

## A SURVEY ON THE KNOWLEDGE AND USE OF QUAIL EGGS IN THE EFFUTU MUNICIPALITY OF THE CENTRAL REGION – GHANA.

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### ABSTRACT

*This descriptive survey focused on investigating consumers' knowledge of quail eggs, frequency of consumption, and motive of usage among the people of Effutu in the central region of Ghana. Multi-stage sampling techniques (stratified, simple random, and purposive) were used to select a sample size of 392. Data collected with the questionnaire were analysed and presented in descriptive statistics. The Results indicated that out of the 392 respondents, 239 (61%) had knowledge about quail eggs, 127 (53%) of the respondents used quail eggs, and 62 (49%) of those who had ever used the eggs consumed them daily for medicinal purpose rather than food with the majority (87.1%) revealing that they experienced positive results in their health conditions after using the quail eggs. It could be concluded that most Effutu people know about quail eggs but the consumption rate is rather low with the motive of managing degenerative diseases such as hypertension, diabetes, and kidney problems but not as food. Increased education will enhance awareness and patronage of quail eggs and help ameliorate malnutrition since quail eggs are highly nutritious.*

**Keywords:** Food, Malnutrition, Consumption, Health, Diseases

### INTRODUCTION

Food is indispensable for living as it is an important source of nutrients for the body (Sizer & Whitney 2022). Nutrients specified as proteins promote growth, repair, and replace raddled out tissues; carbohydrates and fats provide the body with heat and energy; vitamins protect the body against infections and diseases, while mineral elements boost body processes. Dietary fibre is needed to keep the digestive system healthy and stabilize glucose and cholesterol levels (School of Exercise & Nutrition, 2019). All these are needed in a diet to make it balanced leading to good nutrition and good health. The body drifts into a state of malnutrition when it is provided with inappropriate quantities or inadequate food nutrients as required by an individual over a period (Williams, & Berkley, 2018).

The problem of malnutrition, precisely protein deficiencies, is a growing 'canker', which has increased concern over dietary protein sources, particularly in addressing undernourishment in the world. Meanwhile, consumers all over the world have shown much interest in the nutrient compositions of the food they consume (Jeke, Phiri, Chitiindingu & Taru, 2018). This is evident in the shift from the consumption of red meat such as beef and mutton to fish and white meat like poultry and rabbit as consumers have become more concerned about saturated fat and its

correlation with high blood cholesterol and cardiovascular diseases (CVDs) (Miranda et al. 2015).

As indicated by the Food and Agriculture Organization (FAO, 2009) and Aning (2006), a larger proportion of Africans consume 1.2 kg of meat and 12 eggs per person per year, which is woefully inadequate as compared to the world's average of 9.7 kg of meat and 154 eggs per person per year. Odunsi, Rotimi, and Amao (2007), reported that animal protein constitutes about 17% of the total protein consumption in the average Nigerian diet compared to other developed nations with 68% in New Zealand, 71% in the United States of America, 67% in Denmark and 60% in the United Kingdom (Mohammed & Ejiofor, 2015).

Similarly, as indicated by Coomson, (2022) Ghana is among other developing countries experiencing the double burden of malnutrition, with a high prevalence of both undernutrition and overweight/obesity. Steiner-Asiedu (2019), continued that, the country is currently faced not only with underweight and overweight but also hidden hunger from inadequate consumption of vitamins and mineral elements. The problem of malnutrition cuts across age groups, gender, and social status (UNICEF 2019; Steiner-Asiedu, 2019) and is mainly a result of population growth (El-Katcha et al., 2015), poverty, and hunger (UNICEF 2019). In Ghana, 19% of children under five are stunted, 5% wasted, and 11% underweight (Ghana Statistical Service (GSS), Ghana Health Service (GHS), & ICF International, 2015). Amponsem-Boateng (2017), reported that about 54% of all deaths beyond early infancy were associated with Protein Energy Malnutrition (PEM), making this the single greatest cause of child mortality in Ghana.

'Rearing for Food and Jobs', and the 'School Feeding Programs are intervention programmes being implemented in Ghana to promote food security which according to research (Geldenhuis, Hoffman & Muller, 2013), can help alleviate the problem of malnutrition through diversification of diet and supplementation where necessary with food sources that are readily available, accessible, and affordable to all such as eggs. Egg consumption has therefore become a popular choice for good nutrition as it is viewed as a complete food because it is nutrient-dense, less expensive, and readily available as compared to meat, fish, and milk (Griffin, 2016; Adigbo & Madah, 2011, Tull, 1996).

To this end, the incorporation of game birds such as quail (*Coturnix coturnix*), in food security programmes has been recommended, particularly for developing countries (Geldenhuis, et al., 2013). This is because identifying and promoting alternative poultry egg sources may boost egg supply and contribute to enhanced nutrient provision in human diets (Geldenhuis et al. 2013). This increase in supply will lead to a decrease in prices, thereby increasing affordability. Furthermore, the variation in egg quality and taste among poultry species may also provide consumers with a wider selection pool for eggs. In view of these, quail farming and for that matter quail egg is seen as one of the most promising alternatives to poultry eggs (Muthoni, 2014).

Furthermore, quail eggs have slightly lower fat contents compared to the corresponding chicken egg, suggesting that quail eggs could be a good egg source for consumers to choose from (Kudre, Kumar, Kanwate & Sakhare, 2018). Besides being a rich source of varied nutrients, regular consumption of quail eggs makes them natural combatants against digestive tract disorders such as stomach ulcers (Troutman, 2012). Kudre et al. (2018) opined that quail eggs also help treat tuberculosis, bronchial asthma, and even diabetes. They can also help prevent kidney, liver, or

gallbladder stones, and even remove these types of stones. Quail eggs are reported to be excellent in reducing the rate of aging, lowering cholesterol levels boosting libido. Despite the high nutritive value in addition to the therapeutic benefits, quail egg production and consumption seem to be negligible in most parts of Africa including Ghana as compared to that of chicken. This may be due to less awareness of its production and lack of or little knowledge of its nutritional and functional qualities coupled with myths and controversies (Bakoji et al., 2013; Mushava, 2016).

In the past decade, much research has focused on the consumption of quail eggs as food, nutritional supplement (Miranda et al. 2015 & Troutman, 2012) and for the cure of degenerative diseases especially in the Asian world. Quail eggs should be the best choice of protein over chicken eggs if the findings are credible enough to go by. However, it is still unclear how much is known about quail eggs in Africa, precisely, Ghana as the rate of degenerative diseases is on the ascendency coupled with malnutrition. Anecdotal data reveals that most Ghanaians seem to be ignorant about even the existence of these eggs and their benefits. Furthermore, there is limited documented evidence on the consumption of quail eggs as food, nutritional supplements, and for the cure of degenerative diseases in Ghana. It is against this backdrop that the study sets out to investigate the knowledge of the average Ghanaian on quail eggs and the possible motive for usage.

The objectives of the study were to: examine consumers' awareness of quail eggs; determine the rate of consumption of quail eggs and explore the motive of usage of quail eggs among the people of Effutu. The findings of this study will be significant in creating awareness about these wonder eggs thereby promoting their consumption while generating useful information which can be used by the Government and Non-Governmental Organizations (NGOs) to formulate and implement policies to promote quail farming as a viable source of protein and income generation. It will also authenticate purported information about quail eggs thereby adding to existing literature and presenting the basis for future studies.

## **METHODOLOGY**

This study employed the mixed method approach which relies on the collection of quantitative and qualitative data to answer research questions (Tegan, 2022). This approach was adopted to increase the credibility, contextualization, and generalizability of findings as indicated by Tegan (2022). Since the study involved describing, recording, analysing, and interpreting conditions that exist and information gathered could be meaningful or useful in diagnosing a situation, the descriptive survey design was utilized.

The target population was all inhabitants of Effutu municipality. This municipality has a population of 68,597 comprising 84.6% Christians, forming the highest proportion of the population followed by the population with no religion (9.2%) while Muslims ranked third with less than five percent (4.1%), with the traditional religion ranking last with one percent (1.0%). The accessible population was all inhabitants of Winneba specifically, Orthodox churches (Methodist, Catholic, Presbyterian churches) and Muslims within Winneba.

A sample size of three hundred and ninety-two (392) was recruited for the study multi-stage sampling techniques (stratified, simple random and purposive) which was justifiable based on Krejcie and Morgan's (1970) table which indicates that 381 respondents were a fair representation of a population of 55,331. Data was collected using a researcher-designed

questionnaire to offer an opportunity to sample the views of a larger population within a short time since it is a quicker way of collecting data and is also known to be quite valid reliable and well-structured (Seidu, 2006). A 21-item questionnaire in four (4) sessions was employed to gather data on the sociodemographic information of respondents, general information on quail eggs, usage of the eggs, and motive of usage. The instrument was duly validated and pilot-tested for reliability. Using the Cronbach's alpha model, the reliability coefficient of the instrument was calculated at  $\alpha = 0.75$ . These figures indicate good internal consistency as reliability coefficients of approximately 0.60 or greater are considered adequate according to social science literature (Loewenthal, 2004).

The questionnaire was administered to the respondents with the assistance of four (4) trained research assistants who served as coordinators. Respondents took about half an hour to complete the questionnaire and handed them over to the coordinator the same day. Data was analysed using the Statistical Package of Social (SPSS) and presented in descriptive statistics consisting of Frequency Counts, Percentages, Means and Standard Deviations were employed for all the demographic variables and research questions where necessary, were employed in answering research questions.

## RESULTS AND DISCUSSIONS

### Knowledge of quail eggs

Respondents were asked several questions to ascertain their knowledge of quail eggs and their responses are presented in Table I

**Table I: Awareness of consumers of quail eggs among the people of Effutu**

Questionnaire item	Frequency	Percentage %
<b>Consumers' awareness</b>		
Aware of quail eggs	239	61
Not aware of quail eggs	153	39
<b>Total</b>	<b>392</b>	<b>100</b>
<b>Number of years of knowing quail eggs</b>		
Below one year	79	33
Above one year	160	67
<b>TOTAL</b>	<b>239</b>	<b>100</b>
<b>Sources of quail eggs for consumption</b>		
Farm	201	84
Open market	25	10
Family and friends	6	3
Shops	7	3
<b>TOTAL</b>	<b>239</b>	<b>100</b>

Results indicated that out of the three hundred and ninety-two (392) respondents, 239 (61%) respondents indicated that they knew about quail eggs, and the majority, 160 (67%) of them had known it for over a year. Most 201 (84%) of those who knew the eggs obtained them from the farm among other sources. These results reveal that the respondents were not ignorant but were aware of quail eggs. This finding is corroborated by Majoni et al, (2018) who reported a high demand for quail and its products in Zimbabwe. On the contrary, Mushava, 2016 and Bakoji et al., 2013 reported that quail eggs are less known among populations in Africa. Considering the sources for obtaining quail eggs for consumption, the findings in this study are supported by a report by A Life of Heritage (2022) which indicated that quail eggs are predominantly sold at farms where these birds are reared, farmers' markets, and organic or specialty grocery stores.

### Frequency of Consumption of Quail Eggs among the People of Effutu

Respondents were asked to indicate whether they have ever used quail eggs and how often they used the eggs. The results are shown in Table II.

**Table II: Frequency of Quail Eggs Consumption**

Questionnaire item	Frequency	Percentage (%)
Ever used quail eggs	127	53
Never used quail eggs	112	47
<b>Total</b>	<b>239</b>	<b>100</b>
<b>Frequency of usage</b>		
Daily	74	58
Weekly	22	17
Occasionally	31	25
<b>TOTAL</b>	<b>127</b>	<b>100</b>

Result in Table II reflects that the majority 127 (53%) of respondents who knew about the eggs have ever used them and more than half of them used the eggs daily. One may argue that it is quite positive to know since the regular intake of eggs has been proven to boost the immune system and aid in the management of degenerative diseases like hypertension, diabetes, and the like (Kudre et al. 2018, Miranda et al. 2015 & Troutman, 2012). This notwithstanding, there is still room for improvement in the consumption rate of quail eggs juxtaposing the number who consume the eggs daily (74) to the total number of respondents who know about the eggs (239). In support of this argument, Moonga (2012) reported that the demand for quails is low in Zambia.

#### **The Motive of the People of Effutu in the Use of Quail Eggs**

Table III presents data to help in ascertaining the motive of respondents' use of quail eggs. To achieve this, the respondents were to indicate the reason why they use the eggs and whether the results they get are satisfactory.

**Table III: Motive of Consumers on the Use of Quail Eggs**

Questionnaire Item	Frequency	Percentage
<b>Purpose of usage</b>		
<b>Medicinal</b>	62	49.0
<b>Nutritional</b>	53	41.7
<b>Religious</b>	5	3.9
<b>Satisfy Curiosity</b>	7	5.5
Total	<b>127</b>	<b>100</b>
<b>Positive Results</b>		
<b>Yes</b>	54	87.1
<b>No</b>	8	12.9
Total	<b>62</b>	<b>100</b>

Respondents were asked about the purpose of usage and the results revealed that 62(49%) of the respondents used quail eggs for medicinal, followed by nutritional (41.7%), satisfying curiosity (5.5%), and religious (3.9%) purposes. The majority (87%) of those who used it for medicinal

purposes revealed that they experienced positive results in their health conditions after using quail eggs in treating their ailments.

This finding agrees with Oviawe, et al, (2022) confirming the nutritive and therapeutic benefits of quail eggs. Additionally, Tunsaringkarn, Tungjaroenchai, and Siriwong, (2013) proposed the use of quail for the prevention and treatment of conditions including diabetes. Similarly, Missimer et al. (2017), explained that the reduction in carbohydrates following the consumption of eggs is the likely cause of the reduction in the glycaemic load, which has been implicated in the control of glucose and lipid metabolism. The foregoing discourse gives a clear indication that most degenerative ailments common to people in both developed and developing countries could be effectively managed by the regular use of quail eggs. From this study, one can observe that, whereas a greater majority of the population is aware of quail eggs, the eggs are not only nutritionally good but may also play medicinal roles, like the prevention and management of some non-communicable and degenerative diseases, when consumed regularly.

## **CONCLUSIONS**

Following the findings and discussion so far, one can conclude in confidence that, most people of Effutu are aware of quail eggs and have basic knowledge about them. Their knowledge of quail eggs spans beyond a year. Secondly, it has been proven that the respondents' frequency of consumption of quail eggs is quite low considering the number who are aware of the eggs and the number that consume them. Furthermore, it has been found that most consumers of quail eggs do so with the motive of managing degenerative diseases but not as food.

## **RECOMMENDATIONS**

This study is quite novel as its kind is yet to be undertaken within the Effutu Municipality serving as a preliminary attempt to investigate the knowledge among the people of Effutu in the Central region of Ghana on quail eggs. Several issues erupted from the study which the researcher is of the view that the under-listed recommendations could help resolve.

Home Economists and nutritionists within the Effutu Municipality could embark on educating the people of Effutu and the general public on the nutritional and health benefits of quail eggs. This will increase awareness and patronage of quail eggs and help ameliorate the malnutrition menace. Consequently, as awareness and patronage increase, demand will automatically increase giving rise to its production and thereby increasing the profit margin of the farmers and creating employment in the long run.

It is also recommended that education can take different forms with special emphasis on public lectures and community outreach programmes. Educators could take advantage of social and mass media as they have wider coverage and cuts across age, gender, economic, and social status.

It is also highly recommended that Home Economists encourage households in the Effutu Municipality to venture into quail keeping like local chicken to make them readily available and save money while maintaining good nutrition and health. This could serve as a leisure activity that could be interesting and at the same time profitable for all members of households irrespective of age and gender.

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