few individuals are only limited to the local stores when looking for eggs, and eggs in these stores are seldomly supplied as they are located in the remote areas with poor transport infrastructures.

When the participants were asked whether they could afford to purchase the eggs or not, 66.4% of them indicated that they could afford it but not all the time, the probable reason for this might be that the income of these people does not last them for the whole month and hence they only afford to purchase eggs the moment they receive their monthly income. The study furthermore revealed that 12.8% of the participating individuals indicated that they do not afford to buy eggs at all and the reason for this may be that the distance away from the market makes the eggs to be more costly for these few individuals.

According to the data that was collected on the study, 56% of the population that participated in the study consumed eggs in the form of fried eggs and the reason for this might be that fried eggs are the most common way of consuming eggs, especially in the remote areas where most people eat eggs with porridge as their staple meal. The percentage of the individuals that were reported to be consuming eggs in the form of sandwiches and omelette may be because these types of cuisine are commonly regarded as the prestigious meals that are consumed by the affluent. These figures contradict the ones that were reported by (Kozelova, et al., 2018) 70.28% of the respondents which constitutes the majority of the respondents who participated in the survey were reported to be consuming eggs in the form of boiled eggs. However these results are in contrary with the ones that were recorded by (Akonor & Akonor, 2014) who have reported that majority of the population in Accra metropolitan area in Ghana

were found to consume eggs in the form of hard boiled eggs, they further stressed that the reason why this method is preferred by the majority might be due to its ease of cooking, low cost as it does not require the use of cooking oil, as well as the conveniency of this method.

When the participants were asked, who cooks eggs in their families 58.4% of the participated population stipulated that everyone in the family does cook eggs and the reason for this may be that most of these families do not care about who cooks what and when especially when it comes to things like eggs, it might be that everyone does have they breakfast in various times and whoever feels like having breakfast just do it. Only 1.6% of the individuals who participated have reported that in their family husbands are the ones who cook eggs in the family and the probable reason for this low percentage may be that people in the remote areas are mostly traditional and they believe that the husband should not cook, that it is the responsibility of the wife to carry out the kitchen related duties.

About 31.3% of the individuals who participated in the study have reported that people who purchase eggs in their family were any person other than the ones who were listed in the questionnaire the probable reason for this may be because the market for eggs in the areas where the study was conducted are not conveniently accessible, therefore they rely on the extended members of the family, friends as well as the neighbours who have the mode of transport to travel to the market places. Only 4.0% of the participating population have reported that children are the ones who purchase eggs in the family and the reason for this may be more like the one that was stated previously, which is the fact that the distance away from the market of eggs is quite long and most the time children are not readily available to be sent to these markets as they go to school and even when they are available they are not trusted enough to be sent alone.

The study has reported that 44.4% of the individuals who participated in the study purchased the eggs once in two weeks, as it was postulated in this study earlier on that the market for eggs is quite far from the residents in the areas where the study was conducted therefore this could still be the reason why the majority of the participants are purchasing eggs in every fortnight because they cannot afford to buy eggs daily. Furthermore, it was also reported that only 16% of the participated

population are purchasing eggs every day and the reason for this could be that these people are working closer to the egg markets or stores. These figures contradict the one that was reported by (Kozelova, et al., 2018) where 35% which makes up the majority of the respondents who participated in the study were reported to be purchasing eggs two to three times a week, while the 8% which is the minority of the respondents were reported to be purchasing eggs once a month.

When the respondents were asked about the quantity of the eggs they purchase under normal circumstances, 68% of them indicated that they always buy 30 eggs or more and the probable reason for this may be that these eggs are more affordable when they are being bought in large quantities than when they are bought in small quantities. Another reason may be that most of these families are big families with many members hence they want to make sure that the eggs are enough for everyone for the families that are not that big, they buy this quantity of eggs to make sure that they last them for a longer time. The study also reported that only 14.4% of the participating population purchased only a half dozen eggs whenever they were buying eggs and the reason for this might be that they do not consume eggs more often or that they can purchase eggs everyday therefore they do not see the need to buy them in bulk. These results are in contrast to the one that was reported by (Bortsi, Baidoo, & Amiteye, 2022) who have reported that 50.91% which is the majority of the respondents preferred six eggs per pack in terms of packaging, the implication of this is that the quantity of eggs that these respondents usually purchase is six eggs, while 9.09% of the respondents were reported to prefer the packaging of dozen eggs per pack, which implies that the quantity of eggs that is usually purchased by these respondents is 12 eggs.

The study has revealed that 68% of the individuals who participated did not identify any part of the egg as their favourite part, instead they have loved consuming the whole egg as it is, the reason for this might be that most of these people have no interest or information about which part of the eggs is nutritious and that they are not even interested in that information. Furthermore, the study has reported that only 15.2% of the participating population liked the white external part of an egg more than any other part and the probable reason for this might be that these individuals enjoy eating a boiled egg than the fried one. On the contrary (Bortsi, Baidoo, & Amiteye, 2022) reported that 89.09% which makes up the majority of the respondents in their study have confirmed that their favourite part of an egg is the yolk.

The study has reported that 77.6% of the population that has participated do consume eggs all year round or throughout the year and the probable reason for this high percentage of the participated population that consume eggs like this might be because eggs form part of the stable meal for most of these people. It was also reported that 1.6% of the individuals who participated in the study consumed eggs seasonally, specifically in spring and in autumn and the reason for this low percentage of people who consume eggs seasonally may be related to certain beliefs and costumes. In contrast, these results (Mizrak, et al., 2012) have reported that 87.12% of the respondents which comprises the majority of the participated population were consuming eggs during the winter season while only 3.11% were consuming eggs during spring.

The study revealed that 72% of the population that participated in the study consumed eggs even during the outbreak of the disease and the reason for this may be that these people are not aware of the impact that the sickness of the chickens has on the egg that they lay, hence they are not scared to eat eggs, another probable reason may be the fact that the media plays a limited role in influencing the decisions that these people take especially when it comes to the food that they consume daily. It was also reported that 20.8 of the individuals who participated in the study did not consume eggs during the disease outbreak and the probable for this could be that these few individuals are knowledgeable about the risks that are associated with the consumption of eggs during disease outbreak. These results are in line with the ones that were reported by (Mizrak, et al., 2012) 53.71% of the respondents which makes up the majority of the participants who were reported to be consuming eggs during an outbreak while 36% of the respondents indicated that they did not consume eggs during and after the period of an outbreak.

The study has reported that 76% of the participated population consume eggs during breakfast and the reason for this might be the media influence, especially the way eggs are being portrayed on television in different restaurant advertisements. The study also revealed that only 4.2% of the individuals who participated consumed eggs during supper and the probable reason for this low percentage of people may be that these are not really influenced by the media, and they just eat eggs based on their convenience irrespective of the time of the day. These results concur with the ones that were reported by (Mizrak, et al., 2012) were they have reported that 85.52% of

the respondents which is the majority of the participated population were consuming eggs during breakfast while only 1.05% were reported to be consuming eggs for dinner. This trend reflected by these results in unlike the one that was observed by (Akonor & Akonor, 2014) who have reported that in Accra metropolitan area of Ghana majority of the respondents were found to be consuming eggs at any time of the day.

When the respondents were asked whether they use eggs to perform sacrificial rituals, 68% agreed that they do indeed use eggs for sacrifices, the probable reason for this high percentage might be the fact that the majority of the people residing in these areas are rooted deep in their traditions and they still respect and adhere the costumes of the ancient people who lived before them. Furthermore, the study has also revealed that 28.2% of the participated population do not use eggs for sacrificial purposes at all and the reason for this might be because these people do not have old people (grandparents) who understand the process and importance of these sacrifices.

The respondents were further asked to describe the conditions under which they use eggs for sacrifices and 57% of them were reported to be using eggs for sacrifices as recommended the reason for this high percentage might be thus, the majority of these people perform sacrifices to solve most of their problems and thus they use the eggs for sacrifices as prescribed by the traditional healer, pastor, prophet or even an elder in the family. The study also revealed that 15.2% of the participated population only use eggs for sacrifices only when they are seriously sick and the probable reason for this might be that the knowledge of these few individuals is limited when it comes to the use of eggs in sacrificial rituals.

Table 3: Egg consumption trends and patten in KZN

Variables	Frequency	Percentages
Household chicken ownership		
Yes	88	70.4
No	37	29.6
Household chicken egg production		
Yes	94	75.2
No	31	24.8
What is the frequency of egg consumption		
Everyday	22	17.6
Once a week	69	55.2
Once in two weeks	34	27.2
What kind of eggs do you prefer		

Extra large	50	40.0
Large	26	20.8
Medium	36	28.8
Small	13	10.4
What attribute to pay attention to when purchasing eggs		
Size	88	70.4
Colour	18	14.4
Shape	7	5.6
Type of bird	5	4.0
Others	7	5.6
Source of purchase of eggs		
Stores	96	76.8
Farm gate	29	23.2
Price information about eggs		
No response	2	1.6
Stores	72	57.6
Market	32	25.6
Neighbours	9	7.2
Others	10	8.0
Availability of eggs in the market		
Readily available	70	56.0
Occasionally available	44	35.2
Not available	11	8.8
Egg affordability		
Yes always	26	20.8
Yes sometimes	83	66.4
Not affordable	16	12.8
Forms of consumption		
Boiled	20	16
Scrabbled	20	16
Fried	70	56
Sandwiched / omelette	15	12
Who cook eggs in the family		
No response	1	0.8
Wife	16	12.8
Husband	2	1.6
Children	6	4.8
Anyone	73	58.4
Others	27	21.6
Who purchase eggs in the family		
Wife	20	16
Husband	9	7.2
Children	5	4.0
Anyone	52	41.6
Others	39	31.2
How frequently do you purchase eggs		
Everyday	20	16

Once a week	49	39.2
Once in two weeks	56	44.8
Quantity of eggs purchased		
6	18	14.4
18	22	17.6
30	85	68
Which part of the egg do you love most		
Whole egg	85	68
Egg yolk	21	16.8
White internal part	19	15.2
Seasonal consumption of eggs		
Winter	18	14.4
Summer	6	4.8
Autumn	2	1.6
Spring	2	1.6
All year round	97	77.6
Consumption of eggs during disease outbreak		
No response	9	7.2
Yes	90	72.0
No	26	20.8
When do you like to consume eggs		
No response	1	0.8
Breakfast	95	76
Lunch	6	4.8
Supper	3	2.4
In between meals	20	16.0
Do you use eggs for sacrifices		
No response	4	3.2
Yes	85	68.0
No	36	28.8
When do you use eggs for sacrifices		
No response	34	27.2
Seriously sick	19	15.2
Recommended	72	57.6

4.3 knowledge concerning nutrition content of eggs.

The study has revealed that 56.8% of the participating population did not agree with the statement that the moderate consumption of eggs leads to cholesterol and the probable reason for this might be that the majority of these people consume eggs as boiled eggs and not fried, another reason might be that this people do not have sufficient knowledge about this disease hence they do not know the factors that has the potential to lead to the prevalence of this disease. Furthermore, the study has revealed that 43.2% of the individuals who participated in the study have agreed with the above-mentioned statement and the reason for this might be that these people relate fried eggs with the prevalence of the cholesterol disease. These results are in contrast with the ones that were recorded by (Bertechini & Mazzuco, 2013) as cited by (Akonor & Akonor, 2014) who found that majority of the consumers considered health as one of the key factors determining their decision to consume eggs and went further to state that this is primarily because eggs are viewed in the light of being the cause of cholesterol.

The study also revealed that 61.6% of the participating population did not agree with the statement that says, "Eggs contain high disease-fighting dietary bioactive compounds" and the reason for this might be that these people have limited knowledge about the nutritional content of the eggs and those who happened to know the nutritional content don't even know the purpose of these nutrients in their bodies. It was also reported that only 38.4% of the individuals who participated in the study agreed with the aforementioned statement and the probable reason for this might be that these few individuals have some knowledge about the nutritional content of the eggs and some of the functions of these nutrients in the body.

According to this study, 72% of the participating population have denied the fact that the consumption of eggs can protect one against stress, and the probable reason for this might be that the majority of these people do not have any knowledge about the relationship between the human cognitive system and the types of food that he consumes.

The study has revealed that 64% of the individuals who participated in the study disagree with the fact that the consumption of eggs can prevent depression and fatigue and the probable reason for this may be that they believe that the purpose of the eggs is just to satisfy some sort of cravings or just to fill up the stomach and they never thought of the consumption of eggs to fulfil any other purpose.

The study has reported that 76.8% of the participating population concurred with the statement that the consumption of eggs can provide protein and several micronutrients critical for growth and development and the reason for this higher percentage may be that most of these people have access to some of the nutritional benefits of the eggs through the television. Furthermore, it was also reported that 23.2% of the individuals who participated in the study have disputed the statement and the probable reason for this may be that these individuals have no access to the nutritious benefit of eggs, or it might be that they are not literate enough to understand. These results concur with the ones that were reported (McKune, et al., 2020) who have reported that majority of the communities who have access to media information were found to be knowledgeable about the nutritional contents of eggs.

The study has revealed that 73.6% of the individuals who participated concurred with the statement that eggs are one of the most important food products with a nutritional content of quality for adults and the probable reason for this might be that most people have been consuming eggs throughout their adulthood and therefore have seen that the results were good.

According to this study, 74.4% of the individuals who participated did concur with the statement that the consumption of eggs provides a high nutritional quality for children and the probable reason for this might be because the majority of the population who participated in the study did have secondary education and probably, they were taught this at school. Furthermore, 72.8% of the population that participated in the study agreed with the statement that eggs contain the highest protein quality and again the reason for this might have to do with the little education that they have regarding food nutrition.

Table 4: Knowledge concerning the nutrition values of eggs.

Nutritive values	False	True
Eggs can help to maintain weight loss over time	71 (56.8%)	54 (43.2%)
Eggs safeguard pregnancy development	68 (54.4%)	57 (45.6%)
Eggs can help preserve vision and eye health	62 (49.6%)	63 (50.4%)
Eggs help to build healthier bones	48 (38.4%)	76 (60.8%)
Eggs consumed moderately do not increase blood cholesterol	71 (56.8%)	54 (43.2%)
Eggs contain high disease-fighting dietary bioactive compounds	77 (61.6%)	48 (38.4%)
Eggs reduce the risk of blindness in older adults	72 (57.6%)	53 (42.4%)
Eggs protect against stress	90 (72.0%)	35 (28.0%)
Eggs prevent neural tube defects	73 (58.4%)	52 (41.6%)
Eggs prevent depression and fatigue	80 (64.0%)	45 (36.0%)
Eggs provide complete protein and several micronutrients critical for growth and development	29 (23.2%)	96 (76.8%)
Egg remains a food product of high nutritional quality for adults	33 (26.4%)	92 (73.6%)
Egg remains a food product of high nutritional quality for elderly people	41 (32.8%)	84 (67.2%)
Egg remains a food product of high nutritional quality for children	32 (25.6%)	93 (74.4%)
Eggs contribute to fetus development processes	48 (38.4%)	77 (61.6%)
Eggs have the highest protein quality	34 (27.2%)	91 (72.8%)
Eggs have the highest scores of high digestible indispensable amino acid score	51 (40.8%)	74 (59.2%)
Eggs improve birthweight and length and gestational age	54 (57.6%)	71 (56.8%)
Eggs prevent preterm birth and other adverse birth outcomes	63 (5.4%)	62 (49.6%)
Eggs provide a large proportion of the Recommended Dietary Allowance (RDA) or adequate intake (AI) for young children	60 (48.0%)	65 (52.0%)
Eggs provide a large proportion of the Recommended Dietary Allowance (RDA) or adequate intake (AI) for pregnant women	66 (52.8%)	59 (47.2%)
Eggs provide a large proportion of the Recommended Dietary Allowance (RDA) or adequate intake (AI) for lactating women	69 (55.4%)	56 (44.8%)
Consumption of eggs during lactation may also enhance the breast-milk composition of choline and other water-soluble vitamins	58 (46.4%)	67 (53.6%)
Eggs help milk production by lactating mothers	65 (52.0%)	60 (48.0%)
Eggs improve child development and important physiological processes in the brain	43 (34.4%)	82 (65.6%)
Eggs deliver nutrients and other hormones or immune factors in compounds that are more readily absorbed and metabolized	47 (37.6%)	78 (62.4%)
Eggs help cognition and visual acuity	58 (46.4%)	67 (53.6%)
Eggs contain essential macronutrients and micronutrients helping brain health-promoting effects	48 (38.4%)	77 (61.6%)
Eggs help long-term memory	65 (52.0%)	60 (48.0%)
Eggs improve brain development and functioning throughout the lifecycle	57 (45.6%)	68 (54.4%)

4.4 Taboo knowledge and belief

The table below indicates that 52% of the population who participated in the study were not aware of the myth that associates the consumption of eggs with the susceptibility to respiratory problems and the probable reason for this may be the fact that they don't usually trace the cause of diseases back to the diet or the types of food that they eat unless it was established in the ancient days that certain foodstuffs lead to the susceptibility to certain diseases. Furthermore, 55.2% of the population that participated in the study indicated that they did not know that the consumption of eggs is associated with leading to susceptibility to ear problems and the probable reason for this may be that even their elders never associated the consumption of eggs with the ear problems.

The study has revealed that 56.8% of the population that participated in the study did not know that the consumption of eggs is associated with leading to the susceptibility to hair falling off and the probable reason for this is more like the one that was mentioned previously that it was not experienced before by their elders. The study further revealed that 56% of the individuals who participated in the study, did not know that the consumption of eggs is associated with the susceptibility of losing nails always and the probable reason for this may be because they never experienced it before, and it was also not medically proven to them.

The study has reported that 73.6% of the population that has participated have agreed that they know the taboo that says, consumption of eggs by pregnant women transfers the promiscuous to the unborn child, provided that it is a girl child. Furthermore, the study revealed that 76.8% of the individuals who participated also agreed that it is a taboo for a girl child to consume eggs since it will make her promiscuous, the probable reason for this may be because these are remote areas where old people usually sit around the fire with young ones to tell them about these things.

The study has revealed that 76.8% of the participating population admitted that indeed they know that it is taboo for a girl child to consume eggs because it will make her promiscuous and the reason for this might be that people who lives in the remote areas are mostly respected their customs and cultures. Furthermore, the study has revealed

that 80.8% of the population that participated, have agreed that they know that it is a taboo for young girls to consume eggs as it accelerates their sexual desire and the probable reason for this might be because the elders believe that consumption of eggs by children speeds up their sexual maturity which later leads to teenage pregnancy, thus they spread the word across the community because there is a say that it takes a community to raise a child.

The study reported that 77.6% of the participating population were aware that the consumption of eggs by young girls led them to search for sexual relationships with the boys and the probable reason for this may be that they firmly believe that the consumption of eggs is the biggest contributor to high libido (sex drive) more especially in young girls or women in general. The study also reported that 80.8% of the participated population knew that the consumption of eggs speeds up the maturation process in young adults and the probable reason for this may be that they do not have a proper understanding of the hormone development.

The study revealed that 64.8% of the participating population did not believe that the consumption of eggs could lead to susceptibility to eczema and the probable reason for this may be because they have not experienced this kind of disease more often than they can link it with the consumption of eggs. It also revealed that 70.4% of the individuals who participated did not believe that the consumption of eggs leads to the susceptibility to boils and the probable reason for this is similar to the aforementioned one, that these people may have not had many cases of this disease in their communities hence they are not familiar with it, to an extent that they can link it with a certain foodstuff.

The study has reported that 71.2% of the participating population did not believe that the consumption of eggs leads to susceptibility to wounds and the reason for this might be that they have never heard about it before, or they never thought that the consumption of eggs can have a physical impact on the human skin. Furthermore, the study has revealed that 67.2% of the participating population did not believe that the consumption of eggs by young ladies increases their sex drive.

The study has revealed that 69.6% of the individuals who have participated agreed that they believe that the consumption of eggs by pregnant women will result in delivering a child that is mute and the reason for this might be because the older

women in the community have advised them that way and they believe it because they understand that they have lived long enough and because they have been pregnant before. Furthermore, the study has revealed that 72% of the participants believe that it is taboo for a pregnant woman to consume eggs because it will result in her delivering a child that is dumb.

According to this study, 72% of the population that has participated believes that it is taboo for young girls to consume eggs as it will make them search for sex all the places and the probable reason for this may be that eggs are one of the foodstuffs that is known to increase sex drive in women, another possible reason may be that they lack understanding of how the human body operates. The study also indicated that 69.6% of the participating population did believe that the consumption of raw and boiled eggs can facilitate the process of giving birth.

These results are in line with the results that were reported (Ramulondi, De Wet, & Ntuli, 2021) in their study where they have reported that 36% of the respondents which constitute the minority of the participated population have indicated that they do not practice these food taboos, however, they have admitted that indeed they do know them.

Table 5: Taboo know and belief.

	Know				Belief			
	NO	YES	mean	STDEV	NO	YES	Mean	STDEV
Eggs cause constipation	47 (37.6%)	78 (62.4%)	67.18	21.92	63 (50.4%)	62 (49.6%)	63.34	0.71
Eggs cause heartburn	52 (41.6%)	73 (58.4%)	66.35	14.85	70 (56.0%)	55 (44.0%)	65.76	10.61
Pregnant women not to consume	30 (24.0%)	95 (76.0%)	69.28	45.96	53 (42.4%)	72 (57.6%)	66.17	13.44
<i>causes women to have too much appetite for sex</i>	34 (27.2%)	91 (72.8%)	68.74	40.31	57 (45.6%)	68 (54.4%)	65.29	7.78
makes women search everywhere for sex	35 (28.0%)	90 (72.0%)	68.96	38.89	50 (40.0%)	75 (60.0%)	66.70	17.68
Consumption of eggs by pregnant women translates promiscuous to an unborn girl child	33 (26.4%)	92 (73.6%)	69.38	41.72	59 (47.2%)	66 (52.8%)	64.72	4.95
Consumption of eggs makes girl child promiscuous	29 (23.2%)	96 (76.8%)	68.96	47.38	46 (36.8%)	79 (63.2%)	67.33	23.33
<i>We are told by our elders that eggs are traditionally taboo for women just married.</i>	33 (26.4%)	92 (73.6%)	68.74	41.72	58 (46.4%)	67 (53.6%)	65.02	6.36

<i>We are told by our elders that eggs are traditionally taboo for women pregnant women</i>	35 (2.0%)	90 (72.0%)	68.96	38.89	66 (52.8%)	59 (47.2%)	64.72	4.95
Consumption of eggs by pregnant women will lead to having a disabled child	56 (44.8%)	69 (55.2%)	69.38	9.19	74 (59.2%)	51 (40.8%)	66.53	16.26
Consumption of eggs by pregnant women will lead to having a baby behaving like the animals	62 (49.6%)	63 (50.4%)	68.96	0.71	80 (64.0%)	45 (36.0%)	67.47	24.75
Consumption of eggs by pregnant women will lead to having a child becoming a thief	63 (50.4%)	62 (4.6%)	68.74	0.71	60 (48.0%)	65 (52.0%)	64.38	3.54
Consumption of eggs leads to the fear of early maturity for the child	41 (32.8%)	84 (67.2%)	65.53	30.41	61 (48.8%)	64 (51.2%)	63.96	2.12
Consumption of eggs leads to the fear of early puberty for the child	30 (2.0%)	95 (76.0%)	63.34	45.96	78 (62.4%)	47 (37.6%)	67.18	21.92
Consumption of eggs leads to susceptibility to diseases	63 (50.4%)	62 (49.6%)	63.34	0.17	76 (60.8%)	49 (39.2%)	66.87	19.09
Consumption of eggs leads to susceptibility to respiratory problems	65 (52%)	60 (48.0%)	69.28	3.54	77 (56.8%)	54 (43.2%)	69.53	16.26
Consumption of eggs leads to prolonged monthly period flows	47 (37.6%)	78 (62.4%)	63.34	21.92	71 (56.8)	54 (43.2%)	65.97	12.02
Consumption of eggs leads to shortened monthly period flows	51 (40.8%)	74 (59.2%)	63.34	16.26	78 (62.4%)	47 (37.6%)	67.18	21.92
Consumption of eggs leads to susceptibility to eczema	59 (47.2%)	66 (52.8%)	68.01	4.95	81 (64.8%)	44 (35.2%)	67.61	26.16
Consumption of eggs leads to susceptibility to ear problems	69 (55.2%)	56 (44.8%)	69.28	9.19	75 (60.0%)	50 (40.0%)	66.70	17.68
Consumption of eggs leads to susceptibility to boils	58 (46.4%)	67 (53.6%)	63.34	6.36	88 (70.4%)	37 (29.6%)	68.51	36.06
Consumption of eggs leads to susceptibility to rashes	58 (46.4%)	67 (53.6%)	67.18	6.36	86 (68.8%)	39 (31.2%)	68.26	33.23
Consumption of eggs leads to susceptibility to wounds	65 (52.0%)	60 (48.0%)	66.53	3.54	89 (71.2%)	36 (28.8%)	68.62	37.48
Consumption of eggs leads to susceptibility to falling out/no hair	71 (56.8%)	54 (43.2%)	64.72	12.02	68 (54.4%)	57 (45.6%)	65.29	7.78
Consumption of eggs leads to susceptibility to always losing nails	70 (56.0%)	55 (44.0%)	65.53	10.61	62 (49.6%)	63 (50.4%)	63.34	0.71
Consumption of eggs leads to susceptibility to the baby having problems with the umbilical cord.	51 (40.8%)	74 (59.2%)	65.02	16.26	65 (52.0%)	60 (48.0%)	64.38	3.54

Consumption of eggs leads to Fetus becoming big	39 (31.2%)	86 (68.8%)	65.02	33.23	65 (52.0%)	60 (48.0%)	64.38	3.54
Consumption of eggs leads to prolonged and difficult labor & delivery	47 (37.6%)	78 (62.4%)	64.38	21.92	62 (41.6%)	63 (50.4%)	63.34	0.71
Consumption of eggs leads to sterility	48 (38.4%)	76 (60.8%)	65.97	19.80	71 (56.8%)	54 (43.2%)	65.97	12.02
Children should not eat eggs	30 (24.0%)	95 (76.0%)	66.45	45.96	68 (54.4%)	57 (45.6%)	65.29	7.78
Consumption of eggs during pregnancy leads to the child being mute	44 (34.4%)	81 (64.8%)	69.28	26.16	38 (28.0%)	87 (69.6%)	68.39	34.65
Consumption of eggs during pregnancy leads to the child being dumb	47 (37.6%)	78 (62.4%)	67.61	21.92	35 (28.0%)	90 (72.0%)	68.74	38.89
Consumption of eggs during pregnancy leads to the child may be stuttering	43 (34.4%)	82 (54.6%)	67.75	27.58	66 (52.85%)	59 (47.2%)	64.72	4.95
Consumption of eggs by young girls increases the sexual desire in girls	24 (19.2%)	101 (80.8%)	69.88	54.45	84 (67.2%)	41 (32.8%)	68.01	30.41
Consumption of eggs by young girls increases seeking out sexual relationships with boys	28 (22.4%)	97 (77.6%)	69.49	48.79	35 (28.0%)	90 (72.0%)	68.74	38.89
Consumption of eggs during pregnancy leads to bald babies,	49 (39.2%)	76 (60.8%)	66.87	19.09	66 (52.8%)	59 (47.2%)	64.72	4.95
Consumption of eggs causes a pregnant woman to behave like a chicken during delivery	62 (49.6%)	63 (50.4%)	63.34	0.71	78 (62.4%)	47 (37.6%)	67.18	21.92
Consumption of eggs during pregnancy causes overweight in the fetus	58 (40.8%)	67 (53.6%)	65.02	6.36	68 (54.4%)	57 (45.6%)	65.29	7.78
Consumption of eggs during pregnancy contributes to difficulties during childbirth and possible death of the mother.	51 (40.8%)	74 (59.2%)	66.53	16.26	72 (57.6%)	53 (42.4%)	66.17	13.44
Eggs as a "Hot" food should be consumed during the last stage of pregnancy to aid the expulsion of the fetus	46 (36.8%)	79 (63.2%)	67.33	23.33	67 (53.6%)	58 (46.4%)	65.02	6.36
Consumption of eggs during pregnancy causes jaundice	39 (31.2%)	86 (68.8%)	68.26	33.23	79 (63.2%)	46 (36.8%)	67.33	23.33
Consumption of Raw or boiled eggs facilitates labor during childbirth	53 (42.4%)	72 (57.65)	66.17	13.44	38 (30.4%)	87 (69.6%)	68.39	34.65
Consumption of eggs speeds maturation process	24 (19.2%)	101 (80.8%)	69.88	54.45	70 (56.0%)	55 (44.0%)	65.76	10.61
Consumption of eggs increases blood	48 (38.45%)	77 (61.6%)	67.03	20.51	76 (60.8%)	49 (39.2%)	66.87	19.09

Consumption of eggs causes bluish discoloration in the baby	61 (48.8%)	64 (51.2%)	63.96	2.12	64 (51.2%)	61 (48.8%)	63.96	2.12
Consumption of eggs creates allergies	39 (31.2%)	86 (68.8)	68.26	33.23	64 (51.2%)	61 (48.8%)	63.96	2.12
Egg consumption by children reduces breastfeeding duration	47 (37.6%)	78 (62.4%)	67.18	21.92	65 (52.0%)	60 (48.0%)	64.38	3.54

4.5 Adherence and practice of taboos on egg consumption

The study has revealed that 82.4% of the participated population do not practice the encouragement of the avoidance of egg consumption in young girls as it is believed that it led to a prolonged monthly period of outflow and the probable reason for this might be that these ladies were told never told by anyone that about this and most of them have never experienced it. Furthermore, the study has revealed that 84% of the individuals who participated did not practice the avoidance of egg consumption as it is claimed that it leads to hair falling or the loss of hair and the probable reason for this might be that it was never experienced by anyone around them, and they probably never had about it.

The study has reported that 83.2% of the population that participated did not practice the avoidance of egg consumption due to the belief that their consumption leads to the loss of nails, the study also indicated that 80.8% of the participated population were not practicing the restriction of egg consumption by pregnant women due to the claims that it will lead to them delivering bald babies and the probable reason for these practices may be that even the oldest women in the community never came across such a case where the consumption of eggs by pregnant woman led to them giving birth to bald babies.

According to the study, 52% of the participants have agreed that they do indeed practice the restriction of egg consumption amongst young ladies as it is claimed that their consumption makes a girl child to be promiscuous and the probable reason for this might be that they do not know the types of hormones that are responsible for the libido and thus have no idea of what facilitate these hormones. Furthermore, the study revealed that 48% of the participating population have agreed that they do practice the act of restricting children from consuming eggs and the probable reason for this might

be that they fear that if children consume eggs they will reach puberty at an early stage than usual and this may lead them to engage in sexual practices at an early age which will in turn lead to teenage pregnancy, therefore they might be putting this restriction to protect the children from sexually transmitted diseases and unwanted pregnancies.

When the individuals who participated in the study were asked whether they practice the act of restricting young girls from consuming eggs since it causes them to have high sexual desires, 46.4% agreed that indeed they do practice this and the probable reason for this might be that they rely mostly on the indigenous knowledge rather than the formal education that they learn from the school and mostly this indigenous knowledge is based on the customs and traditions of their forefathers. Furthermore, 50.4% of the population that participated in the study have agreed that indeed they do practice the act of restricting children from consuming eggs, as they believe that their consumption speeds up the maturation process.

When the individuals who participated in the study were asked whether they adhered to the act of avoiding the consumption of eggs as it is believed that it causes boils, 82.4% of the participated population were reported to not adhere to this. Furthermore, the study revealed that 82.4% of the participating population did not adhere to the taboo that says that the consumption of eggs leads to susceptibility to wounds and the probable reason why the majority of the participated population does not adhere to the aforementioned taboos might be that they are not aware of them or they do not apply to them as a community, since these food-related taboos vary with the community, tribe, society, etc.

The study has revealed that 86.5% of the population that participated in the study did not adhere to the taboo that forbids pregnant women from consuming eggs because they will give birth to bald children. The study further revealed that 85.6% of the individuals who participated were not adhering to the taboo that forbids pregnant women from consuming eggs in the light that it will cause them to deliver discoloured babies.

These results are in line with the ones that were reported by (Ramulondi, De Wet, & Ntuli, 2021), in their study where they reported that sixty-four percent of the respondents, which constitute the majority of the participating population agreed that they were adhering to traditional food practices during pregnancy, postpartum period

as well as during breastfeeding. Their study further reported that the majority (64%) of these respondents have indicated that they believe that the consumption of traditionally restricted food such as eggs, leads to giving birth to an unhealthy child, causes miscarriage or stillborn. The respondents further alluded that the consumption of such food leads to the prevalence of health complications malnutrition, jaundice, and eczema in newborn babies.

Table 6: Taboo adheres and practices.

	Practice				Adhere			
	NO	YES	Mean	STDEV	NO	YES	Mean	STDEV
Eggs cause constipation	78 (62.4%)	47 (37.6%)	67.18	21.92	84 (67.2%)	41 (32.8%)	68.01	30.41
Eggs cause heartburn	97 (77.6%)	28 (22.4%)	69.49	48.79	100 (80.0%)	25 (20.0%)	69.78	53.03
Pregnant women should not consume eggs	83 (66.4%)	42 (33.6%)	67.88	28.99	83 (66.4%)	42 (33.6%)	67.88	28.99
Consumption of eggs by pregnant women <i>causes them to have too much appetite for sex</i>	82 (65.6%)	43 (34.4%)	67.75	27.58	81 (64.8%)	44 (35.2%)	67.61	26.16
Consumption of eggs by pregnant women makes them search everywhere for sex	79 (63.2%)	46 (36.8%)	67.33	23.33	79 (63.2%)	46 (36.8%)	67.33	23.33
Consumption of eggs by pregnant women translates promiscuous to an unborn girl child	78 (62.4%)	47 (37.6%)	67.18	21.92	84 (67.2%)	41 (32.8%)	68.01	30.41
Consumption of eggs makes girl child promiscuous	60 (48.0%)	65 (52.0%)	64.38	3.54	64 (51.2%)	61 (48.8%)	63.96	2.12
<i>We are told by our elders that eggs are traditionally taboo for women just married</i>	91 (72.8%)	34 (27.2%)	68.85	40.31	100 (80.0%)	25 (20.0%)	69.78	53.03
<i>We are told by our elders that eggs are traditionally taboo for women pregnant women</i>	95 (76.0%)	30 (24.0%)	69.28	45.96	98 (78.4%)	27 (21.6%)	69.59	50.20
Consumption of eggs by pregnant women will lead to having a disabled child	97 (77.6%)	28 (22.4%)	69.49	48.79	98 (78.4%)	27 (21.6%)	69.59	50.20
Consumption of eggs by pregnant women will lead to having a baby behaving like the animals	99 (79.2%)	26 (20.8%)	69.68	51.62	102 (81.6%)	23 (18.4%)	69.97	55.86
Consumption of eggs by pregnant women will lead to having a child becoming a thief	99 (79.2%)	26 (20.8%)	69.68	51.62	98 (78.4%)	27 (21.6%)	69.59	50.20
Consumption of eggs leads to the fear of early maturity for the child	86 (68.8%)	39 (31.2%)	68.26	33.23	89 (71.2%)	36 (28.8%)	68.62	37.48
Consumption of eggs leads to the fear of early puberty for the child	81 (64.8%)	44 (35.2%)	67.61	26.16	87 (69.6%)	38 (30.4%)	68.39	34.65
Consumption of eggs leads to susceptibility to diseases	99 (79.2%)	26 (20.8%)	69.49	51.62	99 (79.2%)	26 (20.8%)	69.68	51.62

Consumption of eggs leads to susceptibility to respiratory problems	97 (77.6%)	28 (22.4%)	70.07	48.79	97 (77.6%)	28 (22.4%)	69.49	48.79
Consumption of eggs leads to prolonged monthly period flows	103 (82.4%)	22 (17.6%)	69.49	57.28	102 (81.6%)	23 (18.4%)	69.97	55.86
Consumption of eggs leads to shortened monthly period flows	97 (77.6%)	28 (22.4%)	69.68	48.79	100 (80.0%)	25(20.0%)	69.78	53.03
Consumption of eggs leads to susceptibility to eczema	99 (79.2%)	26 (20.8%)	69.51	51.62	103 (82.4%)	22 (17.6)	70.07	57.28
Consumption of eggs leads to susceptibility to ear problems	93 (73.6%)	33 (26.4%)	69.78	42.43	100 (80.0%)	25 (20.0%)	69.78	53.03
Consumption of eggs leads to susceptibility to boils	100 (80.0%)	25 (20.0%)	69.49	53.03	103 (82.4%)	22 (17.6%)	70.07	57.28
Consumption of eggs leads to susceptibility to rashes	97 (77.6%)	28 (22.4%)	70.07	48.97	98 (78.4%)	27 (21.6%)	69.59	53.03
Consumption of eggs leads to susceptibility to wounds	103 (82.4%)	22 (17.6%)	70.25	57.28	103 (82.4%)	22 (17.6%)	70.07	57.28
Consumption of eggs leads to susceptibility to falling out/no hair	105 (84.0%)	20 (16.0%)	70.16	60.10	104 (81.6%)	21 (16.8%)	70.16	50.20
Consumption of eggs leads to susceptibility to always losing nails	104 (83.2%)	21 (16.8%)	69.28	58.69	102 (81.6%)	23 (18.4%)	69.97	57.28
Consumption of eggs leads to susceptibility to the baby having problems with the umbilical cord	95 (76.0%)	30 (24.0%)	68.51	45.96	99 (78.2%)	26 (20.8%)	69.68	55.86
Consumption of eggs leads to Fetus becoming big	88 (70.4%)	37 (29.6%)	68.74	36.06	91 (72.8%)	34 (27.2%)	68.85	51.62
Consumption of eggs leads to prolonged and difficult labor & delivery	90 (72.0%)	35 (28.0%)	69.59	38.89	89 (71.2%)	36 (28.8%)	68.62	40.31
Consumption of eggs leads to sterility	98 (78.4%)	27 (21.6%)	64.38	50.20	93 (74.4%)	32 (25.6%)	69.07	37.48
Children should not eat eggs	65 (52.0%)	60 (48.0%)	68.39	3.54	77 (61.6%)	48 (38.4%)	67.03	43.13
Consumption of eggs during pregnancy leads to the child may be mute	87 (69.6%)	38 (30.4%)	68.85	34.65	97 (77.6%)	28 (22.4%)	69.49	20.51
Consumption of eggs during pregnancy leads to the child may be dumb	91 (72.8%)	34 (27.2%)	68.51	40.31	102 (81.6%)	23 (18.4%)	69.97	48.79
Consumption of eggs during pregnancy leads to the child may be stuttering	88 (70.4%)	37 (29.6%)	65.02	36.06	95 (76.0%)	30 (24.0%)	69.28	55.86
Consumption of eggs by young girls increase the sexual desire in girls	67 (53.6%)	58 (46.4%)	65.53	6.36	83 (66.4%)	42 (33.6%)	67.88	45.96
Consumption of eggs by young girls increase seeking out sexual relationships with boys	69 (55.2%)	56 (44.8%)	69.88	9.19	78 (62.4%)	47 (37.6)	67.18	28.99

Consumption of eggs during pregnancy leads to bald-headed babies,	101 (80.8%)	24 (19.2%)	69.07	54.45	107 (85.6%)	18 (14.4%)	70.43	21.92
Consumption of eggs cause a pregnant woman to behave like a chicken during delivery	101 (80.8%)	24 (19.2%)	68.14	54.45	97 (77.6%)	28 (22.4%)	69.49	62.93
Consumption of eggs during pregnancy cause overweight in the fetus	93 (74.4%)	32 (25.6%)	68.74	43.13	98 (78.4%)	27 (21.6%)	69.59	48.79
Consumption of eggs during pregnancy contributes to difficulties during childbirth and possible death of the mother	85 (68.0%)	40 (32.0%)	69.8	31.82	94 (75.2%)	31 (24.8%)	69.17	50.20
Egg as a "Hot" food should be consumed during the last stage of pregnancy to aid the expulsion of the fetus	90 (72.0%)	35 (28.0%)	68.85	38.89	93 (74.4%)	32 (25.6%)	69.07	44.55
Consumption of eggs during pregnancy causes jaundice	94 (75.2%)	31 (24.8%)	69.17	44.55	96 (76.8%)	29 (23.2%)	69.38	43.13
Consumption of Raw or boiled eggs facilitates labor during childbirth	97 (77.6%)	28 (22.4%)	69.49	48.79	101 (80.8%)	24 (19.2%)	69.88	47.38
Consumption of eggs speeds maturation process	62 (49.6%)	63 (50.4%)	63.34	0.71	65 (52.0%)	60 (48.0%)	64.38	54.45
Consumption of eggs increases the blood	94 (75.2%)	31 (24.8%)	69.17	44.55	100 (80.0%)	25 (20.0%)	69.78	3.54
Consumption of eggs cause bluish discoloration in the baby	99 (79.2%)	26 (20.8%)	69.68	51.62	107 (85.6%)	18 (14.4%)	70.43	53.03
Consumption of eggs creates allergies	91 (72.8%)	34 (27.2%)	68.85	40.31	94 (75.2%)	31 (24.8%)	69.17	44.55
Eggs consumption by children reduces breastfeeding duration	94 (75.2%)	31 (24.8%)	69.17	44.55	97(77.6%)	28 (22.4%)	69.49	48.79

4.6 Constraints on egg consumption

The table below indicates the possible constraints on egg consumption in the study area. The study has revealed that 71.2% of the respondents which is the majority of the population that participated in the study have agreed that an irregular supply of eggs in the market is one of the constraints that limit their consumption of eggs. The probable reason for this might be that there are very limited numbers of egg farms and projects around the areas where the study was conducted. Furthermore, the study has revealed that 28.8% of the respondents did not perceive an irregular supply of eggs on the market and the probable reason for this might be that these respondents do not purchase eggs regularly and hence whenever they go to the store, they always find them. These results concur with the ones that were recorded by (Kusi, Agbeblewu, Anim, & Nyarku, 2015) who have discovered that in Ghana the irregular supply of the poultry products including eggs to the market is market as one of the significant constraints to the consumption of these products.

The study further revealed that distance away from the market centres was identified by 64.85% of the respondents as one of the constraints that limit their level of egg consumption and the probable reason for this might be that the areas where the study was conducted are situated in the remote areas where there is limited transport from the villages to the market centres and another reason might be that it is quite costly for the respondents to travel to the market centres. It was also revealed by the study that 35.2% of respondents did not concur that the distance to the markets is one of the constraints that limit their egg consumption and the probable reason for this might be that these group of respondents have mode of transport hence they find it easy to travel to the markets. These results are corroborate with (Farrell, 2021) who have indicated that in Mozambique the eggs are more accessible in the urban area, while the rural areas faces challenges and difficulties when it comes to access of eggs and he further stressed that this is usually caused by the long distances to the markets as well as the logistic issues. However, (Hill, 2008) has disputed these results arguing that distance away from the market is a constraint to the consumption of certain food products only in instances where there is insufficient or inadequate mode of transport in the area.

The study has revealed that 64% of the respondents did not agree that the conflicting media reports on egg consumption are one of the constraints that inhibit them from consuming eggs and the probable reason for this high percentage might be that most of the reports and media statements on egg consumption does not reach these people as most of this information is communicated through internet and newspapers while most of the respondents rely on television for information. On the other hand, 36% of the respondents have identified the conflicting media reports on egg consumption as one of the constraints that limit their egg consumption and the probable reason for this might be that this group of respondents has internet access.

According to the study, 55.2% of respondents did not concur that inadequate preparation and cooking skills are some of the constraints that inhibit consuming eggs and the probable reason for this might be that there are several ways in which eggs can be prepared or consumed including boiling and frying them. However, 44.8% of the respondents have maintained that lack of preparation and cooking skills is indeed one of the constraints that limit their egg consumption. These results are in support of (McKune, et al., 2020) who have reported that the versatility of eggs in terms of preparation makes it easy for them to be incorporated into different diets which suggest that indeed lack of culinary skills is not a constraint to the consumption of eggs. However these results are in contrary with (Tiwari, Balehegn, Adesogan, & McKune, 2023) who stated that in middle to low income countries as well as rural or remote areas lack of preparation skills to cook eggs was found to be one of the constraints to the consumption of eggs especially amongst children.

The study has revealed that 66.4% which constitute the majority of the participating population have confirmed that insufficient knowledge of the nutritional value of the eggs is not one of the constraints that limit their egg consumption and the probable reason for this high percentage might be that most of the respondents have attained secondary education hence, they know about the nutritional benefits of consuming eggs. However, 33.6% of the population have maintained that their egg consumption is limited because they do not have sufficient knowledge of their nutritional value and the probable reason for this might be because they have not attained formal education.

The study has revealed that 83.2% of the respondents which constitute the majority of the participated population, have indicated that the fear of antibiotic residues is not on the list of the constraints that limit their egg consumption and the probable reason for this might be that these people do not have thorough knowledge of the antibiotics hence it, their residuals were the least of their worries as far the consumption of eggs was concerned. The study further revealed that 16.8% of the respondents have admitted that the fear of antibiotic residual is what restrains them from consuming eggs and the probable reason for this might be that this group of respondents is more educated and have thorough knowledge of the genetically modified food as well as the antibiotics and their side effects in the body. These results concur with (Arsène, et al., 2022) who have postulated that although the issue of antibiotic residues are a huge challenge to many countries around the world, many people still lack efficient knowledge concerning the implications of thee antibiotics and as the results there it does not bother them that much, on the contrary (Ghimpet,eanu, et al., 2022) has disputed these results arguing that consumers who are more knowledgeable in terms of health and food nutrition , especially those with specialised knowledge of the utilisation of antibiotics in animal farming are likely to turn away from food items associated with the antibiotic residual which suggest that antibiotic residues will be a constraints to the consumption of eggs amongst these population group.

according to the study, 63.2% of the respondents which constitute most of the participated population have confirmed that they do not consider the short shelf life of the eggs as a constraint against their consumption of eggs and the probable reason for this might be that they are always adequate quantity of eggs, and they can finish them before they reach their expiry date and get spoiled. However, 36.8% of the respondents have identified the short shelf life of the eggs as one of the constraints that limit their egg consumption and the probable reason for this might be that this group of respondents purchase more eggs so that they can take some time before they go back to the stores to purchase again however they do not manage to finish the eggs in due time and as the results they get spoiled. These results corroborate with (Bradley & King, 2004) who stated that the shelf life of the eggs is seldomly interrupted as they only require to be stored in a cool and dry place which suggest that the shelf lief it is no necessarily a constraint on egg consumption

The study further revealed that 64% of the respondents have identified the lack of storage facilities as one of the constraints that limit their consumption of eggs and the probable reason for this might be that in the areas where the study was conducted, they have small kitchens. They use fire to cook hence the temperature is always high and therefore the place becomes unfavourable to store eggs. The study also revealed that 36% of the respondents did not consider lack of storage facilities as one of the constraints that can limit their consumption of eggs and the probable reason for this may be that these group of respondents had bigger houses that are well-ventilated and convenient enough to store eggs for the longer period.

Table 7: Constraints on egg consumption.

constraints	NO	YES	MEAN	STDEV
Irregular supply	36 (28.8%)	89 (71.2%)	68.62	37.48
Distant market centers	44 (35.2%)	81 (64.8%)	67.61	26.16
Conflicting media reports on consumption	80 (64.0%)	45 (36.0%)	67.47	24.75
Inadequate preparation and cooking skills	69 (55.2%)	56 (44.8%)	65.53	9.19
Lack of knowledge on the nutritional value	83 (66.4%)	42 (33.6%)	67.88	28.99
Fear of antibiotic residues	104 (83.2%)	21 (16.8%)	70.16	58.69
Short-shelf life	79 (63.2%)	46 (36.8%)	67.33	23.33
Lack of storage facilities	45 (36.0%)	80 (64.0%)	67.47	24.75

CHAPTER 5 : MODEL ESTIMATED RESULTS AND DISCUSSION

5.1 INTRODUCTION

This chapter focuses mainly on the presentation and detailed discussion of the empirical results from the model that was employed by the study in investigating the socio-cultural factors affecting the consumption of eggs in the KwaZulu- Natal province of South Africa, the chapter will begin by presenting the t-test statistics of gender differences in knowledge, practice, belief and adherence to sociocultural reasons for the consumption of eggs, then the probit regression analysis, followed by likelihood ratio test, parameter estimates in multinomial logit regression as well as the principal component matrix of socio-cultural factors of egg consumption.

5.2 The results from the t-test statistics

The results in the table below show a significant difference only in the age of males and females ($t = 1.93$, $p < 0.05$), while other variables such as number of children, knowledge of taboos, taboo belief, taboo practice, taboo adherence, and constraints recorded no significant differences.

Table 8: t- test statistics of gender differences in knowledge, practice, belief and adherence to socio-cultural reasons for egg consumption.

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t	df	p	Effect Sizes	Standardiser	Point Estimate	Lower	Upper
Age	Male	55	41,7636	11,82427	1,59438	1,933	123	,056	Cohen's d	12,40358	,345	-,012	,700
	Female	70	37,4857	12,83874	1,53452				Hedges' correction	12,47986	,343	-,012	,696
									Glass's delta	12,83874	,333	-,025	,690
Number of Children	Male	55	2,1818	2,41976	,32628	1,007	123	,317	Cohen's d	2,11454	,187	-,167	,541
	Female	70	1,7857	1,84071	,22001				Hedges' correction	2,12754	,186	-,166	,538
									Glass's delta	1,84071	,215	-,141	,569
knowledge	Male	55	45,8182	4,98550	,67224	-,773	123	,441	Cohen's d	5,39003	-,137	-,490	,217

	Female	70	46,5571	5,68659	,67968				Hedges' correction	5,42318	-,136	-,487	,215
									Glass's delta	5,68659	-,130	-,483	,224
Tabooknow	Male	55	77,4182	12,33287	1,66296	1,042	123	,300	Cohen's d	12,54521	,187	-,167	,541
	Female	70	75,0714	12,70892	1,51901				Hedges' correction	12,62236	,186	-,166	,537
									Glass's delta	12,70892	,185	-,171	,538
Taboobelief	Male	55	69,4727	10,56524	1,42462	,666	123	,507	Cohen's d	10,62399	,120	-,234	,473
	Female	70	68,2000	10,66975	1,27528				Hedges' correction	10,68932	,119	-,232	,470
									Glass's delta	10,66975	,119	-,235	,473
Taboopractice	Male	55	61,2545	8,99222	1,21251	1,120	123	,265	Cohen's d	8,88216	,202	-,152	,556
	Female	70	59,4571	8,79507	1,05121				Hedges' correction	8,93678	,201	-,151	,553
									Glass's delta	8,79507	,204	-,151	,558
Tabooadhere	Male	55	59,3636	8,84509	1,19267	,768	123	,444	Cohen's d	8,81024	,139	-,215	,492
	Female	70	58,1429	8,78286	1,04975				Hedges' correction	8,86442	,138	-,214	,489
									Glass's delta	8,78286	,139	-,215	,492
constraints	Male	55	11,7455	,90714	,12232	,618	123	,269	Cohen's d	1,08493	,108	-,246	,461
	Female	70	11,6286	1,20592	,14414				Hedges' correction	1,09160	,107	-,244	,458
									Glass's delta	1,20592	,097	-,257	,450

5.3 Knowledge of taboos on egg consumption

The table below shows that the explanatory variable “gender” is statistically significant at a 1% interval although it is negative. The implication is that in this study gender had a negative relationship with the knowledge of taboos on egg consumption, furthermore this implies that female have limited or less knowledge about taboos related to egg consumption.. These results are in support of the ones that were reported by (Weil, et al., 2023) that the beliefs concerning egg products did not differ according to the gender of the individual however they contradicts with the ones that were recorded by (Koch, Hoffmann, & Claupein, 2021) who has reported that the beliefs around femininity and masculinity often contributes to the selection of food on the basis of gender. They also contradict with those of (Sugano & Matsuoka, 2021) who reported that women are usually subjected to prohibitions based on fertility, pregnancy as well as the quality of breast milk and (Ekwochi, et al., 2016) who have recorded that the dietary intake were identified across occupational groups and they varied on the basis of gender.

The explanatory variable “employment” was found to be positive and significant at a 10% level of significance. The implication is that the employment status of an individual has a positive impact on their knowledge of taboos on egg consumption, therefore the more people become employed the more likely it is for them to be knowledgeable about the taboos associated with the consumption of eggs. These results concur with the ones of (Tiwari, Balehegn, Adesogan, & McKune, 2023) who have reported that socio-economic statuses including employment status has an impact on access to nutritional information as well as information on food taboos, people who are employed are more likely to engage various sources of information on nutrition and this thus improve their knowledge of nutritional content of food as well as the taboos and misconceptions associated with them. However, there are other studies such as the one that was conducted by (Tela, Gebremariam, & Beyene, 2020) and (Olajide, van der Pligt, & McKay, 2024) that suggest that the improvement in the socio-economic characteristics of an individual including employment status plays a limited role in their knowledge of food taboos, these studies has shown that the taboos associated with food continued to persist amongst pregnant women irrespective of their socio-economic or employment status.

Occupation was found to be negative and significant at a 1% level of significance. This implies that there is a negative relationship between the occupation type and the knowledge of taboos on egg consumption, thus the knowledge of respondents on taboos associated with egg consumption does not depend that much on their type of employment.

The explanatory variable “source of information” was found to be negative and significant at a 1% level of significance. The implication is that the source of information has a negative relationship with the knowledge of respondents on taboos associated with the consumption of eggs, thus the source of information used by the respondents in this study has less impact on their knowledge of taboos on egg consumption. These results concur with the ones that were recorded by (Lekey, et al., 2024) who reported that the misconceptions and taboos associated with various food products persisted despite the nutritional and educational programmes put in place. On the contrary, (Acire, Bagonza, & Opiri, 2023) who has reported that in Northern Uganda the educational programme about food taboos has resulted in an improved nutrition amongst pregnant women and toddlers because they were able to address some of the misconceptions on food taboos, this implies that the source of information does in some cases have a positive impact on the individual’s knowledge of taboos concerning the consumption of various food products.

The explanatory variable “chronic illness” was reported to be negative and significant at the 10% level of significance. The implication is that chronic illness influences the knowledge of taboos on egg consumption negatively. This means that the more respondents are diagnosed with chronic illness, it is less likely for them to know about the taboos associated with the consumption of eggs and this may be because these patients are in frequent contact with health professionals and they get to advise them on adhering to healthy diet and this information that they get from the health practitioners subsequently erodes that knowledge of taboos that they usually had. This results are in line with the ones in the study that was conducted by (McNamara & Wood, 2019) who have reported that there are various taboos or restrictions against different food commodities in the communities and that these restrictions are based on the perceptions of mental health, child delivery risk and other health related conditions.

The price information as an explanatory variable was found to be negative and significant at a 5% level of significance. The implication is that the information on the price of eggs has a negative relationship with the respondent's knowledge of taboos on egg consumption, therefore the knowledge of the respondents on taboos associated with the consumption of eggs does not necessarily depend on the information they have about the egg prices.

The affordability of eggs was found to be positive and significant at a 1% level of significance. The implication of this is that respondents' affordability influences their knowledge of taboos on egg consumption positively, therefore the more the respondents afford to purchase eggs the more they are likely to know about the taboos associated with their consumption. These results concur with the ones in the study that was conducted by (Benno & Rochow, 2009) who has reported that income and affordability have an impact on the food selection pattern and knowledge of taboos associated with certain food, he indicated that people who are well off are more likely to have knowledge of taboos associated with the consumption of certain food because they are open to the wide range of food types as well as the information associated with them. However these results are in contrary to what is suggested by the study conducted by (Kittler, Sucher, & Nelms, 2011) who has argued that affordability does not necessarily influence the individual's knowledge on taboos related with the consumption of certain food and that one might not afford a specific food item but yet have an extensive knowledge of the taboos associated with the food product in question.

The frequency of egg purchase as well as the person who purchases eggs in the family were both found to be positive and significant at a 1% level of significance. The implications of this are that these determinants have a positive influence on the respondent's knowledge of taboos on egg consumption. Thus, it can be said that the more frequent the respondents purchase eggs the more likely they are to know about the taboos associated with egg consumption. These results are in contrary with the ones that were reported by (Melough, Chung, Fernandez, & Chun, 2019) who revealed that it is not always the case that there will be a linkage or correlation between the frequency of purchasing/consuming food items and the knowledge of an individual concerning that particular food item.

The use of eggs for sacrifices as well as the age as the explanatory variables of knowledge of taboos on egg consumption were found to be both negative and significant at 10% and 1% level of significance respectively. This implies that there is a negative relationship between these two determinants and the knowledge of the respondents on the taboos associated with the consumption of eggs, therefore they do not have a major impact on the respondent's knowledge of taboos on egg consumption.

The level of education as the explanatory variable of knowledge of taboos on egg consumption was found to be negative and significant on a 5% level of significance. The implication is that the level of education has a negative influence on the respondent's knowledge of taboos on egg consumption, therefore the more the respondents advance in their formal education, the less likely they are to know about the taboos associated with the consumption of eggs and likewise the less they become educated the more they are likely to know about the taboos associated with the consumption of eggs.

The constraints and the taboo belief as the determinants for knowledge of taboos in egg consumption were both found to be positive and significant at a 5% level of significance. The implication is that these determinants are positively influencing the respondent's knowledge of the taboos associated with the consumption of eggs. Thus, this implies that the more the respondents believe in these taboos, the more they are likely to be knowledgeable about them and likewise the less they believe in them the less likely they are to be knowledgeable in them. These results are in support of what was noted by (Acire, Bagonza, & Opiri, 2023) that the majority of people who believed in the taboos associated with the consumption of certain food products especially amongst pregnant women have shown to have an in depth knowledge of these taboos, (Lekey, et al., 2024) has furthermore noted that because these taboos are embedded in the social norms people who believe in them tend to have more knowledge and understanding about the implications and significance of these taboos.

Taboo practice as one of the determinants for the knowledge of taboos on egg consumption was found to be negative and significant and the implication is that there is a negative relationship between respondent's knowledge of taboos associated with the consumption of eggs and their decision to practice them.

Taboo adherence as one of the deterrents for knowledge of taboos on egg consumption was found to be positive and significant at a 1% level of significance. The implication is that taboo adherence influences the respondent's knowledge of the taboos on egg consumption, furthermore, it is an indication that the more they adhere to these taboos the more likely they are to be knowledgeable about them.

5.4 Adherence to taboos on egg consumption.

The gender of the respondents and their employment status were both found to be positively significant at 5% and the implication is that these explanatory variables have a positive influence on the adherence of the taboos on egg consumption. Furthermore, this is an indication that the more these respondents get employment the more they are likely to adhere to the taboos on egg consumption. These results are in support of (Chakona & Shackleton, 2019) who have found out that the groups that mostly adhere to the cultural beliefs and food taboos in South Africa were both women and children, because the women are the ones who mostly feed the children they also play a role in deciding what type of food they eat. However, (McNamara & Wood, 2019) have argued that an improvement in employment status and level of education may lead to more exposure to modernised and scientific based nutritional knowledge which may result in a decline in adherence to these taboos on food.

The explanatory variable "source of information" was found to be negative and significant at a 5% level of significance. The implication is that the source of information has a negative relationship with the decision of the respondents to adhere to taboos associated with the consumption of eggs, thus the source of information used by the respondents in this study has less impact on their decision to adhere to these taboos.

Chicken ownership as one of the explanatory variables for determining the adherence to the taboos associated with the consumption of eggs was found to be negatively significant at a 5% level. This implies that there is an inverse relationship between household chicken ownership and the adherence to the taboos on egg consumption, therefore an increase in household chicken ownership is likely to lead to a decline in households/respondents who do adhere to the taboos of egg consumption and likewise the decline in household chicken ownership will likely increase respondents

who adhere to the taboos on egg consumption. These results concur with (Berti & Cossio, 2017) who found out that raising chickens or chicken ownership have increased egg consumption in Bolivia and has even reduced the levels of adherence to taboos associated with the consumption of eggs as they became more familiar with the consumption of eggs , on the contrary (Mseleku, Chimonyo, Slotow, Mhlongo, & Ngidi, 2023) have argued that village chickens are often associated with ritual practices and therefore have sustained that this association might cause the adherence to the taboos associated with the consumption of eggs or meat persist even though the household own chickens.

Household egg production as one of the determinants of the adherence to taboos on egg consumption, was found to be positively significant at 1% level and the implication is that the household egg production has a positive influence on the decision of the respondents to adhere to the taboos on egg consumption. Furthermore, it is an indication that when there is an increase in households that produce eggs, the number of people who adhere to the taboos on egg consumption.

The source of purchase was proven to be negatively significant at the 1% level and the implication is that there is an inverse relationship between the source of purchase and the decision of the respondents to adhere to the taboos on egg consumption. furthermore, this is an indication that the decision of the respondents to adhere is not largely dependent on the place where the eggs are purchased.

The price information on eggs as one of the explanatory variables that determine the adherence to taboos on egg consumption was found to be positively significant at a 1% level. The implication is that the information that the respondents have about the egg price has a positive influence on their decision to adhere to taboos on egg consumption. Furthermore, this implies that when the number of people who attain information on egg prices increases the number of people who adhere to the taboos on egg consumption is likely to increase.

The ability of the people to afford eggs was found to be negatively significant at a 1% level of and the implication is that there is an inverse relationship between the respondent's ability to afford eggs and their decision to adhere to taboos on egg consumption. This further indicates that the more the respondent's afford to purchase eggs the less likely they are to adhere to taboos associated with the consumption of

eggs. These results concur with (Berti & Cossio, 2017) who found out that in Bolivia the ownership of chickens by households increased their level of egg consumption this may imply that people who do not afford to purchase eggs are the ones that are likely to adhere to the taboos associated with their consumption but the argument that was put forward by (Kittler, Sucher, & Nelms, 2011) who postulated that the knowledge of taboos on food does not depend on the affordability may be an indication that there is limited or no correlation between the adherence to food taboos around egg consumption and the affordability of eggs.

The person who purchases eggs in the family as one of the determinants of adherence to taboos on egg consumption was found to be positively significant at 5% and the implication is that there is a positive relationship between the person who purchase eggs in the family and the decision of the respondents to adhere to the taboos on egg consumption.

The frequency of purchase and the favourite part of the egg was found to be negatively significant, and the implication is that these explanatory variables have a negative relationship with the decision of the respondents to adhere to taboos on egg consumption. Furthermore, this implies that level of adherence to the taboos related to egg consumption is likely to decline as the frequency to purchase increases. These results are in line with (Berti & Cossio, 2017) who have found out that chicken ownership by the households has resulted in an improvement in egg consumption and significantly reduced the adherence on food taboo associated with the consumption of eggs. However it contradict with (Nortey, et al., 2019) who has reported that although the frequency of egg consumption varied with regions, religious and cultural factors such as taboos on food continued being significant in determining the food consumption patterns which suggest that adherence to the taboos associated with the consumption does persist even though there is a frequent consumption of eggs. Furthermore, (Kase, et al., 2022) have argued that in their study factors such as the socioeconomic of the household as well as the availability of eggs were more significant than the cultural beliefs in determining the consumption of eggs which suggest that frequent purchasing of eggs does not necessarily reduce adherence to the taboos associated with the consumption of eggs.

The consumption of eggs at specific times of the day was found to be negatively significant at 10% and the implication is that there is an inverse relationship between the consumption of eggs at specific times of the day and the decision of the respondents to adhere to taboos on egg consumption. This is further an indication that the decision of the respondents to adhere to taboos on egg consumption does not largely depend on the specific times of the day when the egg is consumed.

The use of eggs for sacrifices as one of the explanatory variables determining the adherence to taboos on egg consumption was found to be positively significant at a 1% level. This implies that the use of eggs as sacrifices has a positive influence on the decision of the respondents to adhere to taboos on egg consumption. Therefore, the more the respondents use eggs for sacrifices the more they are likely to adhere to taboos on egg consumption. These results concur with (Quiroz & van Andel, 2015) who has reported that the rituals including those associated with food taboos are deeply embedded in spiritual practices and therefore are bound to strengthen the adherence to the taboos associated with the food product in question. However, (Benno & Rochow, 2009) have argued that the younger generation in many areas is slowly drifting away from the adherence to these strict restrictions which suggest that the use of certain food for sacrificial purposes does not strengthen the adherence to taboos universally.

The age of the respondents was found to be positively significant at 10% level and the implication is that the age of the respondents has a positive influence on their decision to adhere to the taboos on egg consumption. This means that the more the respondents grow older the more they are likely to adhere to these taboos. These results are in support of (McNamara & Wood, 2019) who reported that in rural Tajikistan majority of the mothers in law were the ones who were preserving and adhering to the beliefs and taboos associated with the consumption of various food , these taboos are then transferred from one generation to the other by older people which is an implication that older people in the society are the custodian of these beliefs and taboos on food consumption, furthermore (Acire, Bagonza, & Opiri, 2023) has stressed that amongst Acholi people in Uganda the elderly were the ones who were responsible for teaching the young ones about these taboos and beliefs.

The income level of the respondents was found to be significant at 10% level and the implication is that this variable has a positive influence on their decision to adhere to taboos on egg consumption. Furthermore, this is an indication that as the income level of the respondents increases, they are more likely to adhere to taboos on egg consumption.

The belief of the respondents about the taboos on egg consumption was found to be negatively significant on a 1% level and the implication is that their belief about these taboos has a negative impact on their decision to adhere to them. This further indicates that the more they believe in these taboos the less likely they are to adhere to them.

The knowledge of the respondents about the taboos on egg consumption and the practice of these taboos were found to be positively significant at a 1% level. The implication is that these variables have a positive influence on the decision of the respondents to adhere to taboos on egg consumption. This further indicates that the more knowledge they gain on these taboos and the more they practice them and the more they are likely to adhere to them. These results concur with (Benno & Rochow, 2009) who have indicated that people who advocate for the preservation of these beliefs and taboos are those who have an in depth knowledge of these taboos which suggest that individuals who are knowledgeable in these taboos are the ones who most likely to adhere to them.

5.5 Practice of taboos associated with egg consumption.

The marital status and the employment status of the respondents as some of the determinants for practicing the taboos associated with egg consumption were found to be positively significant at a 1% level. The implication is that these explanatory variables have a positive influence on the decisions of the respondents to practice the taboos on egg consumption. It further implies that as the number of respondents employed increases, the number of respondents who adhere to the practices of taboos on egg consumption is likely to increase. These results are in line with (Acire, Bagonza, & Opiri, 2023) who have indicated that according to the study they conducted in Northern Uganda they found that the members of the household, including the spouse are usually the ones who reinforce the adherence and practice of these taboos on food consumption which suggest that indeed there is a positive relationship between the

marital status of an individual and the practice of taboos concerning egg consumption. However on the employment part the results are on contrary with (Tiwari, Balehegn, Adesogan, & McKune, 2023) who found out that mostly people who are employed have an access to a vast range of food to select from and this also provide them with access to nutritional information on these food as well as the knowledge of taboos and misconceptions associated with some of these food, which suggest that people who are employed are likely to not engage in practicing taboos associated with the consumption of eggs. The occupation of the respondents and the household egg production were found to be significantly positive at 10% and 1% levels respectively. This implies that these two determinants have a positive influence on the decision of the respondents to practice the taboos on egg consumption.

The frequency of egg consumption and the source of purchase were both found to be negatively significant at 10% and 1% levels respectively. The implication is that these two explanatory variables have an inverse relationship with the respondent's decision to practice the taboos on egg consumption. This further implies that as the number of households that produce eggs increases, it is more likely that the number of people who practice the taboos on egg consumption will decline. These results concur with (Berti & Cossio, 2017) who have reported that the chicken ownership by the households and the households production of eggs have significantly contributed to an improvement in the level of egg consumption and even managed to lower the adherence and practices associated with the consumption of eggs, in other words the economic benefit were found to be outweighing the impact of cultural beliefs on egg consumption which further suggest that indeed there is an inverse relationship between frequency of egg consumption and the practice of taboos associated with the consumption of eggs. However (Kase, et al., 2022) have argued that in some cases the economic impact of eggs does not outweigh the taboos and misconceptions associated with the consumption of eggs as these taboos and their adherence as well as practice continue to persist even though there is an ease access and frequent consumption of eggs.

The respondent's information about the egg price and who purchased eggs in the family was found to be positively significant at 1% and 10% levels respectively. The implication is that these two explanatory variables have a positive influence on the decision of the respondents to practice taboos on egg consumption. This further

implies that as the respondent's information on egg prices increases, they are more likely to practice the taboos on egg consumption. These results are in line with (Benno & Rochow, 2009) who have indicated that the adherence to taboo associated with the consumption of various food is yoked with knowledge of these taboos as well as the roles individuals play in the household which suggest that the person who is responsible for purchasing eggs in the family has an impact on whether the taboos surrounding the product in question will be practiced or not, on the other hand, (McNamara & Wood, 2019) have argued that the adherence and practice of these taboos is more dependable on the cultural and health beliefs than it does on the price information of the commodities which suggest that the price information of eggs might not impact the practicing of taboos associated with egg consumption.

The frequency of purchasing eggs, respondents' favourite part of the egg, and the time of the day when they consume eggs, were found to be negatively significant at 1%, 1% and 5% level respectively. This implies that all these three explanatory variables are in inverse relationship with the respondent's decision to practice the taboos associated with the consumption of eggs.

The use of eggs for sacrifice was found to be positively significant at a 1% level in determining the respondent's decision to practice the taboos associated with the consumption of eggs. This implies that the use of eggs to perform sacrifices by the respondents has a positive influence on their decision to practice taboos on egg consumption. This further implies that the more respondents use eggs for sacrificial purposes, the more they are likely to practice the taboos on egg consumption. These results are in support of (Quiroz & van Andel, 2015) who stressed that these sacrificial rituals are mostly embedded in the spiritual and cultural beliefs that is often tied to the ancestors which suggest that the use of eggs for sacrificial purposes would strengthen the practice of taboos associated with the consumption of eggs.

The education and income level of the respondents as well as their belief towards the taboo and their adherence as the explanatory variables for taboo practice were found to be positively significant at 5%, 5%, 5%, and 1% respectively. This implies that all these variables have a positive influence on respondent's decision to practice the taboos associated with egg consumption. This is also an indication that an improvement in the education level of the respondents and an increase in their level

of income is likely to make them practice the taboos on egg consumption even more. Furthermore, it is an indication that the more the respondents believe and adhere to these taboos the more likely they are to practice them.

The knowledge of the respondents about this taboo was found to be negatively significant at a 1% level of significance and the implication is that there is a negative relationship between the respondent's knowledge about the taboos on egg consumption and their decision to practice these taboos. This also implies that the knowledge of the respondents concerning these taboos does not have much influence on their decision to practice them.

5.6 Belief in the taboos on egg consumption.

The gender of the respondents was found to be negative and significant at 1% level and the implication is that there is a negative relationship between the gender of the respondents and their belief towards the taboos on egg consumption. This furthermore implies that as the gender variances increase in a population the beliefs on taboos related with egg consumption is more likely to persist. These results are corroborated with (Ekwochi, et al., 2016) who identified different dietary intake and categorised it according to occupational groups, only to find out that these dietary intakes varied across all the occupational groups based on the gender of the individual, furthermore (Sugano & Matsuoka, 2021) stressed that women are the group that is most susceptible to these taboos and restrictions on the basis of fertility, pregnancy as well as the quality of the breast milk. However, (Weil, et al., 2023) have argued that the beliefs on taboos associated with consumption of eggs does not necessarily depend on the gender of an individual.

The employment and the marital status of the respondents were found to be positive respondents at 10% and 5% respectively. The implication is that these two variables have a positive influence on the respondent's belief regarding the taboos on egg consumption. this further implies that as more respondents get employed, they become more likely to believe these taboos associated with egg consumption. These results concur with (Acire, Bagonza, & Opiri, 2023) who found that these taboos are usually reinforced by the seniors members of the family and (Sugano & Matsuoka, 2021) also attested to this idea when they indicated that women are the ones who are

mostly subjected to these taboos and restriction of various food based on fertility and pregnancy which suggest that women who are married and are willing to have children in their marriages are more likely believe in these taboos that are associated with the consumption of eggs. However on the employment part the results contradict with (McNamara & Wood, 2019) who have argued that people who are employed tend to have access to the modernised and scientific nutritional knowledge of various food even the ones that are surrounded by taboos and misconception which suggest that the population group that is employed is likely to not believe in the taboos associated with the consumption of eggs.

The occupation of the respondents, their source of information, as well as chronic illness, were found to be negative and significant at a 5% level. The implication is that all these three explanatory variables have a negative relationship with the respondent's belief towards the taboos on egg consumption, therefore they play a limited role in determining whether the respondents believe these taboos or not. It is also an implication that the more the respondents are diagnosed with chronic illness, it becomes less likely they are to believe these taboos.

The household egg production as one of the explanatory variables that determines whether the respondents believe the taboos on egg consumption or not, was found to be positively significant at a 1% level. The implication of this is that household egg production has a positive influence on respondent's beliefs regarding the taboos on egg consumption therefore the number of respondents who believe in these taboos is likely to increase as more people produce eggs in their families. These results are in support of (Kase, et al., 2022) who indicated that in some instances the economic benefits of egg does not outweigh the taboos and misconceptions associated with their consumption as these taboos are rooted in culture and are usually passed on from one generation to another which suggests that the more people access eggs the more they learn and believe the taboos associated with their consumption. These results are disputed by (Berti & Cossio, 2017) who have argued that the household who keep chickens and produce their own eggs have shown improvement in their level of egg consumption and drifting away from the taboos associated with the consumption of eggs which suggest that household egg production does not always strengthen the beliefs on taboos on egg consumption.

The frequency of egg consumption and the source of purchase as some of the explanatory variables that determine whether the respondents believe the taboos on egg consumption or not were found to be negative and significant at 10% and 1% respectively. This implies that there is an inverse relationship between these two variables and the respondent's beliefs towards taboos on egg consumption, which means that the more the respondents consume eggs the less likely they are to believe in these taboos. Furthermore, it is indicated that the source of purchase plays a limited role in determining whether the respondents believe in the taboos on egg consumption or not.

The price information on eggs as one of the explanatory variables that determine whether the respondents believe in the taboos on egg consumption was found to be positive and significant at a 5% level. This is an implication that the price information on eggs has a positive influence on respondent's beliefs towards the taboos on egg consumption, it is also an indication that as the respondents have access to information pertaining to egg prices, they become more likely to believe the taboos on egg consumption. These results concur with (Benno & Rochow, 2009) who have indicated that the beliefs and adherence to the taboos associated with the consumption of food is strongly tied to the knowledge about these taboos around these food products and this may include the information about the origin of the product as well as the pricing which suggest that the price information on eggs might strengthen the belief on these taboos, however (McNamara & Wood, 2019) have disputed these results arguing that the taboos and misconception on the consumption of various food are deeply rooted in cultural practices which suggest that the beliefs on taboos associated with egg consumption will persist irrespective of whether the individual have an information on egg prices or not.

The ability of the respondents to afford eggs, who purchase eggs in the family, the frequency of purchasing eggs, the time of the day to consume eggs as well as the age of the respondents were found to be negative and significant at 1%,1%,1%,5%, and 1% respectively. The implication is that all these five explanatory variables have a negative relationship with the respondent's beliefs regarding the taboos on egg consumption. This further indicates that the more the respondents afford to buy eggs and the more often they purchase them, they become less likely to believe the taboos on egg consumption, it is also an indication that the age of the respondents as well as

the specific times of the day to consume eggs plays a limited role in determining whether they believe these taboos or not. These results corroborate the ones that was reported in the study conducted in Bolivia by (Berti & Cossio, 2017) who have indicated that people who have an ease access to eggs especially those who produce eggs in their own household were the ones who had an improved consumption level of eggs and they were also reluctant to believe, adhere and even practice taboos associated with the consumption of eggs, this suggest that the population group that can afford to purchase eggs are the ones who are more likely to not believe in these taboos. However, (Kittler, Sucher, & Nelms, 2011) have disputed these results arguing that the beliefs on the taboos associated with the consumption of food can still be heightened even though the individuals can afford or have access to food which suggest that the ability of individuals to afford eggs does not necessarily weaken their beliefs in the taboos associated with their consumption.

The respondent's decision to practice the taboos on egg consumption was found to be positive and significant at a 1% level. This implies that the decision to practice has a positive influence on respondents' beliefs towards the taboos on egg consumption, therefore the more they practice these taboos the more they are likely to believe them and the same is true for the opposite.

The adherence of the respondents to the taboos on egg consumption was found to be negative and significant at 1% level, the implication is that there is a negative relationship between the respondent's decision to adhere and their beliefs towards taboos on egg consumption. It further indicates that the less they adhere to these taboos, the more likely to believe them.

The respondent's knowledge about the taboos associated with egg consumption was found to be positive and significant at a 1% level. The implication is that the respondent's knowledge of these taboos has a positive influence on their beliefs towards them, therefore the more the respondents become knowledgeable concerning the taboos on egg consumption the more they are likely to believe in them.

5.7 The determinants of constraints on egg consumption

The gender of the respondents was found to be negative and significant at a 1% level, the implication is that there is an inverse relationship between the age of the respondents and the constraints on egg consumption. Furthermore, this is an indication that the gender of the respondents plays a limited role in determining the constraints on egg consumption in the area where the study was conducted. These results are in support of (Weil, et al., 2023) who have found that beliefs on taboos associated with egg and egg product did not vary with gender, suggesting that there is a negative relationship between the age of the individual and the constraints on egg consumption, however (Koch, Hoffmann, & Claupein, 2021) have argued that the beliefs on femininity and masculinity have resulted in food selection that is based on gender, furthermore (Ekwochi, et al., 2016) have stressed that in their study which was conducted in South Eastern Nigeria the differences in dietary intake were identified and categorised in occupational groups and it was found that they varied in gender across all the occupational groups.

The marital status of the respondents, chronic sickness, household egg production, and the source of purchase as some of the determinants of constraints on egg consumption, were found to be positively significant at 1%,1%,5%, and 1% respectively. The implication is that all these four variables have a positive influence on the constraints associated with egg consumption. This further implies that as these respondents are diagnosed with chronic illness and the more, they produce eggs in their houses, the constraints on egg consumption will become more likely to prevail. These results concur with (McNamara & Wood, 2019) who have reported that in many societies the restriction and taboos are imposed on various food products due to the perceptions on mental health, delivery risks during childbirth and other health related issues, furthermore (Bertechini & Mazzuco, 2013) as cited by (Akonor & Akonor, 2014) have stressed that health is the key factor that the consumers consider whenever they are confronted with the decision of whether they should consume eggs or not. These results also corroborate those of (Berti & Cossio, 2017) which found that the chicken ownership and the production of eggs by the households in Bolivia has resulted in an improved level of egg consumption which suggest that indeed households egg production have a positive influence on the constraints on egg consumption.

The employment status of the respondents, their occupation, source of information concerning eggs, household chicken ownership, and the frequency of consuming eggs were all found to be negative and significant at a 1% level. The implication is that all these variables have a negative relationship with the constraints on egg consumption, furthermore, it implies that as the employment status of the respondents improves, the more they engage in chicken ownership and the more they consume eggs, the constraints on egg consumption become less likely to prevail. This is also an indication that the occupation of the respondents plays a limited role in determining the constraints on egg consumption. These results concur with (McNamara & Wood, 2019) who has reported that the restrictions and taboos imposed on food products rely heavily on the cultural beliefs and social standards that are mostly not scientifically proven which suggest that if people have access to relevant sources of information about eggs they will have proper knowledge and understand the nutritional implications of imposing restrictions or taboos on the consumption of eggs. Furthermore (Tiwari, Balehegn, Adesogan, & McKune, 2023) has indicated that people who are employed have access to a wide range of food to select from and that allow them to have access to the nutritional information and the health implication of any taboos and misconception surrounding that food which suggest that the constraints on egg consumption are limited amongst the working group.

The price information on eggs, who purchases eggs in the family, frequency of purchasing eggs, and the favourite part of the egg preferred by the respondents as some of the determinants of constraints on egg consumption were found to be negative and significant at 1% level. The implication is that all these variables have a negative relationship with the constraints on egg consumption, therefore the more they have access to information on eggs and the more they purchase eggs, the constraints on egg consumption become less likely to prevail. This further implies that the person who purchases eggs in the family as well as the favourite part of the egg preferred by the respondents plays a limited role in determining the constraints on egg consumption.

The availability of eggs on the market, the specific times of the day to consume eggs as well as the education level of the respondents as some of the explanatory variables for determining constraints on egg consumption were found to be positive and significant at a 1% level. The implication of this is that all these mentioned variables

have a positive influence on the constraints associated with the consumption of eggs, therefore the more the eggs become available on the market and the more the education level of the respondents improves the constraints on egg consumption are more likely to prevail. These results are in line with (Tiwari, Balehegn, Adesogan, & McKune, 2023) who have reported that the taboos and restrictions of various food persisted despite the constant availability of eggs which suggest that the availability of eggs may strengthen the constraints on egg consumption.

The level of income of the respondents as one of the explanatory variables that determine the constraints on egg consumption was found to be negative and significant at % level. This implies that there is an inverse relationship between the income level of the respondents and the constraints on egg consumption therefore the constraints on egg consumption are less likely to prevail as the income level of the respondents improves.

The beliefs of the respondents towards the taboos on egg consumption as well as their decision to practice these taboos were found to be positive at 10% and 1% levels respectively. This implies that these two explanatory variables have a positive influence on the constraints associated with the consumption of eggs, therefore the more the respondents believe and practice these taboos the more it becomes likely for the constraints on egg consumption to prevail and vice versa.

The respondent's decision to adhere to the taboos on egg consumption was found to be negatively significant at a 1% level and the implication is that there is a negative relationship between the respondent's decision to adhere to these taboos and the constraints on egg consumption, therefore the more they adhere to these taboos the constraints become less likely to prevail.

Table 9 presents the results of the Probit regression analysis of the determinants of knowledge, practice, belief, and adherence, to socio-cultural reasons for egg consumption. All the models are well fitted with Chi-Square values of 9.86 x 125 (Knowledge), 463.64 (Adhere), 559.57 (Practice), 784 x 125 (Belief), 6.62 x 125 (constraints) at $p < 0.001$.

Table 9: Probit regression analysis of the determinants of knowledge, practice, belief and adherence to socio-cultural reasons on egg consumption.

Parameter	Knowledge	Adhere	Practice	Belief	Constraints
Gender	-1,832 (,287) ***	,124 (,042) **	,012 (,042)	-,575 (,305) *	-1,744 (,225) ***
Marital status	-,141(,148)	,032 (,027)	,096 (,027) ***	,314 (,163) *	1,369 (,127) ***
Employment	,551(,332) *	,126 (,051) **	,211 (,051) ***	,525 (,263) **	-1,174 (,290) ***
Occupation	-,405(,087) ***	,009 (,021)	,036 (,021) *	-,327 (,105) **	-,904 (,071) ***
Source of info	-,539(,111) ***	-,034 (,015) **	,007 (,016)	-,292 (,112) **	-,879 (,111) ***
Chronic sickness	-,185(,112) *	-,014 (,029)	-,042 (,029)	-,373 (,127) **	,960 (,112) ***
Chicken ownership	-3,429(,520)	-,156 (,049) ***	-,075 (,049)	,522 (,427)	-1,290 (,321) ***
Egg production	-,321(,443)	,356 (,050) ***	,314 (,048) ***	2,883 (,370) ***	,997 (,329) **
Frequency of consumption	,480(,300)	-,028 (,037)	-,071 (,037) *	-1,870 (,288) ***	-1,668 (,197) ***
Source of purchase	-,435(,284)	-,244 (,062) ***	-,410 (,062) ***	-,551 (,325) *	2,771 (,192) ***
Price information	-,305(,139) **	,111 (,024) ***	,101 (,024) ***	,321 (,148) **	-1,945 (,139) ***
Availability	-,032(,220)	-,036 (,034)	-,035 (,034)	-,171 (,195)	,576 (,146) ***
affordability	2,653(,268) ***	-,171 (,048) ***	,032 (,049)	-1,134 (,275) ***	,092 (,165)
who purchase eggs	,697(,126) ***	,033 (,017) **	,030 (,017) *	-,559 (,111) ***	-1,097 (,069) ***
How often you buy	,564(,213) ***	-,102 (,025) ***	-,114 (,025) ***	-,716 (,217) ***	-1,081 (,166) ***
Favourite part	,186(,205)	-,122 (,024) ***	-,192 (,025) ***	-,187 (,159)	-1,078(,145) ***
When do you eat	,068(,180)	-,032 (,019) *	-,046 (,019) **	-,381 (,169) **	1,555(,095) ***
Use for sacrifices	-,582(,338) *	,203 (,036) ***	,192 (,036) ***	,075 (,339)	2,420 (,193) ***

Age	-,043(,011) ***	,004 (,002) *	-,003 (,002)	-,069 (,011) ***	,012 (,010)
Education	-,492(,191) **	,017 (,030)	,079 (,030) **	-,155 (,215)	,510 (,140) ***
Income level	,080(,306)	,091(,033) *	,066 (,033) **	,170 (,270)	-1,352 (,167) ***
CONSTRI	,861(,321) ***	,025 (,040)	,028 (,041)	-,460 (,338)	
Taboobelief	7,739(,513) ***	-,291 (,064) ***	,126 (,060) **		,641 (,358) *
Taboopractic e	-,248(,046) ***	,028 (,003) ***		,200 (,034) ***	,176 (,027) ***
Tabooadhere	,190(,048) ***		,026 (,003) ***	-,110 (,032) ***	-,101 (,028) ***
TABOOKNW 11		,252 (,069) ***	-,180 (,073) **	7,361 (,427) ***	1,422 (,324) ***
Intercept	-4,111(2,381) *	-1,698 (,331) ***	-1,539 (,308) ***	-4,247 (2,331)	-4,641 (1,471) **
Chi-Square	986465919556695 300,000	463,637	559,571	78419172778743580 000000000000000000, 000	6,622E+51
df ^a	99	44	43	99	99
Sig.	<,001	<,001	<,001	<,001	<,001

5.8 Likelihood ratio test of the independent predictors of egg consumption

The likelihood ratio test for prediction of egg consumption on socio-cultural factors clearly shows the differences between the respondents who eat eggs daily, those who eat eggs one in the period of two weeks/ fortnight and those who eat eggs once in a week irrespective of the sociocultural factors affecting the consumption of eggs Pearson, $\chi^2 = 259.28$, $p = 0.04$ and Deviance, $\chi^2 = 168.40$, $p = 0.99$ statistics were found to be insignificant, which implies that the predicted responses did not vary significantly from those that were solicited from the households. This is further an indication that the model is a good fit and can be utilised when predicting the effect of sociocultural factors and egg consumption with more certainty and Cox and Snell (0.467), Nagelkerke (0.542), and McFadden (0.318) respectively. The explanatory variables that were found to be significant ($p < .05$), included the age of the respondents, income level, affordability, number of children per household, time of the

day to consume eggs, occupation as well as knowledge of taboos and this serves as confirmation that the predictors played an important role in influencing the sociocultural factors that determine the consumption of eggs. The reference code for comparison used in this study was the code for once a week.

Table 10: Likelihood ratio test of the independent predictors.

Likelihood Ratio Tests						
Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	234,061	307,597	182,061	13,678	2	,001
Age	230,456	303,992	178,456	10,073	2	,006
#Children	228,042	301,578	176,042	7,659	2	,022
Income level	237,911	311,447	185,911	17,528	2	<,001
Occupation	227,488	301,024	175,488	7,104	2	,029
Price info on egg	223,928	297,465	171,928	3,545	2	,170
Egg affordability	230,368	303,904	178,368	9,984	2	,007
Who cook eggs	223,203	296,740	171,203	2,820	2	,244
Who buy eggs	224,745	298,281	172,745	4,361	2	,113
Consumption-during-outbreak	224,620	298,156	172,620	4,237	2	,120
When do you eat eggs	225,775	299,311	173,775	5,391	2	,068
knowledge	223,956	297,492	171,956	3,572	2	,168
Tabooknow	226,572	300,108	174,572	6,188	2	,045
Source of purchase	224,328	297,864	172,328	3,945	2	,139
-2 Log Likelihood Intercept Only	246,973					
-2 Log Likelihood final	168,384					
Chi-Square				78,590		
df				26		
Sig.				<,001		
Observation no	125					
Cox and Snell	0.47					
Nagelkerke	0.54					
McFadden	0.32					

5.9 The determinants of egg consumption daily

The age of the respondents, their income level, the person who by eggs in the family the specific times of consuming eggs during the day as well as the source of purchase as some of the explanatory variables to determine whether the respondents consume eggs every day were found to be positive and significant at 5%,10%,10%,5%,10%,5% and 10% respectively. The implication is that all these variables mentioned here have a positive influence on whether the respondent consumes eggs every day or not, it also implies that as the income level of the respondents improves, they become more likely to consume eggs every day.

The number of children, the ability of the respondents to afford eggs, and their knowledge about the taboos on egg consumption were found to be negative and significant at a 5% level. The implication of this is that there is a negative relationship between these two variables and the respondent's decision to consume eggs, therefore as the number of children in the household increases and as the income of the respondents improves, they become more likely to consume eggs every day.

Determinants of respondent's decision to consume eggs once a week.

The income level of the respondents, the person who cooks eggs in the family as well as the knowledge of the respondents concerning the nutritional benefits of consuming eggs, were found to be positive and significant at a 10% level. The implication is that these three variables have a positive influence on the consumer's decision to consume eggs once a week, which means that as the income level of the respondents improves and the more, they gain knowledge of the nutritional benefits of consuming eggs, they become more likely to consume eggs every week.

The person who purchases eggs and the source of the purchase were found to be negatively significant, and this implies that they have an inverse relationship with once-a-week consumption of eggs, it further implies that they play a limited role in determining whether they consume eggs once a week or not.

The specific time of the day to consume eggs was found to be positive and significant at a 10% level and the implication is that this variable positively influences the respondent's decision to consume eggs once in two weeks.

Table 11: Parameter estimates in the multi-nominal logit regression parameters.

Consumption frequency	Everyday			Once a week			Once in two weeks		
	B	Wald	Exp(B)) RRR	B	Wald	Exp(B)) RRR	B	Wald	Exp(B)) RRR
Intercept	7,244 (4,659)	2,417		-10,624 (3,237) ***	10,774		10,731 (3,208) ***	11,191	
Age	,106 (,037) **	8,123	1,112	-,018 (,028)	,425	,982	,021 (,028)	,566	1,021
No of children	-,674 (,288) **	5,488	,509	,279 (,182)	2,336	1,322	-,273 (,185)	2,175	,761
Income level	1,129 (,436) *	6,706	3,091	1,017 (,579) *	3,084	2,764	-,956 (,570) *	2,816	,384
Occupation	-,432 (,267)	2,624	,649	,415 (,175)	5,628	1,514	-,431 (,178) **	5,884	,650
Price info on egg	,470 (,446)	1,110	1,599	,370 (,306)	1,456	1,447	-,350 (,308)	1,286	,705
Egg affordability	-1,892 (,725) **	6,803	,151	,460 (,403)	1,303	1,584	-,931 (,464) **	4,036	,394
Who cook eggs	-,342 (,293)	1,369	,710	,343 (,204) *	2,829	1,409	-,308 (,202)	2,323	,735
Who buy eggs	,595 (,314) *	3,576	1,812	-,030 (,183) *	,028	,970	,067 (,194)	,118	1,069
Consumption during outbreak	-,939 (,702)	1,790	,391	,297 (,281)	1,117	1,346	-,403 (,278)	2,099	,668
When do you eat eggs	,727 (,355) **	4,200	2,069	-,338 (,238)	2,017	,713	,402 (,245) *	2,688	1,495
knowledge	-,123 (,089)	1,922	,884	,086 (,050) *	2,971	1,090	-,073 (,050)	2,111	,930
Tabooknow	-,082 (,039) **	4,425	,922	,032 (,021)	2,486	1,033	-,034 (,021)	2,527	,967
Source of purchase	1,819 (,943) *	3,715	6,163	-,020 (,615) *	,001	,980	,131 (,636)	,042	1,140
Observation no					125				
Cox and snell					,467				
Nagelkerke					,542				
McFadden					,318				

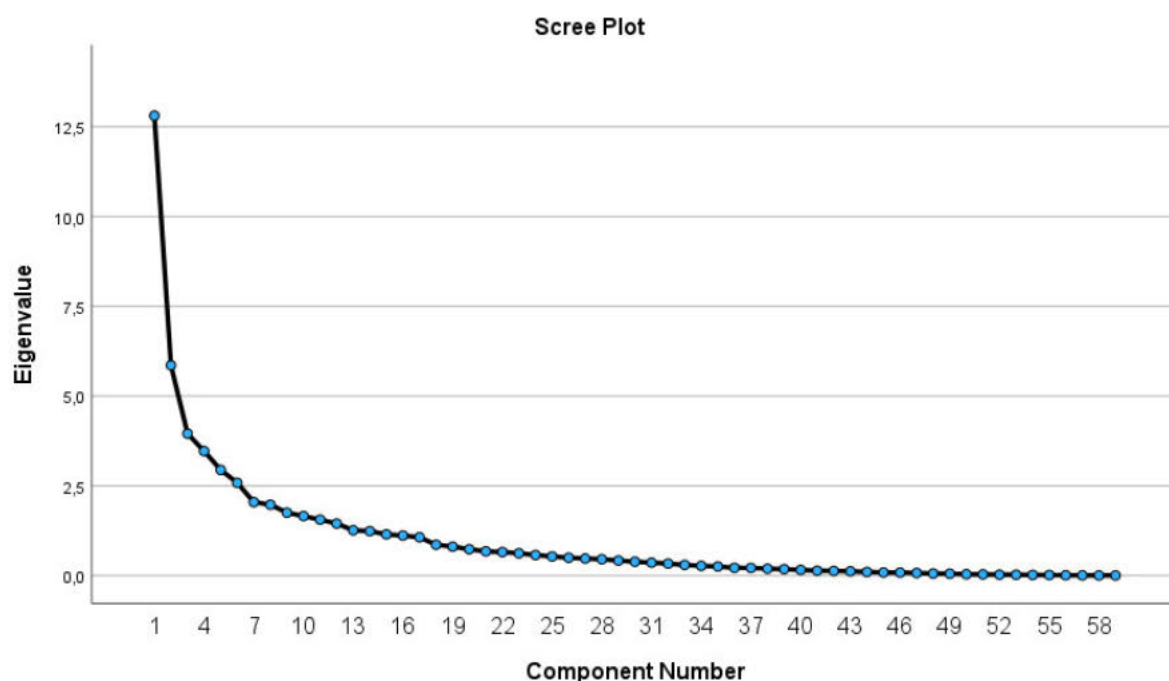
The results of the Principal Component Analysis (PCA) of knowledge, practice, belief, and adherence, to socio-cultural reasons for egg consumption are in presented in table below.

Table 12: Principal Component Matrix of socio-cultural factors of egg consumption.

	1	2	3	4	5	6	7	Commonalities
Tabooknow	,920							,929
Taboobelief	,910							,860
Tabooadhere	,810							,796
Eggs cause rash (know)	,795							,833
Taboopractice	,766							,696
Eggs cause boils (know)	,730							,650
Egg cause eczema (belief)	,724							,662
Prolong period flow (know)	,721							,631
Egg cause eczema (know)	,720							,495
Eggs lead to wounds (know)	,716							,609
Egg cause ear problem (know)	,712							,579
Shorten period flow (know)	,710							,626
Cause hair to fall (know)	,687							,735
Lead to preg woman having disable child	,646							,637
Lead to losing nails (know)	,624							,748
Women behave like chicken during delivery (belief)	,601							,602
Couse women to have appetited for sex (know)	,565							,610
Make pregnant women search sex everywhere (know)	,541							,718
Reduces breastfeeding duration (practice)		,608						,608
Lead to losing nails (practice)		,606						,463
Pregnant woman should not eat eggs (know)		-						,395
		,576						
Create allergies (belief)		,568						,613
Increases the blood (practice)		,543						,486
Create allergies (practice)		,533						,758
Cause bluish discoloration in the baby (practice)		,530						,461
knowledge		-						,511
		,526						
Cause bluish discoloration in the baby (belief)		,514						,423
Leads to bald headed babies (practice)		,442						,316
Increases the blood (adhere)		,430						,376
Eggs help milk production by lactating mothers		-						,602
		,412						
Lead to the fear of early puberty for the child (adhere)			,577					,513
Lead to susceptibility to ear problems (practice)			-					,676
			,564					
Lead to susceptibility to rashes (belief)			-					,502
			,540					
Egg improve brain development and functioning			-					,577
			,535					
Leads to the fear of early maturity for the child (adhere)			,502					,637
constraints			-					,322
			,500					
Children should not eat eggs (practice)			,450					,416
Eggs makes girl child promiscuous (know)			,401					,357

Lead to prolonged monthly period flows (adhere)					,528					,387
Reduce breastfeeding duration (know)					-					,462
Eggs are traditionally a taboo for just married wife (adhere)					,497					,587
Lead to fear of early puberty for the child (practice)					,487					,513
Lead to prolonged monthly period flows (practice)					,429					,780
Lead to the baby having problems with the umbilical cord (adhere)					,426					,349
Increase sexual desire in girls (practice)					-					,597
					,413					
Causes pregnant woman to have much appetite for sex(practice)									,669	,775
Causes pregnant woman to have much appetite for sex(belief)									,651	,586
Causes pregnant woman to have much appetite for sex(adhere)									,640	,527
Pregnant woman should not consume eggs (belief)									,548	,384
Egg remains a food product of high nutritional quality for adults										,599
Consumption during pregnancy lead to the child being mute										,597
Eggs help long term memory										,465
Eggs help long term memory										,423
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	,358									
Chi-Square	3573,147									
df	1711									
Sig.	<,001									

Figure 4: Extracted factors from the factor analysis.



5.10 Discussion of empirical results

The study has revealed that the age of both males and females was the only variable that shows a significant difference ($t = 1.93$, $p < 0.05$), while there were no significant differences that was recorded from variable such as taboo know, belief, practice, adhere as well as the constraints on egg consumption. There was no difference in beliefs concerning milk products between men and women and the beliefs associated with masculinity or femininity were found to be the biggest contributing factor when it comes to the food selection based on gender, this is because women are mostly prone to the restrictions based on their fertility status, pregnancy as well as the quality of breast milk. When the differences in dietary intake were identified across all the occupational groups, they were proven to vary in terms of gender of the respondents. The different types of food taboos or restrictions that exist in several communities across the globe are usually associated with the perception of mental health, risk of delivery during labour and other health-related conditions. The introduction of eggs in the diet depends on factors such as the perceptions of the public, local knowledge as well as those practices that are associated with the consumption of eggs through an available and cultural food source. The food intake is influenced by dietary patterns, for instance young age males that are more educated, with good socioeconomic conditions are with meat and egg-based patterns.

Table 9: Probit regression analysis of the determinants of knowledge, practice, belief, and adherence, to socio-cultural reasons for egg consumption.

The results recorded in Table 8 indicate that the explanatory variables that are responsible for determining the knowledge of respondents on food taboos are gender, employment status, occupation type, source of information, price information on eggs, chronic illness, affordability, who purchase eggs in the family, the frequency of purchasing eggs, use for sacrifice, educational level, age, constraints, taboo belief, taboo practice, taboo adhere and the constrains on egg consumption. The explanatory variables were found to be statistically significant in determining the adherence to taboos on egg consumption were the gender of the respondents, employment status, source of information, chicken ownership, egg production, price information, source of purchase, who purchases eggs, frequency of purchasing eggs, when do you buy

eggs, affordability, when do you eat eggs, level of income, age, the use of eggs for sacrifices, taboo know, taboo belief and taboo practice.

The explanatory variables that have an influence on the practice of taboos associated with the consumption of eggs are the employment and marital status of the respondents, their occupation, consumption frequency, egg production, price information, source of purchase, frequency of purchasing eggs, who purchases eggs, when do you eat eggs, use of eggs for sacrifices, favourite part of the egg, income, education level, taboo know, taboo belief and taboo adhere. The factors that influence beliefs of taboos associated with egg consumption are gender, employment status, occupation type, source of information, price information on eggs, chronic illness, affordability, who purchases eggs in the family, the frequency of purchasing eggs, use for sacrifice, educational level, age, taboo know, taboo practice, and taboo adhere on egg consumption. The explanatory variable variables that are responsible for determining the constraints associated with the consumption of eggs are knowledge of taboos, taboo adherence, taboo belief, and taboo practice, marital status, gender, occupation, employment status, chronic illness, source of information, egg production, chicken ownership, price information, source of purchase, consumption frequency, purchasing frequency, when do you eat eggs, use of eggs for sacrifices, favourite part of an egg, education, and income level.

The explanatory variables such as taboo know, taboo belief, taboo practice, taboo adhere, use of eggs as sacrifices, who purchases eggs, frequency of purchase, gender, employment status, price information, egg production, time of the day to eat eggs, source of information, were found to be significant in determining the knowledge, belief, adhere, practice of taboos associated with the consumption of eggs as well as the constraints. Several studies have reported that gendered food selection is mostly influenced by the masculinity and femininity, although women are facing various food prohibitions when it comes to the fertility status, pregnancy, or the quality of breast milk. The components such as gender, delivery risks, perceptions of mental health and other health conditions that are associated with the taboos /restriction or inhibition of consuming various types of food products was measured across all occupational groups in the study population and were varying by differences in dietary intake. Food intake and dietary patterns are mostly influenced by socioeconomic conditions, gender, the nutrition knowledge has a positive relationship with the dietary behaviour which

implies that the dietary behaviour is likely to increase as the nutritive knowledge increases and the gender variation was found to exist amongst food habits, taste as well as moral emotions. Dietary choices are influenced by cultural practices and beliefs, cultural values and food taboos, misconceptions, and food taboos, nutrition education unaffordability and unavailability, culturally derived norms, gender, age- and gender-differentiated taboos, pregnancy outcome, labour, and undesirable body form, cultural dictates, individual characteristics, and societal context.

Table 11: Parameter estimates in the multi-nominal logit regression analysis.

The factors that were found to be significant at 5% level for determining the consumption of eggs on a daily basis were, the age of the respondents, affordability, number of children per household, time of the day to consume eggs, who purchase eggs, source of purchase, knowledge on food taboos, knowledge of nutritive value of egg and the income level. The unequal distribution of health outcomes is influenced by economic, cultural, and social resources, taste, convenience, price, habits, practical skills, and cultural or environmental factors prompting an individual's food choice. Nutrition knowledge is another critical factor influencing food choice, though the increase in nutrition knowledge alone cannot lead to a very high change in dietary behaviour. The variables that were found to be significant at 10% level in determining the consumption of eggs once-in-a-week were knowledge of the taboos, who cooks eggs in the family, who purchase eggs, source of purchase and the level of income. The attitudes of the dietary groups concerning pescatarians, vegetarians and animals vary significantly, furthermore, there is a wide significant difference in the types of food taboos or restrictions that exist in the rural areas and the urban areas. The food habit and taste vary with gender and women are five percent lower than men. Similarly, the great moral emotions and the holding of fewer justifying consumption of animal products is mostly experienced by women than men. The explanatory variables that were significant for determining the consumption of eggs once in two weeks at 0.05 level were time of the day to consume eggs, level of income, occupation as well as egg affordability. The dietary choices of women during pregnancy rely heavily on their beliefs and cultural practices. The cultural values and food taboos exempted mothers from eating meat in Cameroun. Misconceptions and food taboos exist, due to the beliefs. Specific nutrition knowledge improved the implementation of healthy dietary practices among women. In low-middle-income countries, the barriers to egg

consumption are unaffordability and unavailability, cultural beliefs, and social taboos. Food taboos limit egg consumption because of culturally derived norms. Improved maternal nutrition practices and dietary diversities among women are attributed to improved knowledge, self-efficacy, and perceptions of social norms, while found gender as the social determinant of differences in food group consumption.

Table12: Principal Component Matrix of sociocultural factors of egg consumption.

The Kaiser criterion (1960) was used to extract seven components based on the responses obtained from the households in rural areas of the KwaZulu-Natal province, the Eigenvalues, and factor loadings that are more or equal to ± 0.300 that were utilised in the selection of underlying the number and types of factors that explains the data and the quantification of the explained variance. Similarly, if the component loading is greater than 0.30 then it makes a significant contribution to the derived component of the study, therefore there was a proper expression of all the items on the PCA that explain each component on the scale. The components and their significance at one percent level of probability were identified using the variables with factor loadings that is greater or equal to ± 0.346 at 10% overlapping variance, therefore the variables with the lowest factor loading were excluded. The relationship between each variable and the other variables as well as the association between the variables is illustrated by the commonalities and they also show the squared multiple correlation between each variable and the others. The component that was least explained by the study was the consumption of eggs during pregnancy with a factor loading of (0.283). Figure one reveals that the extracted components for adherence, practice, knowledge, and belief on sociocultural reasons for the consumption of eggs are labelled as follows: factor 1 (taboo knowledge) which accounts for 21.71% variance, factor 2 (taboo consequence) which accounts for 9.93% variance, factor 3 (taboo practice) which accounts for 6.70% variance, factor 4 (taboo adherence) which accounts for 5.87% variance, factor 5 (taboo belief) which accounts for 4.99% variance then factor 6 and 7 which represent taboo negligence and taboo implications accounting for 4.38% and 3.47% variance respectively, all the seven factors have accounted for an aggregate variance of 57.03%.

These results concur with Bartlett's Test of Sphericity with a value of $X^2 = 3573$ $p = 0.00$, and Kaiser Meyer-Olkin Measure of Sampling Adequacy of 0.358. The factor loading weight of the variables was used to measure their impact on the extracted components. The significant variable under the knowledge component includes taboo practice, taboo adhere, taboo know, taboo belief, egg consumption lead to eczema, wounds, boils, nail loss, hair fall, disabled child, period flow, appetite for sex, shortened period overflow, women behave like a chicken during labour, search everywhere for sex and causes a rash. The taboos influence the ever-changing and complex processes of various food practices and knowledge sharing as indicators of local knowledge, furthermore it was revealed that most women were adhering to cultural food taboos and practices and that the avoidance of certain food products was attributed to reasons associated with pregnancy outcomes.

The items that underlie the consequences component were loss of nails, reduced breast feeding (practice), allergies (belief), increased blood (practice), pregnant woman should not eat eggs (know), bluish discoloration in the baby (practice), allergies (practice), consumption lead to bald babies (practice), increases the blood (adhere) and eggs assist in the process of milk production in lactating mothers

The diversity of available edible products is restricted by the taboos. The cultural beliefs and the food taboos continue to decrease the consumption of food that are rich in nutrients, which further causes an increase in nutrient vulnerability. There is wide variety across communities and food items in terms of food taboos that are used to sustain the identity as well as the punishment for food taboos.

The practice component was comprised of items such as constraints, children should avoid egg consumption (practice), eggs improve the development and functioning of the brain, lead to fear of maturity (adhere), lead to susceptibility to ear problems (practice), cause susceptibility to rashes (belief), eggs make girl child promiscuous (know) and the fear of early puberty (adhere). The items that were found to be underlying the adherence components were, a wife that has just married should not consume eggs as it's a taboo according to tradition (adhere), eggs lead to prolonged monthly period overflows (adhere), lead to fear of early puberty (practice), cause the baby to have umbilical cord related problems (adhere) , lead to prolonged monthly period overflow (practice), increase libido in girls (practice) and reduce the period of

breastfeeding (know). The factors such as the characteristics of the individual, the context of the society as well as cultural practices plays huge role in influencing the adherence to food taboos. These food taboos are usually more prevalent during the period of pregnancy and thus have an impact on the quantity and quality of nutrients consumed by the children and mothers as well as the frequency of consuming these nutrients. The adherence to various food taboos that are usually imposed by older women to younger women are largely influenced by factors such as social dimensions and societal pressure, although these taboos seem to be losing relevance lately. The adherence to food taboos is commonly associated with the fear of being rejected and the anxiety of being reprimanded.

The belief component was made up of items such as pregnant women should avoid consuming eggs (belief), eggs cause pregnant women to have more appetite for sex (practice), eggs increase sexual desire in pregnant women (adhere), and eggs causes pregnant women to have much appetite for sex (belief). The negligence factor is composed of items such as consumption of eggs during pregnancy will cause the child to be mute and egg remain a food product of high-quality nutrients for adults and lastly the implication factor is comprised of Eggs that assist in long-term memory. The ethnic cultural beliefs and local taboos put a restriction on the consumption of certain food items, these two factors, together with the decline in the consumption of foodstuffs that are rich in nutrients, shape the food practices in society.

In Table 11, the explanatory variables that determine the knowledge of taboos are taboo belief, taboo adherence constraints, taboo practice, the frequency of purchasing eggs, the use of eggs for sacrifices, price information on eggs, age, level of education, source of information, chronic illness, affordability of eggs, price information, who purchases eggs in the household, gender, employment status and occupation. The explanatory variable that was found to be significant in determining the adherence on taboos associated with the consumption of eggs are the frequency of purchasing eggs, the favourite part of the egg, source of information, price information on eggs, egg production, who purchase eggs in the household, affordability, source of purchase, employment status and the gender of the respondents.

CHAPTER 6 : Summary, Conclusion and Recommendations

6.1 INTRODUCTION

This marks the last chapter of this research paper, and it entails the summary of the results that are recorded in this paper, it further refers to the objectives of the study and outlines how these objectives were met by the results of this study. Furthermore, it outlines the conclusion remarks based on the findings of the study and provides possible remedies and recommendations that have the potential to redress the current misconceptions associated with the consumption of eggs in the study area, in an attempt to increase the frequency of egg consumption.

6.2 SUMMARY OF THE RESULTS

The study aimed to analyse the socio-cultural factors affecting egg consumption in the selected municipalities of KwaZulu-Natal province. This study endeavoured to achieve the following objectives: To examine the egg consumption, patterns, and forms, identify the socio-economic characteristics associated with food taboos on eggs in KZN, to identify the specific taboos and factors underlining food taboos on eggs in KZN, examine the effects, level of prevalence and adherence of food taboos on egg consumption in KZN, to ascertain the level of awareness, knowledge, and extent of belief in food taboos on eggs in KZN and Explore relationships among effects, prevalence, awareness, knowledge constraints enhancing adherence to the food taboos on eggs in KZN. Furthermore, the study has set out questions to be addressed in an attempt to achieve these objectives, and the answers to these research questions are discussed below.

The frequency table two in chapter four, shows the consumption patterns and trends of eggs in KZN and based on the table, it can be noted that more than half of the population that participated were found to be consuming eggs only once a week, it further revealed that most of the respondents preferred extra-large sized of eggs over the small sized ones. Furthermore, the study has revealed more than tow third of the participated population focuses on the size of the egg over other attributes of an egg while making a decision to purchase. The stores where proven to be a source of purchasing eggs for the majority of the respondents.

The study revealed that the stores are the largest source of information regarding the egg prices for more than half of the participated population and only few members were found to be depending on the neighbours for this kind of information. The study revealed that eggs were always readily available in the market and accessible to more than half of the population and they can afford to purchase these eggs but not all the time. Furthermore, it was revealed that consuming eggs in the form of fried eggs is one of the most common ways of consuming eggs by most of the respondents in the area where the study was conducted. The study also revealed that in the households of more than half of the population, there were no restriction as to who should cook eggs in the family and most of the respondents have reported that they always purchase eggs in the quantity of 30 eggs (2.5 dozen). It was further revealed that two third of the participated population did not have a specific part of the egg that they enjoy the most, instead they loved the whole egg. The study revealed that more than two-thirds of the participants were consuming the eggs all year round and were consuming the eggs even during the disease outbreak and most of these respondents were reported to be consuming eggs during breakfast, lastly it was revealed that the majority of the respondents do use eggs for sacrificial purposes.

The study has revealed that indeed the consumption patterns and trends of eggs in Kwazulu-Natal are indeed being influenced by the food taboos and this is evident in Table 7 of estimates of parameters in the multinational model where the knowledge of taboos on eggs was found to be significant in impacting these patterns and trends.

As recorded in frequency table four and five in chapter four, the study has revealed that food taboos associated with the consumption of eggs in Kwazulu-Natal are that consumption of eggs makes girl child promiscuous, increases the sexual desire in girls, leads young girls to seek out sexual relationships with boys, speeds maturation process and the last but not least is that children should not eat eggs.

According to the results in Table 8, level, tory variables that are responsible for determining the knowledge of respondents on food taboos are gender, employment status, occupation type, source of information, price information on eggs, chronic illness, affordability, who purchase eggs in the family, the frequency of purchasing eggs, use for sacrifice, educational level, age, constraints, taboo belief, taboo practice, taboo adhere and the constrains on egg consumption.

The explanatory variables were found to be statistically significant in determining the adherence to taboos on egg consumption were the gender of the respondents, employment status, source of information, chicken ownership, egg production, price information, source of purchase, who purchases eggs and frequency of purchasing eggs amongst others.

The explanatory variables that have an influence on the practice of taboos associated with the consumption of eggs includes the employment and marital status of the respondents, their occupation, consumption frequency, egg production, price information, source of purchase, frequency of purchasing eggs, who purchases eggs, when do you eat eggs, use of eggs for sacrifices amongst others.

The explanatory variables such as taboo know, taboo belief, taboo practice, taboo adhere, use of eggs as sacrifices, who purchases eggs, frequency of purchase, gender, employment status, price information, egg production, time of the day to eat eggs, source of information, were found to be significant in determining the knowledge, belief, adhere, practice of taboos associated with the consumption of eggs as well as the constraints.

The study has revealed that the food taboos have a negative impact on the consumption of eggs in KZN and this is evident on table seven on chapter four, where knowledge of the respondents' concerning taboos on egg consumption was found to be negatively significant, which means that these taboos influence the egg consumption in KZN negatively. This means that the more people in KZN becomes knowledgeable in these taboos, they become less likely to consume eggs and thus the frequency of consumption will decline.

The study furthermore revealed that more than half of the participated population had information on taboos associated with the consumption of eggs however only few of these respondents believed these taboos on egg consumption.

The constraints that were found to be enhancing the adherence to the food taboo on egg consumption in Kwazulu-Natal were the irregular supply of eggs to the market, distance away from the market centres, as well as the lack of storage facilities.

6.3 CONCLUSION AND RECOMMENDATIONS

This study aimed to investigate and analyse the factors that influence knowledge, belief, adherence and practice and their impact on the socio-cultural reasons that affect the consumption of eggs in the KwaZulu Natal province of South Africa, because the consumption per capita of eggs is lower in this country. The study has employed the descriptive and quantitative research design and has covered the sample size of 125 household. It has revealed that girls and women are the most common victims of the existing food taboos that are associated with the consumption of eggs in the society, furthermore, it also revealed that variables such as taboo know, taboo belief, taboo practice, taboo adhere, use of eggs as sacrifices, who purchases eggs, frequency of purchase, gender, employment status, price information, egg production, time of the day to eat eggs, source of information, were found to be significant in determining the knowledge, belief, adhere, practice of taboos associated with the consumption of eggs as well as the constraints. The factors that were extracted by the Principal Components analysis taboo knowledge, taboo consequences, taboo practice, taboo adherence, taboo belief, taboo negligence, and taboo implications. The study has successfully addressed all the research questions that it endeavoured to address, and all the objectives have been also achieved. Therefore, the study concludes that cultural reasons exercise greater influence on egg consumption than socioeconomic, economic, and availability factors.

It is therefore recommended that interventions such as educational programs that encourage healthier eating behaviours should be designed and implemented, these programs should be designed in a way that will incorporate culturally relevant approaches that people in Kwazulu-Natal can resonate with, to enhance their potential effectiveness in improving the frequency of egg consumption. Institutions such as the South African Poultry Association working together with the local Department of Agriculture and Rural Development as well as the local department of health can play a vital role in implementing these programmes. Furthermore, it is recommended that future research should delve deeper into the history of the specific cultural norms, beliefs, and practices surrounding egg consumption within the region.

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APPENDICES

APPENDIX A : Ethical clearance letters



14 August 2023

Prof Oladimeji Idowu Oladele (44197)
School Of Agri Earth & Env Sc
Pietermaritzburg Campus
Dear Prof Oladele,

Protocol reference number: HSSREC/00005889/2023

Project title: Socio-cultural factors affecting egg consumption in Kwa-Zulu-Natal Province, South Africa. **Selectives 02**

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 13 July 2023 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 14 August 2024.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished. HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Yours sincerely,



Professor Dipane Hlalele (Chair)

APPENDIX B : Questionnaire



Questionnaire on Socio-cultural factors affecting egg consumption in Kwa-Zulu- Natal Province, South Africa.

This questionnaire is to help in the Identification and documentation of Socio-cultural factors affecting egg consumption in Kwa-Zulu- Natal Province, South Africa,. Specifically to examine the egg consumption, patterns, and forms, identify the socio-economic characteristics associated with food taboos, identify specific food taboos and factors underlining food taboos on eggs, examine the effects, level of prevalence, and adherence of food taboos on egg consumption, ascertain the level of awareness, knowledge, and extent of belief in food taboos on eggs and explore relationships among effects, prevalence, awareness, knowledge constraints enhancing adherence to the food taboos on eggs in KZN.

Section 1: Socio-economic characteristics

Characteristics	Response Options
Age	
Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
Education level	<input type="checkbox"/> None <input type="checkbox"/> Primary <input type="checkbox"/> High school <input type="checkbox"/> College <input type="checkbox"/> University
Marital status	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Widow <input type="checkbox"/> Cohabiting <input type="checkbox"/> Separated
Number of children	

Monthly income level	<input type="checkbox"/> less than 15000 <input type="checkbox"/> 15000-20,000 <input type="checkbox"/> 21000 - 25000 <input type="checkbox"/> Above 25000
Employment	<input type="checkbox"/> Employed <input type="checkbox"/> Unemployed
Occupation	<input type="checkbox"/> Artisan <input type="checkbox"/> Farmer <input type="checkbox"/> Government Employee <input type="checkbox"/> Manager <input type="checkbox"/> Others.....
Religious affiliation	<input type="checkbox"/> Christian <input type="checkbox"/> Muslim <input type="checkbox"/> Hindu <input type="checkbox"/> Traditional <input type="checkbox"/> Others.....
Sources of information on food and health	<input type="checkbox"/> Television <input type="checkbox"/> Internet <input type="checkbox"/> Newspaper <input type="checkbox"/> Journal <input type="checkbox"/> Book
Do you have any chronic sickness /known disorders	<input type="checkbox"/> Cholesterol <input type="checkbox"/> Cardio-vascular <input type="checkbox"/> Diabetes <input type="checkbox"/> Obesity <input type="checkbox"/> None

Egg consumption

Consumption features	Response/ Options
Household chicken ownership	<input type="checkbox"/> Yes <input type="checkbox"/> No
Household chicken egg production	<input type="checkbox"/> Yes <input type="checkbox"/> No
What is the frequency of egg consumption?	<input type="checkbox"/> Everyday <input type="checkbox"/> Once a week <input type="checkbox"/> Once in two weeks
What kind of eggs do you prefer?	<input type="checkbox"/> Extra Large <input type="checkbox"/> Big <input type="checkbox"/> Medium <input type="checkbox"/> Small
What attributes do you pay attention to when purchasing eggs	<input type="checkbox"/> Size <input type="checkbox"/> Color <input type="checkbox"/> Shape <input type="checkbox"/> Type of bird <input type="checkbox"/> others....
Source of purchase of eggs	<input type="checkbox"/> Stores <input type="checkbox"/> Farmgate
Price information about eggs	<input type="checkbox"/> Stores <input type="checkbox"/> Market <input type="checkbox"/> Neighbors <input type="checkbox"/> Others.....
Availability of eggs in the market	<input type="checkbox"/> Readily available <input type="checkbox"/> Occasionally available <input type="checkbox"/> Not available
Egg affordability	<input type="checkbox"/> Yes always <input type="checkbox"/> Yes sometimes <input type="checkbox"/> Not affordable

Forms of consumption	<input type="checkbox"/> boiled, <input type="checkbox"/> scrabbled, <input type="checkbox"/> fried, <input type="checkbox"/> sandwiched, omelet
Who cooks eggs in the family?	<input type="checkbox"/> Wife <input type="checkbox"/> Husband <input type="checkbox"/> Children <input type="checkbox"/> Anyone <input type="checkbox"/> Others.....
Who purchases eggs in the family?	<input type="checkbox"/> Wife <input type="checkbox"/> Husband <input type="checkbox"/> Children <input type="checkbox"/> Anyone <input type="checkbox"/> Others.....
How frequently do you purchase eggs?	<input type="checkbox"/> Everyday <input type="checkbox"/> Once a week <input type="checkbox"/> Once in two weeks
Quantity of eggs purchased	<input type="checkbox"/> 6 <input type="checkbox"/> 18 <input type="checkbox"/> 30
Which part of eggs do you like most?	<input type="checkbox"/> whole egg, <input type="checkbox"/> egg yolk <input type="checkbox"/> white internal part
Seasonal consumption of eggs	<input type="checkbox"/> Winter <input type="checkbox"/> Summer <input type="checkbox"/> Autumn <input type="checkbox"/> Spring <input type="checkbox"/> All year round
Consumption of eggs during a disease outbreak	<input type="checkbox"/> Yes <input type="checkbox"/> No
When do you like to consume eggs	<input type="checkbox"/> Breakfast, <input type="checkbox"/> lunch, <input type="checkbox"/> supper, <input type="checkbox"/> in-between meals
Do you use eggs for sacrifices?	<input type="checkbox"/> Yes <input type="checkbox"/> No
When do you use eggs for sacrifice	<input type="checkbox"/> seriously sick <input type="checkbox"/> as recommended

Knowledge of the nutritive values of Eggs

Please indicate if the following statements on nutritive values of eggs are true or false

Nutritive Values	True	False
Eggs can help to maintain weight loss over time		
Eggs safeguard pregnancy development		
Eggs can help preserve vision and eye health		
Eggs help to build healthier bones		
Eggs consumed moderately do not increase blood cholesterol		

Eggs contain high disease-fighting dietary bioactive compounds		
Eggs reduce the risk of blindness in older adults		
Eggs protect against stress		
Eggs prevent neural tube defects		
Eggs prevent depression and fatigue		
Eggs provide complete protein and several micronutrients critical for growth and development		
Egg remains a food product of high nutritional quality for adults		
Egg remains a food product of high nutritional quality for elderly people		
Egg remains a food product of high nutritional quality for children		
Eggs contribute to foetus development processes		
Eggs have the highest protein quality		
Eggs have the highest scores of high digestible indispensable amino acid score		
Eggs improve birthweight and length and gestational age		
Eggs prevent preterm birth and other adverse birth outcomes		
Eggs provide a large proportion of the Recommended Dietary Allowance (RDA) or adequate intake (AI) for young children		
Eggs provide a large proportion of the Recommended Dietary Allowance (RDA) or adequate intake (AI) for pregnant women		
Eggs provide a large proportion of the Recommended Dietary Allowance (RDA) or adequate intake (AI) for lactating women		
Consumption of eggs during lactation may also enhance the breast-milk composition of choline and other water-soluble vitamins		
Eggs help milk production by lactating mothers		
Eggs improve child development and important physiological processes in the brain		
Eggs deliver nutrients and other hormones or immune factors in compounds that are more readily absorbed and metabolized		
Eggs help cognition and visual acuity		

Eggs contain essential macronutrients and micronutrients helping brain health-promoting effects		
Eggs help long-term memory		
Eggs improve brain development and functioning throughout the lifecycle		

Taboos on Eggs

Please indicate your knowledge, belief, practice and adherence to the following taboos on eggs. A tick is yes, X is no

Taboos on eggs	Know it	Belief it	Practice it	Adhere to it
Eggs cause constipation				
Eggs cause heartburn				
Pregnant women should not consume eggs				
Consumption of eggs by pregnant women <i>causes them to have too much appetite for sex</i>				
Consumption of eggs by pregnant women makes them search everywhere for sex				
Consumption of eggs by pregnant women translates promiscuous to an unborn girl child				
Consumption of eggs makes girl child promiscuous				
<i>We are told by our elders that eggs are traditionally taboo for women just-married wife</i>				
<i>We are told by our elders that eggs are traditionally taboo for women pregnant women</i>				
Consumption of eggs by pregnant women will lead to having a disabled child				
Consumption of eggs by pregnant women will lead to having a baby behaving like the animals				
Consumption of eggs by pregnant women will lead to having a child becoming a thief				

Consumption of eggs leads to the fear of early maturity for the child				
Consumption of eggs leads to the fear of early puberty for the child				
Consumption of eggs leads to susceptibility to diseases				
Consumption of eggs leads to susceptibility to respiratory problems				
Consumption of eggs leads to prolonged monthly period flows				
Consumption of eggs leads to shortened monthly period flows				
Consumption of eggs leads to susceptibility to eczema				
Consumption of eggs leads to susceptibility to ear problems				
Consumption of eggs leads to susceptibility to boils				
Consumption of eggs leads to susceptibility to rashes				
Consumption of eggs leads to susceptibility to wounds				
Consumption of eggs leads to susceptibility to falling out/no hair				
Consumption of eggs leads to susceptibility to always losing nails				
Consumption of eggs leads to susceptibility to the baby having problems with the umbilical cord				
Consumption of eggs leads to Fetus becoming big				
Consumption of eggs leads to prolonged and difficult labor & delivery				
Consumption of eggs leads to sterility				
Children should not eat eggs				
Consumption of eggs during pregnancy leads to the child may be mute				

Consumption of eggs during pregnancy leads to the child may be dumb				
Consumption of eggs during pregnancy leads to the child may be stuttering				
Consumption of eggs by young girls increase the sexual desire in girls				
Consumption of eggs by young girls increase seeking out sexual relationships with boys				
Consumption of eggs during pregnancy leads to bald-headed babies,				
Consumption of eggs cause a pregnant woman to behave like a chicken during delivery				
Consumption of eggs during pregnancy cause overweight in the fetus				
Consumption of eggs during pregnancy contributes to difficulties during childbirth and possible death of the mother				
Egg as a “Hot” food should be consumed during the last stage of pregnancy to aid the expulsion of the fetus				
Consumption of eggs during pregnancy causes jaundice				
Consumption of Raw or boiled eggs facilitates labor during childbirth				
Consumption of eggs speeds maturation process				
Consumption of eggs increases the blood				
Consumption of eggs cause bluish discoloration in the baby				
Consumption of eggs creates allergies				
Eggs consumption by children reduces breastfeeding duration				
Others				

Other Constraints to egg consumption

Please indicate the other constraints you experience in relation to egg consumption
A tick is yes, X is no

Constraints	Yes	No
Irregular supply		
Distant market centres		
Conflicting media reports on consumption		
Inadequate preparation and cooking skills		
Lack of knowledge on the nutritional value		
Fear of antibiotics residues		
Short-shelf life		
Lack of storage facilities		