

UNIVERSITY OF EDUCATION, WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

**NUTRITIONAL KNOWLEDGE OF WAITERS AND CHEFS IN SELECTED
RESTAURANTS IN THE BIRIM CENTRAL MUNICIPALITY**



MILLICENT BOAMPONG BEEAH

APRIL, 2021

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(190000109)

A Dissertation in the Department of HOSPITALITY AND TOURISM EDUCATION,
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Studies, University of Education, Winneba, and in partial fulfillment of requirement
for the award of the Master of Technology (Catering and Hospitality) degree.

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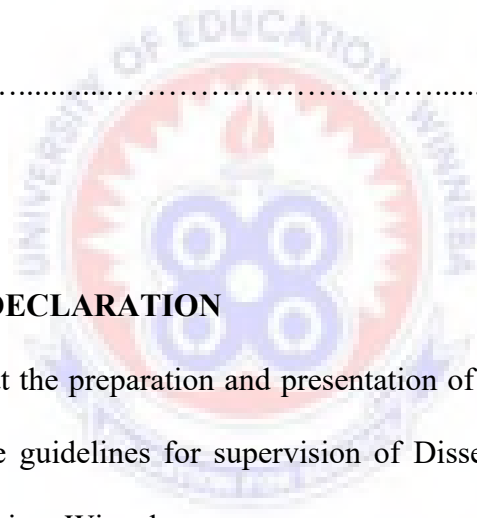
DECLARATION

STUDENT'S DECLARATION

I, MILLICENT BOAMPONG BEAAH, declare that this Dissertation, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE.....

DATE.....



SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of Dissertation as laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: DR. (MRS) DOREEN DEDO ADI

SIGNATURE:.....

DATE:.....

DEDICATION

This project is dedicated to my children; Selikem Kofiga Solaga and Kekleli – Bubuneh Eyiram Solaga for their comportment during the preparation of this thesis.



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ABSTRACT

Nutrition knowledge of waiters and chefs in restaurants is important for public health as number of meals consumers eat away from home is on the rise. The study aimed at assessing the nutritional knowledge of waiters and chefs in some selected restaurants in the Birim Central Municipality. Descriptive cross-sectional survey design was used for the study. The target population consisted of waiters, chefs and consumers of all the 50 licensed restaurants operating in Birim Central Municipality. Purposive sampling technique was used in selecting 169 waiters and 80 chefs from the various selected restaurants. Convenience sampling technique was used in selecting 278 customers. Questionnaire was developed to obtain the relevant information from the respondents. The study indicated the chefs and waiters at the various restaurants in Birim Central Municipality had knowledge on nutrition. The finding indicated that chefs and waiters perceived that good nutrition improves individual wellbeing, helps growth and manage a healthy weight, and increase an individual's energy level. The study discovered that there was a significant difference ($t= 6.832$, $df=169$, $p=0.000$ [$p<0.05$]) between knowledge on nutrition and gender of chefs and waiters. However, the mean difference between chefs and waiters knowledge on nutrition in different age group shows no significant association value ($F(df)=1.743$, $p=0.083>0.05$). Also, a significant difference was found between the educational level of chefs and waiters on their knowledge of nutrition ($F(df)=2.735$, $P=0.005<0.01$). The study concluded that the nutritional knowledge of chefs and waiters have effect on consumers patronage of the restaurant. It was recommended that the management of the restaurants should work together with the chefs and waiters to find innovative ways to improve chefs and waiter's knowledge and attitude towards nutrition in order to convince the public on making healthful selections when eating out.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Nutritional knowledge is important, particularly in the light of the rapidly expanding work population and threat of food population imbalance (Olawale & Olajumoke, 2015). According to Schofield and Mullainathan (2008), nutritional knowledge is one of the factors that affect nutritional status and nutritional habits of individuals, families, and societies. With this changing world, people prefer to eat out day-by-day as they have taken it to be a part of life. Everyone is getting busier in order to find ends meet for survival and so hardly have time to prepare nutrition meals with appropriate calories. The trend towards eating out in restaurants globally is on a constant increase, almost everywhere in the world whether it be for social reasons or travelling on business (Boo, Chan & Fatimah, 2018). It is evident that individuals and families are now more inclined to eat out than to enjoy a home cooked meal (Boo, et al., 2018; Sharma, Wagle, Sucher, & Bugwadia, 2014).

Nutritionally, food consumed from commercially prepared place like restaurants is the main source of obesity epidemic around the globe today (Jonas, 2001). Jonas (2001) indicated that puff-puff, buns, burgers, sandwiches etc are fall products of restaurants and these have the adverse effects of obesity. Dennison, Dennison and Frank (2014) on the other hand emphasized that the leading causes of death are related to nutrition components intakes. With these reasons, health consciousness is receiving a greater concern among the consumers, individuals or family particularly dealing on the types of food they consumed either outside or on daily meal prepared at home. In other

words, nutritional knowledge of chefs and waiters is important in developing healthy menus and promoting healthy food.

In restaurants, the role of chef and waiter is the most crucial factor influencing the variety of food stuffs, culinary effects and flavoring of products. The waiter and chef's knowledge, attitude and practices pertaining to nutrition and health are imperative to satisfy the expectations of consumers who are increasingly becoming conscious of nutrition and health. Anderson, Bell, Adamson and Moynihan (2001), also revealed that nutritional knowledge of waiters and chefs are key component in the continuing effort to convince consumers to change their eating habits and to seek out healthy food items when eating out. Nutritional knowledge of waiters and chefs is crucial if restaurants are to stay competitive in the future, as studies have shown that healthful food is accepted by customers only if the food appeals to the senses, looks exciting and tastes good (Rouslin & Vieria, 1998).

American Institute of wine and foods, restaurants and institution (1995) reported that fewer than 10% of respondents said restaurant foods was nutritionally satisfactory. The institute of Medicine (Reicher & Dalton, 1998) named insufficient background and training in nutrition and recipe modification among waiters and chefs as major barriers to offering healthful foods in food service establishments. On increasing demand of home away foods the incidence of metabolic disorders such as obesity, diabetes, heart diseases etc., also, is on the increase. This situation creates a challenging task to waiters and chefs of restaurants in providing nutritious and healthy food preparations with good taste and economic feasibility. This background present study focused on understanding the levels of waiters and chefs knowledge in relation to nutrition in some selected restaurants in the Birim Central Municipality.

1.2 Statement of the problem

Nutrition knowledge of waiters and chefs in restaurants is important for public health as number of meals consumers eat away from home is on the rise, the overall nutritional quality of the typical Ghanaian diet is on the decline (Gibson, Knight, Asante & Thomas, 2015). The United States Department of Agriculture (USDA) (2013) reported that the nutrient content of meals consumed away from home is failing to keep pace with the nutritional improvements in home-prepared meals. Compared with home-prepared foods, commercially prepared foods have greater amounts of dietary components, such as saturated fat and calories. This excessive consumption of fat and calories from commercially prepared meals is linked with the obesity epidemic. Jonas (2011) reported that 63% of men and 55% of women are overweight. Jonas affirmed type 2 diabetes, gallbladder disease, coronary artery disease, osteoarthritis, hypertension, and elevated serum cholesterol are from 50 to 500% more common in obese individuals than normal weight people due to the consumption of commercially prepared foods.

Because nutrition is a relationship between food preparation and health, there is the need for waiters and chefs to have adequate nutritional knowledge to prepare food in a way that the nutritional content would not be lost. However, not many chefs in restaurants are trusted to have adequate nutrition knowledge and food handling practices and this has led to the conclusion that not all foods eaten in restaurants are nutritious or healthy. In the same vein, researches have been carried out and revealed that consumers are now aware of the nutritional implication of food that are not prepared properly, hence the need for chefs in restaurants to put the knowledge of nutrition into practice if they want to remain in the business. FAO (2008) pointed out that the chemical reactions that occur during cooking vary as the item(s) being cooked

and the conditions under which the cooking takes place are put into consideration. Foods cooked by the chefs and additives that are included in the production of the food can affect the nutritional content of the food and effect on the consumer.

The food products that the chefs cook (animals and /or plants or their products) and the food additives (if any) included in most cases are complex organic compounds and in just a single food type there can be many different compounds. Much of the chemistry of cooking relates to the application of heat to these compounds, and heat generally has a tendency to affect the nutritional contents of foods. It is against this backdrop, that the present study is designed to investigate nutrition knowledge among waiters and chefs in some selected restaurants in the Birim Central Municipality.

1.3 Objective of the study

The main objective of the study is to assess the nutritional knowledge of waiters and chefs in some selected restaurants in the Birim Central Municipality.

1.4 Specific Objectives

The specific objectives of the study were to:

1. ascertain the nutritional knowledge level of waiters and chefs.
2. determine the perception of waiters and chefs on the importance of nutrition for the maintenance of an individual's health.
3. explore the significant relationships between socio-economic characteristics and knowledge of waiters and chefs on nutrition.
4. assess the influence of nutritional knowledge of waiters and chefs on consumers patronage of the restaurants.

1.5 Research Questions

The following research questions were used to guide the study

1. What are the nutritional knowledge level of waiters and chefs?
2. What are the perception of waiters and chefs the importance of nutrition for the maintenance of an individual's health?
3. Is there any significant relationships between socio-economic characteristics and knowledge of waiters and chefs on nutrition?
4. How does the nutritional knowledge of waiters and chefs influence consumers patronage of the restaurants?

1.7 Significance of the Study

The research finding will be beneficial to the restaurants to be conscious about nutrition. The finding of the study will help to reveal the nutritional knowledge level of waiters and chefs and also the importance of consuming nutritious food. The results of the research work will therefore be used as a basis for developing nutrition advisory services and nutrition education programmes for the chefs or kitchen of restaurants.

Moreover, the findings of the study may be used by Food and Drug Authority in Ghana and other organizations working in the promotion of consumption of nutrition and healthy food. Furthermore, as an academic research project, it could be used as the basis for further academic research into other related studies.

1.8 Delimitation of the study

The study was limited to waiters and chefs of the licensed restaurants in the Birim Central Municipality. The study specifically concentrates on nutritional knowledge level of waiters and chefs, the knowledge level of waiters and chefs on the

importance of nutrition for the maintenance of an individual's health consumers, and the significant relationships between socio-economic characteristics and knowledge of waiters and chefs on nutrition.

1.9 Organisation of the Study

The study report was organized into five chapters, references and appendices. The first chapter is the introduction. It highlights issues such as the background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study and delimitation of the study. The research questions provided by this chapter guided the entire study. The second chapter deals with a review of literature relevant to the study. The chapter review views on both theoretical and empirical literature relating to the subject.

Chapter three discusses the methodology for conducting the study. This chapter outlines the methods that were used in the study which includes issues such as research design, population, sample, and sampling procedure, data collection instruments, administration of instruments, and the data analysis procedure. Chapter four deals with the results and discussion of the data gathered from the field while chapter five covers the summary, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of Restaurant

A restaurant is a food and service establishment which offers and serves food and drinks to the guests in retention of money (Ninemeier, 1998). According to Yıldız (2010), restaurant businesses are explained as businesses in which customers have their private table and seat for sitting, a menu including food prices and where there is food and beverage presentation. In other words, restaurant is referred to a foodservice place typically providing tables where one can sit and eat a meal in a relaxed mood (Ali & Nath, 2013). Restaurants within the context of tourism are defined as (Hjalager & Corigliano, 2000) businesses meeting food and beverage needs of both tourists and locals. Hjalager (2002) also states restaurants as businesses in which the tourist can try indigenous food.

Restaurants primarily are sellers of "food service experience" (Yuksel & Yuksel, 2002). The food plays a significant role in the food and service establishments but there are many other factors that are important as well (Yuksel & Yuksel, 2002). Usually, meals are served and eaten inside of the restaurant, but many food and service establishments also offer take-out and food delivery services (Ninemeier, 1998). The restaurants have many advantages such as big territory of the dining area, visually attractive parking area. Usually, they offer different types of cuisine such as local, French, Italian and etc. Each type of cuisine has its own leaders (Spang, 2000). Restaurants can be also a part of a large complex, such as hotel, where the dining facilities are provided for convenience to customers of the hotel in order to maximize their potential revenue.

The term “restaurant” firstly appeared in the 16 century, meaning “a food which stores”, specifically a rich, highly flavored soup. It was applied to an eating establishment in around 1765, which was founded by Parisian soup-seller and called Boulanger (Ninemeier, 1998). The modern restaurant became known in 18th century in France as an establishment that prepares and serves the food and drinks according to the guests' order (Ninemeier, 1998). Restaurateur is called the owner of the food and service establishment. Words "restaurant" and " restaurateur" derived from the French verb, which means "to restore" (Wikipedia, 2011). The first restaurant known as standard location (customers sitting down with individual portions at individual tables, selecting food from menus, during fixed opening hours) was the Grand Teverne de Londres, founded in 1782 by a man Beauvillers (Ninemeier, 1998). According to the Guinness Book of Records, the Sobrino de Botin in Madrid, Spain is considered to be the oldest country hosting a restaurant. The first restaurant was opened there in 1725 (Ninemeier, 1998). Restaurants then extended rapidly across all over the world.

Restaurants, besides being places pursuing only dining service goals, become places acting as intermediaries for tourists' food experience in the tourist regions (Yüksel & Yüksel, 2002; Ardabili & Rasouli, 2011). In this respect, tourists evaluate the restaurants as one of significant qualities of a destination (Batra, 2008). From the point of destinations, restaurants are presented to tourists as an important gastronomic tourism product (Ignatov & Smith, 2006; Smith & Xiao, 2008). When the related body of literature is analysed, the businesses serving food and beverage to consumers out of their home (Edwards & Overstreet, 2009; Özdemir, 2010; Ali & Nath, 2013), are evaluated as commercial and non-commercial food and beverage businesses (Sökmen, 2006; Aktaş & Özdemir, 2007). Commercial food and beverage businesses are composed of hotels, cafe, transportation, shopping and businesses serving food and

beverage in parks and are profit oriented. Non-commercial food and beverage businesses are composed of non-profit businesses rendering food and beverage service within hospitals, educational institutions, jails, social institutions and military establishments (Sökmen, 2006; Aktaş & Özdemir, 2007; Edwards & Overstreet, 2009).

Restaurants are taking part in commercial food and beverage businesses (Çalışkan & Özdemir, 2011). It's remarkable that the restaurants classifications differ in terms of business management. For instance, Kılınç & Çavuş (2010) classify restaurants by, proprietary status, scale and specifications. In terms of proprietary status, restaurants are classified as independently owned and chain restaurants, in terms of scale as large, medium and small scaled restaurants and in terms of specifications as menu selection, restaurant compositions, luxury restaurants, themed restaurants, ethnic restaurants and quick service restaurants. Indeed, restaurants are stated to differ by qualifications such as service concept, atmosphere, menu and workers (Dahmer & Kahl, 2009; Bujisic, Hutchinson & Parsa, 2014). In this regard, American National Restaurant Association categorises restaurants as quick service, traditional, themed, luxury and other restaurants. (Canziani, Almanza & McKeig, 2010). Muller & Woods (1994), count business dinner restaurants in this classification and categorise restaurants as quick service restaurants, traditional, middle class, luxury and business dinner restaurants (Bujisic et al., 2014). Ottenbacher and Harrington (2007; 2009) categorise restaurants basically as table service and quick service restaurants.

Similarly, it's seen that there are differentiations in terms of quality such as luxury, middle and low class restaurants. In the relevant studies it is observed that the table service (luxury restaurant) and quick service restaurant differentiation is commonly used. For instance, Kim & Geistfeld (2003), sort restaurants as luxury and quick service restaurants and state that the luxury restaurants are higher level in terms

of time and cost. As for in the context of tourism, restaurants might emerge in different forms such as tourism oriented, mixed and chain restaurants (Cohen & Avieli, 2004). It's seen that indigenous restaurants appeal especially to local residents while tourism-oriented restaurants select tourists as target group. Mixed restaurants are defined as restaurants rendering service which appeals both to locals and tourists. Similarly, Yılmaz (2016) also states that restaurant may emerge in tourism destinations in five different forms including; hotel restaurants, group restaurants, boutique restaurants, ethnic restaurants, and kebab and pita restaurants. Hotel restaurants render service to package tour customers and their major attributes are open-buffet service and being located within the starred hotels. Group restaurants serve food for daily tour groups based on a special contract with travel agencies.

2.2 Food qualities of service delivery by Restaurants

According to Choi and Zhao (2010), there is for so long a discussion about what are the factors affecting consumers' restaurant selection. Consumers take their various requests and needs into consideration while deciding where to eat (Tikkanen, 2007). These requests and needs affect consumers or tourists restaurant selections. Consumer preferences of a restaurant are typically influenced by various attributes and involve an interaction between the consumer, food service, and the restaurant (Fitzsimmons & Fitzsimmons, 1998; Harrington, Ottenbacher, & Kendall, 2011). In this regard, there are some important food qualities of restaurants that may affect the decision of customers in selecting a restaurant.

2.2.1 Cost of food

The cost of food to a large extent forms part of a restaurant's image attributes which contribute to choice. In Kivela (1997) study, the cost of food was the very first important variable to students among four choice variables whereas to business people and engineers, price was not a factor. This somehow shows that income or occupation as a demographic variable among customers affects whether or not they think consciously (students or low income groups) or unconsciously (others) about pricing. After Dhurup et al (2013) and Grobler (2008) studies, similar results provided some substance that price is an essential factor that contributes to the image of a restaurant and choice decisions. Consumers often perceive price in negative and positive perspectives which Dhurup et al (2013) explains that negatively, price is thought of purely as an economic sacrifice whereas positively, price communicates quality, prestige or status of the restaurant to the consumer. However, the linkage of price to store choice tends to be mixed (Seiders and Costley, 1994; cited in Yavas, 2003). The price of restaurant meals depends on the type of restaurant, that is, high prices tend to make customers expect high quality. Low prices however make customers question the ability of the restaurant to deliver product and service quality (Andaleeb & Conway, 2006).

2.2.2 Comfort

Eating out should be comfortable and save the consumer from stress. The layout and seating should minimise crowding in order to create a favourable impression among guests (Countryman & Jang, 2006; cited in Dhurup et al, 2013). Seating may also be considered comfortable or uncomfortable, due to their proximity to other seats as customers may be physically and psychologically uncomfortable if they are forced to

sit too close to other customers (Dhurup et al, 2013). In Spark et al (2003) study, a 75% of respondents attested that the relaxation aspect of dining out was the most important reason, that is, to be waited on and not having to cook yourself. In Kivela (1997) research, it was found out that high income groups select restaurants based on comfort levels once and after the quality of food is assured. This is basically what Auty (1992) study found out. It can therefore be assumed that, if not for budget constrictions of low income persons such as students, which make them not able to afford relatively more expensive restaurants, then the comfort and relaxation experience provided at restaurants will be the a major deciding factor amongst all occupational groups.

2.2.3 Unique Tastes and Ingredients

Tastes and ingredients play an important role for consumers when selecting a restaurant. Food taste is regarded as the most important element of food attributes in several restaurant studies (Josiam & Monteiro, 2004; Tunsi, 2000). Unique food tastes and ingredients are particularly important in the case of ethnic restaurant dining as Bannerman (1998) as cited in Robinson (2007) noted, “the obvious attraction of ethnic restaurants was getting food you could not cook at home”. The results of a study by Sukalakamala and Boyce (2007) indicated that consumers of Thai restaurants considered unique tastes and authentic ingredients as the most important components of their authentic dining experience.

2.2.4 Menu Variety

Restaurateurs frequently develop new menus and offer a selection of different menu items to attract customers (Namkung & Jang, 2007). Kivela, Inbakaram and

Reece (2000) identified menu variety as a significant attribute of food quality in determining customer satisfaction in theme/atmosphere restaurants.

2.2.5 Appearance and Presentation

Appearance and presentation refer to the way food is decorated (Namkung & Jang, 2007). Namkung and Jang (2007) found that presentation was the most important contributor among food quality attributes in determining customer satisfaction in restaurants.

2.2.6 Healthy Food Options

Consumers nowadays are more concerned with their health and are therefore driving a growing demand for healthy food choices (Sulek & Hensley, 2004). The findings of Namkung and Jang (2007) showed a significant relationship between healthy food options and behavioural intentions. The National Restaurant Association (USA) reported that a large number of restaurants are adding items and adjusting their menus to accommodate and attract consumers who are concerned about health and nutritional value of a meal (Mill, 2007). Previous studies have found evidence of consumers' beliefs that particular ethnic foods are healthy. For example, Bailey and Tian (2002) reported that consumers of Indian restaurant in the United States of America viewed Indian food as much healthier than American food. Similarly, health was the most important value of eating Indian food for English consumers in the United Kingdom (White & Kokotsaki, 2004).

2.2.7 Familiar Food

According to Tian (2001) food consumption habits and patterns are components of culture that make an important contribution to the food decision consumers make. In some cases, foods of other cultures are accepted if they have familiar ingredients and preparation styles (Bailey & Tian, 2002). This study proposes that consumers go to an ethnic restaurant that serves food they are familiar with.

2.3 Nutrition and Health of food consumed

Nutrition throughout life has a major effect on health. Nutrition is the process of consuming, absorbing, and using nutrients needed by the body for growth, development, and maintenance of life. Gopalan (2003) states that nutrition is an integral component of health and wellbeing of an individual. According to Dennison, Dennison, and Frank (2014), to receive adequate, appropriate nutrition, people need to consume a healthy diet, which consists of a variety of nutrients-the substances in foods that nourish the body. A healthy diet enables people to maintain a desirable body weight and composition (the percentage of fat and muscle in the body) and to do their daily physical and mental activities. Drydale and Galipue (2008) indicated that if people consume too much food, obesity may result. If they consume large amounts of certain nutrients, usually vitamins or minerals, harmful effects (toxicity) may occur. If people do not consume enough nutrients, undernutrition may develop, resulting in a nutritional deficiency disorder.

The imbalance or substantive nutrition intake is commonly associated with obesity which are believed contribute to chronic diseases and lessen the longevity (Gopalan, 1992, MOH, 2007). Large numbers of the world populations are reported of suffering heart diseases, hypertension, and diabetes because of the overweight

(Schofield & Mullainathan, 2008) and six of the ten leading causes of death are related to nutrition components intakes. With these reasons, health conscious is received a greater concern among the consumers, individuals or family particularly dealing on the types of food they consumed either outside or meal prepared at home. The awareness not only given to appearance of the food products but also to the nutritional contents for packaged of food selling at the retail outlets. In other words, nutritional information is of the one crucial issue in the food service, food manufacturing and processing industry and therefore continuously received attention among the academics scholars.

According to a report issued by the United States Department of Agriculture (USDA) (Kantor, 1998), more than two out of three adults say that going out to a restaurant with family or friends not only offers an opportunity to socialize, but optimizes their time by dispensing with cooking and cleaning tasks. The frequency of eating away from home has risen by more than two-thirds over the past two decades and commercially prepared food accounts for 34% of the typical person's total calorie intake (Hunter, 2000). It is anticipated that the upward trend of eating commercially prepared meals will continue in the foreseeable future. At the same time that the number of meals consumers eat away from home is on the rise, the overall nutritional quality of the typical American diet is on the decline. The United States Department of Agriculture (USDA) (Lin *et al.*, 1999) reports that the nutrient content of meals consumed away from home is failing to keep pace with the nutritional improvements in home-prepared meals. Compared with home-prepared foods, commercially prepared foods have greater amounts of dietary components, such as saturated fat and calories, which Americans overconsume, and less of the nutrients, such as calcium and fiber, that are under-consumed. This excessive consumption of fat and calories from commercially prepared meals is linked with America's obesity epidemic. In

summarizing recent articles published in the Journal of the American Medical Association, Jonas (2001) reports that 63% of men and 55% of women are overweight. In the past twenty years, the prevalence of adult obesity has increased from 14.5 to 22.5%. Type 2 diabetes, gallbladder disease, coronary artery disease, osteoarthritis, hypertension, and elevated serum cholesterol are from 50 to 500% more common in obese individuals than normal weight people. Obesity is related to the consumption of commercially prepared foods and portion size plays a substantial role. A Tufts University Diet and Nutrition Letter survey found that serving sizes at a variety of popular restaurant chains far exceeded USDA guidelines (Linder, 2001)

Studies show that nutritional knowledge affects the quality of food intake and also healthy choices of purchased food (O'Brien & Davies, 2007; Verbeke, 2008). Advancement of individual nutrition knowledge (NK) provides new information which may stimulate changing of attitude and subsequently result in enhancement of dietary practices (De Vriendt et al., 2009). One study showed that health advice encouraged consumers to improve their food intake (Anderson et al., 1993); however another study indicated that higher knowledge of consumers was not an indicator to cause them to change their nutritional habits (Verbeke & De Bourdeaudhuij, 2007).

A study by Dinkins (2001) revealed that four out of ten deaths are attributed, at least in part, to poor diet and lack of exercise. Given that the American public consumes 1 billion commercially prepared meals each week (National Restaurant Association, 2000), eating away from home has a tremendous impact on overall health. One goal of The Healthy People 2000 national health promotion and disease prevention program is to “increase to at least 90 percent the proportion of restaurants and other institutional food service operators that offer identifiable low-fat, low-calorie food choices, consistent with the Dietary Guidelines for Americans” (Healthy People, 2000). Some

restaurants have responded by offering healthy menu items ranging from low-fat tostados to full-course meals featuring seafood or chicken dishes that are low in sodium and fat but high in fiber and vitamins (Kurtzweil, 2000; Wenzel *et al.*, 1999).

2.4 Importance of nutrition for the maintenance of an individual's health

Nutrition is the set of integrated processes by which cells, tissues, organs and the whole body acquire the energy and nutrients for normal structure and function, which is achieved at body level through dietary supply, and the capacity of the body to transform the substrates and cofactors necessary for metabolism (Ruel, 2001). Nutritional requirements (both maximum and minimum) may vary according to factors including age, sex, body weight, genotype, level of activity, physiological status (e.g. growth, pregnancy and lactation) and the presence or absence of disease. During the early years of life nutritional needs are constantly changing and a growing body of research indicates that optimum nutrition, from preconception through to adulthood and later life, plays a key role in lifelong health including in healthy ageing. Thus, from preconception through to adulthood, nutrition is able to impact positively or negatively on the individual and population trajectories for health and disease (Bouis, 2000).

Good nutrition is important part that lead a healthy life. Combined with diet, physical activity can help an individual to reach and maintain a healthy weight, reduce risk of chronic diseases like heart disease and cancer, and to promote overall health (Rouse, & Davis, 2004). Unhealthy eating habits have contributed to the obesity epidemic in the United States about one-third of U.S. adults 33.8% are obese and approximately 17% of children and adolescents aged 2-19 years are obese. Even for people at a healthy weight, a poor diet is associated with major health risks that can cause illness and even death. These include heart disease, hypertension, osteoporosis,

and certain various types of cancer. By choosing making smart food choices, you can help protect yourself from these health problems. The risk factors for adult chronic diseases, like hypertension and type 2 diabetes, are increasingly seen in younger ones, often a result of unhealthy eating habits and increasing weight gain.

Tontisirin, et al. (2002) indicated that dietary habits established in childhood often carry into adulthood, so teaching children how to eat healthy at a young age will help them stay healthy throughout their life. The link towards good nutrition and healthy weight, reduced chronic disease risk, and overall health is important to ignore. By taking various steps to eat healthy, a person will be on the way to getting the nutrients that the body needs to stay strong. As going on physical activity, as making small changes in diet can go a long way, and it is easier. The connections towards foods, the nutrients are provided and our healths are safe, but have reaching consequences for individuals and society. As changing diets and dietary habits place an increasing burden on healthcare systems. It is very important to that develop new products, interventions and refined guidelines which will improve our health through diet. By Achieving this will depend upon a complete would be understanding of the biological processes which connect the foods we eat to our long-term life healthy. By eating a well-balanced diet, adequate nutrients and appropriate calories, is a fundamental requirement for continued health. An appropriate diet to healthy development, healthy ageing and larger resilience against disease. Similarly, a poor diet places people at greater risk of infection and a range of the chronic illnesses included cancer and cardiovascular disease.

As affirmed by Rouse and Davis (2004) despite for the clear connections and between nutrition and health, more than half of the UK population are obese or overweight, consumption of fruit and vegetables is falling and the calorie density of the average shopping basket is increasing. Meanwhile, around three million people in the

UK are malnourished, including 30% of those in hospital and 40% in long-term care. This is to represents a social challenge and serious economic. High body mass index is one of the leading risk factors for chronic disease in the UK, accounting for 10% of NHS spend. The cost to the wider economy range is vast at around to promote health through our diets to becoming ever more urgent. There is an enormous potential towards develop new and improved products, health interventions and more accurate dietary guidelines which will improve health through nutrition. However, fully realizing through this potential will require a complete understanding of exactly how our food influences our health

Gopalan (2003) states that good nutrition enables one to lead a socially and economically active life and it improves the quality of life as evidenced through enhanced nutritional status of the population groups, better work efficiency rate, reduced mortality and morbidity rate by raising the standard of living. Kathy (2008) calls attention to the fact that an individual's nutritional status reflects the degree to which physiologic needs for nutrients are being met. Thus, nutrient intake depends on actual food consumption which is influenced by factors such as economic situation, eating behaviour, emotional climate, cultural influences, effects of various diseases on appetite and the ability to consume and absorb adequate nutrients.

According to Kathleen and Sylvia (2008) when adequate nutrients are consumed to support the body's daily needs and any increased metabolic demands, the person moves into an optimal nutritional status. This status promotes growth and development, maintains general health, protect them from or predispose them towards chronic disease. Good nutrition is the fundamental requirement for positive health, functional efficiency and productivity. Nutrition science, thus, provides abundant evidence on the importance of nutrition, not only in promoting proper physical growth

and development but also ensures adequate immunocompetence, cognitive development and work capacity.

Sri (2009) states that the direct effects of under nutrition are occurrence of frank and subclinical nutritional deficiency diseases. The indirect effects are a high morbidity and mortality among young children, retarded physical and mental growth, lowered vitality leading to lowered productivity and reduced life expectancy. Under-nutrition predisposes to infection and infection predisposes to under-nutrition. The high rate of maternal mortality, still births and low birth weight are all associated with under-nutrition. Wahlqvist et al. (2003) underline the consequences of under nutrition which includes death, disability and stunted mental and physical growth. She further warns that poor nutrition often commences in utero and in many cases extends into adolescence and adult life. Females in particular are affected by lifelong poor nutrition. Evidence from epidemiological studies from both developing and industrialized countries suggests a casual relationship between foetal under nutrition and increased risks of impaired growth and various adult chronic diseases.

2.5 Nutritional knowledge of waiters and chefs

Nutritional knowledge is important, particularly in the light of the rapidly expanding work population and threat of food population imbalance. The world we live in is changing constantly. People prefer to eat out day-by-day as they have taken it to be a part of life (Linder, 2001). Everyone is getting busier in order to find ends meet for survival and so hardly have time to prepare nutrition meals with appropriate calories. For many people, eateries have become their kitchen where all they need is to order something from the menu, which is very 'fast' and convenient. Nutritionally, fast food is the main source of obesity epidemic around the globe today. Puff-puff, buns, burgers,

sandwiches etc are fall products fast foods business and these have the adverse effects of obesity (Eziogwu, 2012).

According to Hunter (2000), for some, all they need is not the nutrient in food but just to fill the empty and hungry stomach, which can lead to malnutrition. It is important to acquaint consumers with nutrition issues, problems of malnutrition, nutrient content of meal etc. What to take at right time. The absence of Nutrition Education or adequate information about fast food Nutrition in the past was what prevented people from knowing how much fat or calories they were consuming with each bite that was taken from a burger as an example. As a result of good education on nutrition on how certain foods can cause obesity and other ill-effects, nobody wants to die, so they want to know how much saturated fat, cholesterol, carbohydrate, sugar etc they are consuming in the fast foods they eat (Olaoluwa, 2010). Hence, there is the need to educate consumers of products from catering and fast food business.

Olaoluwa (2010) further asserted that since there is rapid advancement and development of catering and fast food industry in the society today, it is important to provide general awareness of the role of Nutrition Education in catering and fast food business; Olatunji (2013) ascribes the role of nutrition knowledge as to acquainting the consumers of fast food and catering products to the benefit of eating healthy and balanced diet. He further stated that it is the enlightenment of consumer and people food therapy and the explanation of danger in mal-nutrition. Nutrition Education Stresses the need for people to take nutrition into consideration when planning menu and making menu choices (Iyiola, 2014). Importantly, people are educated on the fact that fast food eating, impacts so much on individual's health (Olaoluwa, 2010). Eziogwu (2012) explained that the role nutrition plays in the eradication of chronic diseases cannot be

underemphasized, hence the need to sensitize the public, the benefit in making healthy selections when eating

The nutrition expertise of chefs is a key component in the continuing effort to convince consumers to change their eating habits and to seek out healthy food items when eating out (Kerbetal, 1997). To accomplish this, consumers must adapt home eating habits to the commercial environment. Nutrition education for chefs is crucial if restaurants are to stay competitive in the future, as studies have shown that healthful food will be accepted by customers only if the food appeals to the senses, looks exciting and tastes good (Rouslin & Viera, 1998). Rouslin and Veria (1998), found that chefs are becoming more knowledgeable about nutrition and responsive to customer's demands for healthful menu items. Restaurants and other food service outlets are important venues for nutrition programs promoting recommendations to reduce the fat intake content in menus (FitzPatrick et al., 1997). The escalating of eating out highlights the importance of the chef's role in offering and preparing healthful food.

Reichler and Dalton (1998) found that chefs had nutritional knowledge and practicing some healthful food preparation techniques, the factors of time, taste and training still posed barriers. For example, more than 50% of the chefs surveyed in the study agreed or strongly agreed that recipe modification was time consuming, and only 39% agreed or strongly agreed that food would taste good if current dietary guidelines were followed. The chefs acknowledged having responsibility for the nutrient content of the dishes prepared and providing nutrition information to patrons. The authors suggest that chefs and dietitians work together in food service settings to create foods that not only meet the dietary guidelines, but also enhance customer satisfaction with modified menu items.

Rouslin and Vieira (1998) found that chefs are becoming more nutrition aware and responsive to customers' demands for healthful menu items. A survey conducted by Fitzpatrick *et al.* (1997) also found that chefs had knowledge on nutrition and customer satisfaction with lower-fat items was significantly greater than satisfaction with their higher fat counterparts, regardless of the menu-item type, dining experience, or respondent characteristics. But the majority of chefs still report that although customers say they want healthier menu items, they do not consistently select healthful menu items (Jones, 1999).

A National Restaurant Association study reported in *Frozen Food Digest* found that 85% of chefs considered the nutritional content of food when cooking whereas a similar survey conducted by the Center for Science in the Public Interest found that 74% of chefs considered healthy choices an important factor when cooking food for consumer at a particular restaurant (Lewis, 1994). Restaurants are now and will continue to be a major source of food and nutrition for the American public. This escalating trend highlights the importance of the chef's role in offering and preparing healthful food. Consequently, this study was designed to examine current attitudes of chefs regarding the importance of nutrition in menu planning in today's food service establishments.

Johnson, Raab, Champaner and Leontos (2002) studied chefs' perception of the importance of Nutrition in Menu Planning. The study surveyed chefs attending the American Culinary Federation Chefs Forum 2001. They were surveyed regarding their knowledge level and perceptions of the role of nutrition in menu planning. The study revealed that chefs have adequate knowledge about food nutrition. The survey also indicated that chefs no longer perceive that the preparation of low-fat foods requires additional work, and that they can be made equal in taste to foods containing higher amounts of fat.

The study by Mertanen, Vaisanen and Justesen (2016) concentrated on the nutrition management in food services-a new education to improve public health in Finland. Mertanen, et al. (2016) mentioned that chefs of the selected hotel have good knowledge in preparing healthy food, developing healthy menus and organizing food services customer oriented and health promoting way.

Vandana and Kusuma (2017) surveyed chef's working in select hotels and restaurants at Tirupati and Tirumala, which is a world renowned Pilgrim centre located in Chittoor District in the state of Andhra Pradesh. The chef's perception on the four aspects viz health, nutrition, practices and consumer concerns were assessed in the context of menu planning and food service. The results revealed that in both locations the chefs of hotels showed a better knowledge and perception in all four areas when compared to the Chefs of restaurants. The differences were significant out 0.01 percent. The findings also revealed that chefs of restaurants at Tirumala showed good perceptions in the areas of nutrition and health. A low level of perceptions was evident in practicing nutrition and consumer concern. Chef's in general believed that nutrition is important in menu planning. Efforts however, need to be to facilitate nutrition related practices in the Food catering units and increase consumer awareness and healthy eating out habits of consumers. Chefs thus, in strongly believed that nutrition is important in menu planning in food catering institutions, there is a great need to create facilitating environments to convert perceptions into sustaining practices.

2.6 Barriers to improving nutritional quality in foodservice

Achieving sustainability in foodservice requires taking into account the ecological, economic and social aspects of this activity. One of the key aspects in this equation is to preserve the health of consumers, by ensuring that they can eat healthily.

On the supply side, the increased awareness of cooks, the growing pressure from the market to produce healthier food, as well as the slow emergence of a regulatory framework may contribute to improving the nutritional quality. It has been demonstrated that customers tended to greatly underestimate their calorie consumption in the restaurant (Burton et al. 2006). This result, put into perspective with those on the effect of menu information and phrasing on the judgement and choices of consumers (Wansink et al. 2005) seems to support the idea of the appropriateness of nutrition information on menus (Mhurchu et al. 2010). A few studies have shed some light on potential obstacles to implementation of nutrition actions, which may also explain the limited development of such programs, especially in independent restaurants.

2.6.1 Beliefs and motivation

In the absence of legal obligation, foodservice professionals need to be convinced that consumers are looking for balanced meals or that they value nutrition information. Among potentially precluding beliefs about consumers' expectations, is the assumption that consumers are more attracted to unhealthy food and find, on the contrary, healthy food to be devoid of taste. Restaurant owners may also have beliefs about the definition of healthy food, which may drive the choice of actions to implement (Vyth et al., 2012).

2.6.2 Lack of nutritional expertise

Developing nutrition strategies calls upon an expertise that may not be part of the training of foodservice professionals. For instance, product-specific information labeling requires a nutritional evaluation of the dishes content. While major chains may afford a dietician and the adequate technical capacity for measurement, it may not be

the case of independent restaurants. Restaurant-specific challenges may arise such as the frequency of menu renewal, or the lack of structural flexibility for the supply of adequate ingredients (Lachat et al., 2010), which may lead to improper or partial application of nutritional standards. In a recent study in the top 400 US chain restaurants, most main dishes complied to recommendations regarding daily energy needs, but not regarding nutrients, specifically sodium and fat (Wu & Sturm 2012). Lastly, restaurant owners may have trouble following recommendations while trying to address a heterogeneous demand (Vermeer et al., 2010).

2.6.3 Time and human resources

A lack of operational feasibility may also slow down the implementation of such programs. Notably, the perceived added workload, the lack of financial resources or time, and more generally the fear of a cost premium related to the program, constitute barriers to the implementation of such procedures (Vyth et al., 2012; Almanza et al., 1997). Facing these obstacles, the main determinants of professional involvement in nutrition programs are that the easiness of implementation of the actions (Vermeer et al. 2010), the adaptation of the measures to the local culture and constraints (Lachat et al. 2010), as well as the possibility to communicate about the implementation (Vyth et al. 2012). The results of the European Food program, in which questionnaires were handed out to restaurant owners, corroborate these findings and show that the time and budget, beyond the lack of expertise of Chefs about nutrition, remain, in independent private restaurants in particular, powerful barriers to implement changes to a more balanced diet. These practical barriers to implementation may appear even when there is either motivation (commercial), a framework or even a legal obligation to implement the programs (Bertin et al., 2011).

2.6.4 Perceived costs and benefits

Although a strong determinant of the implementation of nutritional action, the financial impact of such programs - whether positive or negative - is hard to assess. For instance, the implementation of nutritional labeling involves some supplementary costs (nutritional evaluation of dishes, cost of the communication tools, etc.). The resulting benefits of such programs are, however, difficult to ascertain. While most studies report a demand for information and an overall positive effect of such programs on customer satisfaction (Josiam & Foster 2009; Alexander et al. 2010), the direct impact on willingness-to-pay and on demand is unclear and context-dependent. Regarding the cost of changing the quality of the offer, likewise, little evidence is available in the literature. In a study of the implementation of the GEMRCN in French school canteens, Darmon et al. (2010) find that restaurants which had started following the recommendations had reduced their costs, due to the recommended reduction of portion sizes (Darmon et al. 2010). However, the same study revealed that there were no differences in costs between sites applying or not the recommendations at the same time period.

2.7 Socio-economic characteristics influence on knowledge on nutrition

Over recent decades, there has been a growing consumer interest in, and demand for healthy foods, with a particular focus on nutritional composition (Magkos et al. 2003; Menrad 2003). Given the plethora of evidence that promotion and maintenance of good health is a function of diet and nutrition (Mollet & Rowland 2002; WHO 2003), the modern consumer considers nutritious foods more and more as an important part of health behaviour. Not surprisingly, alongside traditional product attributes (e.g. taste, price and availability), nutritional benefits are becoming more important for purchase decisions (Harrington 1994), with consumers often willing to compromise many of

these aspects for health (Bourn & Prescott 2002; Hossain & Onyango 2004; Bogue et al. 2005; Verbeke, 2006). This growing interest in foods with nutritional benefits means that consumers now view their “kitchen cabinet as the medicine cabinet” (Hardy 2000). It is this phenomenon of “self-care” that forms the rationale behind the growth of the nutritious food market (Hasler 2002; Urala & Lähteenmäki, 2003; Siro et al. 2008; Joana Gil-Chávez et al., 2013).

Nutritional knowledge are influenced and measured by many factors. The data suggested that college women who participated and learned from a nutrition class made healthier food choices for themselves than their male counterparts (Matvienko, et al., 2001). Research results from Madrid University showed that through a cross sectional study of university students, those who had nutritional knowledge when trying to lose weight consumed less sugary foods, and their portion control was monitored. They also found that female students showed a great interest and knowledge about food nutrition (Navia, Requejo, Mena & Sobaler, 2003).

An and Sturm (2012) examined over 13 thousand Californian young people connections between diet providing environments existence (supermarkets, fast food places, shops nearby school or home) or consumption of food offered from there. It is noted that the major fast-food places, supermarkets etc. should encourage the consumption of a healthy diet, not induce overexploitation. The study discovered that female Californian young people are more knowledge food nutrition than male young people. The European Union launched the reform of the fruit and vegetable sector in September 2007. The main purpose of that was to increase fruit and vegetable consumption. In approving the reform, was reported in view of the fact that obesity among school children has increased significantly, as soon as possible to submit the proposal for a school fruit program on the basis of its inherent benefits, practicability

and administrative costs related to impact assessment” (Commission of the European Communities, 2008).

Higher educational young people have knowledge and supports a healthy lifestyle and the health values and attitudes of young people with all it’s activities. It requires workforce competencies and tools who work on the area of young people, consistent development of knowledge based approach to the target groups, training, tools and interventions to in paragraph (Youth Work Development Plan 2014-2020). There is Health Education, in among of other things, youth work`s part and nutrition as part of it. From the position of health education, there is important that the desired behavioral changes become as habit and decision to change would be made by young adopted on the basis of values (Streimann et al, 2011).

According to Hossain and Onyango (2004), socio-demographic indicators are generally included as potential determinants of hotel staff nutritional knowledge. Nevertheless, studies concluded that socio-demographic factors are equally important and have influence on nutritional knowledge of hotel staff. Key socio-demographic elements considered include: age (De Groote & Kimenju 2008; Gonzalez et al. 2009; De Steur et al. 2012), gender (De Groote & Kimenju 2008; Gonzalez et al., 2009; Hayat et al. 2010), income (De Steur et al., 2010; Markovina et al., 2011) and education (Hossain & Onyango, 2004; Pouni et al. 2011).

Peng et al. (2006) asserted that other socio-demographic factors may also play a role on nutritional knowledge level of hotel staff. Peng et al. (2006) pointed out potential the effects of young people on nutritional knowledge. For example, study that examined the influence of socio-demographic elements, including age, gender, education, income and ethnic group, by using a model developed to launch micronutrient biofortified food, points to a positive impact on acceptance and purchase

intention. With respect to age, older people have been shown to be generally more in favour of food with nutritional benefits (Sabbe et al. 2009; Markovina et al. 2011), which is likely to be a consequence of their higher sensitivity to, and knowledge of dietary issues (Bogue et al. 2005). Women are more knowledgeable towards foods that confer nutritional benefits than their male counterparts (Bogue et al. 2005; Hayat et al. 2010). This gender difference is even more pronounced when women have a large household with young children (Peng et al. 2006; Stevens & Winter-Nelson 2008; Gonzalez et al. 2009).

Nevertheless, Hossain and Onyango (2004) conclude that males are generally knowledgeable about nutrition than females, by which they are presumably more likely to accept and consume food even in the case of GM foods (Hossain & Onyango 2004). Three studies reported an inverse relationship between education and people evaluation of nutrient enhanced foods. The reason for this may be that an educated person may not necessarily have acquired knowledge relating to the nutritional benefits (Pounis et al. 2011). As for most socio-demographic indicators, there is also contradictory evidence on the direction of the effect, with others stating that highly educated people are more in favour (Hossain & Onyango 2004) and willing to pay for these foods (De Steur et al. 2010). Finally, income, a rarely significant determinant, had a positive effect on acceptance (Markovina et al. 2011) and willingness-to-pay (De Groote & Kimenju 2008; De Steur et al. 2010) in a few studies.

2.8 Influence of nutritional knowledge on consumers patronage

Nutritional knowledge of chefs is crucial if restaurants are to stay competitive, as studies have shown that healthful food will be accepted by customer only if the food appeals to the senses, looks exciting and tastes good (Rouslin & Vierende, 1998). Riechier

and Dalton (1998), found that although chefs were practicing some health food preparation techniques, the factors such as time, taste and training still posed barriers. Riechier and Dalton (1998) affirmed that consumers are concerned about nutrition which influence their patronage to a particular restaurant. Center of Science in the public interest found that 74 percent of adults considered healthy choices is an important factor when selecting a restaurant (Lewis, 1994). The nutrition expertise of chef is a key component in the continuity of effort to convince consumers to change their eating habits and to seek out healthy food items when eating out.

Rouslin and Veria (1998), found that chefs are becoming more nutrition aware and responsive to customers demands for healthful menu items. However, some studies concerning the importance of nutrition in the consumer selection of commercially prepared foods show conflicting results. Restaurants and other food service outlets are important venues for nutrition programs promoting recommendations to reduce the fat intake content in menus (FitzPatrick et. al., 1997). The escalating of eating out highlights the importance of the chef's role in offering and preparing healthful food. There is strong evidence that nutritional knowledge of restaurants staff and information or claims about the nutritional/health benefits of foods, influence consumers' acceptance, purchase intentions and actual consumption. Studies (Annunziata & Vecchio 2010; De Steur et al. 2010; Hayat et al. 2010; De Groote et al. 2011) have reported a significant effect of nutritional knowledge of restaurant staffs on consumers purchase patronage of a particular restaurants.

According to a study by Vandana and Kusuma (2017), chefs have better perception on health awareness when compared to other perceptions as evidenced from the higher mean score (20.24 ± 3.12). Chefs have the knowledge about food choices, reduction of fat in diets, requirement of more vegetables and fiber for diabetic clients

and for ones own health. The study concluded that Chefs knowledge on nutrition influence consumers patronage of a restaurants. Spronk, Kullen, Burdon and O'Connor (2014) examined the relationship between nutrition knowledge and consumer patronage of restaurants. The majority of the studies (65.5%; community 63.6%; athletic 71.4%) reported significant, positive, but weak ($r=0.5$) associations between higher nutrition knowledge and consumer patronage of restaurants product.

Verbeke (2006) mentioned that nutritional knowledge of chefs and waiters increases the likelihood to consumers believe the foods actually have a positive benefit to their diet and overall health. Regarding the type of knowledge, both overall and nutrient-specific knowledge significantly affects the outcomes of consumer patronage of a particular restaurant (Peng et al. 2006; Pounis et al. 2011; De Groote et al. 2011; De Steur et al. 2012), even in the case of sensitive products (Vecchione et al. 2015). Ordinarily the nutritional knowledge is a function of socio-demographic elements and often determines the risk and benefit perception as well as attitudes and preference towards nutritious foods (; De Steur et al. 2010). This is particularly the case for fortified foods (Cox et al. 2008; Pounis et al. 2011). Evidence shows that higher nutrition knowledge results in a positive reaction of consumers towards a particular restaurants. Similarly, knowledge level of hotel staff on nutritional benefits of food is found to increase interest in health behaviour of conumers (Verbeke 2006). However, increased awareness of the link between dietary behaviour and health, as well as a high level of interest in nutritional and health aspects, may not always result in adaptive health behaviour and may even lead to confusion among highly knowledgeable consumers, which in turn may affect consumer decisions (Verbeke, 2006; Annunziata & Vecchio 2010).

Ares et al. (2008) reported that nutritional knowledge of chefs and its interaction with other factors is therefore crucial to enhance consumers' awareness and assist them in making informed choices, as well as to improve consumers patronage of the restaurant products. Studies underlined the influence of nutritional knowledge of chefs and other hotel staff on consumer evaluation and patronage of a particular restaurants (Chowdhury et al. 2011; Colson et al. 2011; Markovina et al. 2011; Hellyer et al. 2012; Lawless et al. 2012). The study by Chowdhury et al. (2011) reported a significant impact of nutritional knowledge of hotel staff on the purchase intentions of consumers. This is also the case when consumers are given nutritional information through a combination of nutritional and health claims (e.g. on the physiological effects or the nutrient level). However, some consumers may perceive these claims as marketing tricks and believe they have more control over their health (Verbeke 2006). One study even postulates that, although it is important, nutrition knowledge may not be effective in influencing consumers acceptance (Sabbe et al., 2009). Nutrition knowledge of hotel staff is often secondary to other determinants, but also sensory evaluation, attitudes and socio-demographics (Verbeke 2006; Sabbe et al. 2009; Colson et al. 2011; Pounis et al. 2011).

CHAPTER THREE

METHODOLOGY

3.1 Research design

Descriptive cross-sectional survey design was used for this study, which focused on nutritional knowledge of waiters and chefs in the selected restaurants in Birim Central Municipality. Descriptive survey design is considered most appropriate since the purpose of the study is not to study causal nexus between variables but one that seeks to simply examine, discuss, and document the facts about waiters and chef's knowledge on nutrition. This design is also useful for identifying variables and constructs that may warrant further. This method was supported by Newman (2000) who holds believe that a cross-sectional survey research uses a smaller group of selected people but generalizes the results to the whole group from which the small group was chosen.

3.2 Population

Research population refers to the group of entities to which the findings of the study could be universally applied (Koul, 2001). This group often has a common characteristic of interest to the researcher and about which the study seeks understanding. The target population for this research consist of waiters, chefs and consumers of all the 50 licensed restaurants operating in Birim Central Municipality. The study estimates about 300 waiters and 100 chefs of licensed restaurants in Birim Central Municipality (Birim Central Assembly, 2019), and 1000 customers.

3.3 Sample Size and Sampling Technique

In determining the sample size for the study, a table developed by the Research Advisors (2006) with a confidence level of 95% and margin of error (degree of accuracy) of 5.0% was used. Based on this Table a sample of 527 respondents comprising 169 waiters, 80 chefs, and 278 customers were selected for the study (Appendix A). Stratified sampling technique was used to select the 20 licensed restaurants operating in Birim Central Municipality. The researcher first divided the population i.e. 50 restaurants into five (5) Strata's. The strata were named Strata "A", "B", "C", "D" and "E" according to their location and rating (refer to Table 3.1). After dividing the population into five (5) strata's, a simple random sampling method was conducted to select four (4) restaurants from each sub population. In all, twenty (20) restaurants were selected. Fraenkel and Wallan (2006) defined stratified random samplings as the process in which certain subgroup or strata are selected for the sample in the same proportion as they exist in the population. Stratified random sampling technique was employed because it increases the likelihood of representativeness, especially if the sample is not very large (Fraenkel & Wallan, 2006). Stratified sampling method also ensures that the key characteristics of individuals in the population are included in the sample.

In selecting the waiters and chefs from the various selected restaurants purposive sampling technique was employed. The purposive sampling technique for this study was based on its purpose, design, and practical implication. Simply put, the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience (Bernard, 2002). In the context of this research, the targeted groups were the consumers, waiters and chefs of the selected restaurants in Birim Municipality, Eastern Region of Ghana.

Purposive sampling refers to strategies in which the researcher exercises his or her judgment about who will provide the best perspective on the phenomenon of interest, and then intentionally invites those specific perspectives into the study.

Convenience sampling technique was used in selecting consumers of the selected 20 restaurants in Birim Municipality, Eastern Region of Ghana. The convenience sampling technique which is a non-probability sampling technique was used to select 278 customers from these selected restaurants. It helps the researcher to obtain relevant information in real terms from the relevant people who were willing and ready to take part in the study. Table 3.1 shows the class (rating) of restaurants in Birim Municipality.

Table 3. 1: Class of restaurants in Birim Municipality

CLASS A	CLASS B	CLASS C	CLASS D	CLASS E
Bright Sky hotel	Kanamp Rest	Fadakyee Loung	Anokyewaa Hotel	Home Away Rest
Rabbson hotel	Dominion Hotel	Vary Vane Hotel	Sister Lounge	Top café rest
Quafari hotel	Chrisrose Hotel	Seven Souls Hotel	Dabills Rest	African joint
Green Pearls restaurants	Premier rest/hotel	Adom Rest	O’Right Rest	King Solomon rest
Ages Abba Hotel	Home sweet home rest/hotel	Hospital food Joint	Akron city Rest	Kitchen woman rest
Outlook hotel	Beauty of nature rest	Baffoah Hotel	Bugatty rest	Melting Pot Joint
Ntiamoah hotel	Morning Star Hotel	Linda’s Rest	Ogray rest	Milson rest
		Liberty Rest	Eli Eli Hotel	Samdora Rest
		Ankoma Lounge	Awuakyewaa Hotel	Kanashie Rest
		Peace and Love Rest	Caprice Hotel	
		Dennidor Rest	Oman hotel	
		Diana Asare Lounge	Mandalina Hotel	
		Snor white bar		
		Two sisters joint		

3.4 Data collection instrument

Questionnaire was developed to obtain the relevant information regarding the socio-economic information, nutritional knowledge level of waiters and chefs, the knowledge level of waiters and chefs on the importance of nutrition for the maintenance of an individual’s health, and the significant relationships between socio-economic characteristics and knowledge of waiters and chefs on nutrition. In addition, consumer’s

patronage behaviour of the restaurants were obtained. The questionnaire was developed containing both closed and open ended. Oppenheim (1996) indicated that questionnaire is essential to establish the information to gather for relevant questions to be solicited. Contemplations of appeal to respondent ease of reading and supplying the required data guided the format of the questionnaires. This enhanced proper usage of time during the data collection.

The questionnaire for the waiters and chefs were divided into four sections, i.e. A, B, and C. The section A consisted of bio data of waiters and chefs. Section B reflected nutritional knowledge level of waiters and chefs. Section C constituted the knowledge level of waiters and chefs on the importance of nutrition for the maintenance of an individual's healthy. Also, the questionnaire for the consumers were grouped into two sections i.e. A and B. Section A constitutes the demographic characteristics of the consumers, while Section B reflects the consumers patronage behaviour of restaurants. Respondents were expected to tick (✓) the created boxes of columns where they strongly agree; agree; disagree and strongly disagree to the given statements. In this study, the Likert scale which had five (5) columns from number five (5) to one (1) in a requisite order attached to various columns. On the scale the rating was arranged in five (5) columns. The Likert scale provides the basis for neutral response, as well as ranking highest and lowest responses of respondents in the study.

3.5 Validity and Reliability of the Instrument

Instrument validity is the extent to which an instrument measures what it is supposed to measure (Kumar, 1999). In this study, it was used because it is basically concerned with determining whether the instrument on the face of it appears to measure what it is supposed to measure. The validity of research instruments was therefore

ensured by assessing the questionnaire items during their construction. In order to determine whether the instruments would do what they are intended to do; a pre-test study was conducted at Obaa's Golden Plaza Hotel in the Birim Municipality after which the questions on the questionnaire were restructured for the main study. The results of the pre-test helped in restructuring the questionnaire and making the necessary corrections. Further, the questions were discussed with the supervisor for verification. This was to clear any lack of clarity and ambiguity.

The reliability of the study addressed the similarity of the results through repeated trials. Reliability is the degree to which a question consistently measures (Gay 1992). Mugenda (1999) defines reliability as the measure to which research instrument yields consisted results after repeated trials. The identified problems were supplied with the instruments and were scored manually by the researcher for the consistency of results. The responses were analyzed after which two weeks period was allowed to pass before the same treatment to be applied to the same respondents and analysis done. The results were recorded accordingly. The reliability of the instrument was tested using Cronbach Alpha which yield a reliability coefficient of 0.64.

3.6 Data collection procedure

Permission to conduct the study at the various restaurants were sought from the managers of restaurants. Waiters and chefs of the selected restaurants wishing to participate in the study were invited to attend the study on a pre-arranged date. All the waiters and chefs to be included in the study were given an identification number. After received consent from subject, data were collected through questionnaire.

The questionnaire was self-administered to the waiters and chefs at the various restaurants within one month. The waiters and chefs were given two weeks starting

from the day of administering the questionnaire to answer the questionnaire. The researcher explained questionnaire items to the respondents in the language they understood better and given some time to reflect on the responses before giving their options. However, most of the respondents completed and delivered their questionnaire on the spot with concern that it might be misplaced due to their busy schedules.

3.7 Data analysis

Quantitative data were gathered for the study using questionnaires. The data obtained from the field were edited, coded for its consistency and then entered in a computer using the statistical package for social scientists (SPSS) programmer version 23.0 to perform descriptive statistics. For tabular, charts and graphical representation Microsoft word and Microsoft excel was used. Mean of the responses (scores) were also calculated through ANOVA and T-test or F-test to know the significant difference between socio-economic characteristics and knowledge of waiters and chefs on nutrition.

3.8 Ethical Considerations

In recognition of the critical role played by adherence to research ethics, the study took various steps to ensure the protection and freewill of participants as much as possible. The researcher therefore sought ethical clearance from the university through the supervisor before going to the field for data collection. This included ensuring that there was adequate provision in the data instrument and data collection procedures to allow for respondent protection from any form of harm due to their participation in the study.

Also, permission was sought from the managers of the various restaurants before waiters and chefs were administered the data instruments. Moreover, the objectives of the study were explained to participants in a language they understood before seeking their consent for participation in the survey which was indicated by filling a voluntary participation consent form. Participants were also assured of the protection of their personal and geographic data and that the study was purely for academic purposes. These pieces of information have been kept confidential throughout the study.



CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Response Rate

A total of 527 questionnaires were sent out to collect data from respondents comprising 249 waiters and chefs, and 278 consumers from the selected restaurants in Birim Central Municipality. After the data collection, were 356 questionnaires comprising 171 waiters and chefs, and 185 consumers that visits the various selected restaurants were retrieved and included in the analysis. Whilst some of the questionnaires were not returned, key questionnaires that were critical in meeting the study objectives were not answered on some of the returned questionnaires. This gave a response rate of 67.6%. According to Bowing (2004), a response rate of 60.0% is good in social science research, though he admits that the higher the response rate, the better the analysis. The analysis of the results is organised in two parts.

4.2 Analysis of Questionnaires from Waiters and Chefs

The questionnaire designed for the waiters and chefs comprises both closed and opened ended questions where respondents were made to choose from possible answers provided in the case of closed questions whilst they expressed their views in written forms to the open-ended questions. The questionnaire was designed according to the research question.

4.2.1 Socio-economic characteristics of Waiters and Chefs

The socio-economic characteristics of the waiters and chefs concentrate on their gender group, age category, number of years worked in their current institution and their highest academic qualification. The background of respondents were very

necessary to enable the researcher describe the peculiar characteristics of the respondents as well as providing the basis for assessing the association between the knowledge of waiters and chefs regarding nutrition with selected socio-demographic variables.

Table 4. 1: Gender distribution of respondents

		Gender of Respondents				Total
		Male		Female		
		<i>f</i>	%	<i>f</i>	%	
Job title of Respondents	Waiter/Waitress	8	8.6	85	91.4	93
	Chef	28	35.9	50	64.1	78
Total		36	21	135	78.9	171

The result on the gender of the selected waiter/waitress, and chef is depicted in Table 4.1. The statistics indicate that both males and females were captured in the study. This is because the views of both genders were needed to make fair conclusions on the subject. On the gender of waiters/waitress, the study shows that 8.6% of the selected waiters/waitresses were males with the remaining 18.8% were females. As illustrated by Table 4.1, the implication is that there more female waitresses at the various restaurants in Birim Central Municipality. Concerning the gender group of the chefs, 35.9% were males, while 64.1% were females. This implies that majority of chefs at the various restaurants are females.

Table 4. 2: Age group of respondents

		Age group of Respondents (Years)								Total
		Below 21		21-30		31-40		41-50		
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	
Job title of Respondents	Waiter/Waitress	9	9.7	74	79.6	6	6.4	4	4.3	93
	Chef	4	5.1	66	84.6	6	7.7	2	2.6	78
Total		13	7.6	140	81.9	12	7.0	6	3.5	171

Table 4.2 clearly shows that the respondents were fairly distributed among the age brackets set out on the questionnaire. With regards to age of waiter/waitress, the statistics in the Table 4.2 indicates 9.7% were below 21years; 79.6% were between the age category of 21-30years. In addition, 6.4% were between 31-40years, and 4.3% were between the ages of 41-50years. From the statistics, it could be inferred that the majority of the waiter/waitress of the selected restaurants in Birim Central Municipality are at their youthful age between 21-30years. Concerning the Chef category, 5.1% were below 21years; majority of them (84.6%) were between the ages of 31-30years, while, 7.7% were in the age category 31-40years. In addition, 2.6% of the participants were between the ages of 41-50years. This suggests that majority of the chefs were also at their youthful age between 21-30years.

Table 4. 3: Educational background of respondents

		Highest academic qualification of respondents								Total
		Primary education		Junior high education		Secondary/technical		Tertiary education		
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	
Job title of	Waiter/Waitress	2	2.2	36	38.7	32	34.4	23	24.7	93
Respondents	Chef	0	0.0	6	7.7	56	71.8	16	20.5	78
Total		2	1.2	29	16.9	88	51.5	52	30.4	171

In terms of the highest level of education attained by the waiter/waitress of the selected restaurants in Birim Central Municipality, the results pointed out that junior high education (38.7%) was the commonest among the waiter/waitress, while secondary/technical education (34.4%) was the next common among the waiter/waitress, 24.7% of the respondents had tertiary education. On the other hand, primary education (2.2%) constituted the least proportion of the waiter/waitress seen at the selected restaurants in Birim Central Municipality. Concerning the chef respondents, secondary/technical education (71.8%) was commonest among the chefs.

Also, 20.5% of the chefs have attained education up to the tertiary level, and 7.7% of the chefs have attained education up to the junior high level. This clarifies that the waiters/waitress, and the chefs included in this study had some form of educational level.

Table 4. 4: Years of working in current restaurant of respondents

		Years of working in current restaurant								Total
		Below 1year		1-5years		6-10years		11-15years		
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	
Job title of	Waiter/Waitress	13	14.0	75	80.6	4	4.3	1	1.1	93
Respondents	Chef	19	24.4	47	60.3	12	15.4	0	0.0	78
Total		32	18.7	122	71.3	16	9.4	1	0.6	171

Table 4.3 depicts the respondent's number of years of working in their current restaurant. For the Waiters/waitress, the majority (80.6%) of them have been in the restaurants for 1-5years, 4.3% of them have been working in their current restaurants for 6-10year. In addition, only 1.1% have been working in the current restaurants for 11-15years. However, 14.0% of the waiters/waitress have been working in their current restaurants for less than 1year. For the chefs, 60.3% of them have been working in their current restaurants for 1-5years, and 15.4% of the chefs have working in their current restaurants for 6-10years. On the other hand, 24.4% of the chefs have been working in their current job for less than a year. This affirmed that waiters/waitress, and chefs does not stay at their job position for long. The result contradicts with the study conducted by Johnson et al. (2002) among chefs who participating in the American Culinary Federation Chefs Forum 2001, in Las Vegas, Nevada. Johnson et al. (2002) discovered that 85.6% of the chefs have been working in their respective restaurants for more than 10years.

4.3 Nutritional knowledge level of waiters and chefs

The current study sought to identify the knowledge of waiters and chefs regarding nutrition. Table 4.5 shows the food qualities of service delivery at the various selected restaurants in Birim Central Municipality.

Table 4. 5: Responses on food qualities of service delivery

Food qualities	Responses					Mean± SD	Decision
	1=NI	2=LI	3=U	4=I	5=VI		
Taste	---	---	9 (5.3)	60 (35.1)	102 (59.6)	4.54±0.596	Important
Nutrient density	2 (1.2)	4 (2.3)	4 (2.3)	83 (48.5)	78 (45.6)	4.35±0.747	Important
Aroma	2 (1.2)	9 (5.3)	8 (4.7)	78 (45.6)	74 (43.3)	4.25±0.860	Important
Texture	11 (6.4)	8 (4.7)	6 (3.5)	60 (35.1)	86 (50.3)	4.18±1.13	Important
Food Safety	4 (2.3)	28 (16.4)	4 (2.3)	53 (31.0)	82 (48.0)	4.06±1.17	Important
Cost (Profit margin)	2 (1.2)	17 (9.9)	10 (5.8)	88 (51.5)	54 (31.6)	4.02±.939	Important
Presentation/appearance	---	15 (8.8)	11 (6.4)	103 (60.2)	42 (24.6)	4.01±.815	Important
Flavour	19 (11.1)	19 (11.1)	6 (3.5)	70 (40.9)	57 (33.3)	3.74±1.32	Important
Ease of preparation	27 (15.8)	62 (36.3)	13 (7.6)	51 (29.8)	18 (10.5)	2.83±1.30	Not important
Colour	37 (21.6)	66 (38.6)	30 (17.5)	26 (15.2)	12 (7.0)	2.47±1.19	Not important

Key: NI=Not important; LI=Little important; U=Uncertain; I=Important; VI=Very important

Source: Field Survey, 2020

Mean ≥ 3.0 =Important <3.0=Not important

As depicted in Table 4.5, the selected restaurants in Birim Central Municipality consider taste in their service delivery. As many as 162 (94.7%) of the respondents indicated that taste is important food qualities considered, whereas 9(5.3%) of the respondents were uncertain with mean of 4. 4.54±0.596. This implies that the selected restaurants consider the taste of food prepared to the consumers. According to the study by Sulek and Hensley (2004), restaurants prepare tasty food to attract customers as they mostly prefer eating delicious food and beverages to satisfy them. The results of a study by Sukalakamala and Boyce (2007) indicated that consumers of Thai restaurants

considered unique tastes and authentic ingredients as the most important components of their authentic dining experience

Again, the respondents also agreed that the restaurants consider the nutrition density of food prepared to the consumers. Statistically, 161(94.1%) of the respondents affirmed nutrient density of food is important, while 6 (3.5%) said is not important. However, 4(2.3%) of the respondents were uncertain. This is supported by a mean of $4.35 \pm .747$. This affirmed that the chefs and waiters consider nutrient density in preparing and serving food to the consumers. Bailey and Tian (2002) reported that Indian restaurant in the United States of America consider nutrient density in preparing and serving food.

Moreover, the aroma of food prepared by the restaurants is considered. As many as 152 (88.9%) of the respondents revealed that aroma of the food is important, whereas 11 (6.5%) of the respondents indicated that the aroma is not important. Meanwhile 8(4.7%) of the respondents were uncertain with a mean of $4.25 \pm .860$. This implies that the chefs and waiters consider the aroma of food prepared and served to the consumers to attract them. Furthermore, 146 (85.4%) of the respondents asserted that texture of prepared by the restaurant is important, while 19 (11.1%) of the respondents said it is not important. However, 6(3.5%) of the respondents were uncertain to that effect with a mean of 4.18 ± 1.13 . This confirms that the texture of food prepared and served to the consumers are considered because it is important in attracting the consumers to the restaurant. The aroma and texture of a food play an important role for consumers when selecting a restaurant. Unique food aroma and ingredients are particularly important in attracting consumers (Robinson, 2007).

In addition, 135 (79.0%) of the respondents emphasized that food safety is important in preparing and serving food to the consumers, whereas 32 (18.7%) of the

respondents said it is not important. However, 4(2.3%) of the respondents were uncertain to that effect with a mean score of 4.06 ± 1.17 . This indicates that the chefs and waiters consider safety food prepared and served to the consumers. Consumers nowadays are more concerned with their health and are therefore driving a growing demand for safety food choices (Sulek & Hensley, 2004).

On the issue that cost food is considered in preparing and serving food to the consumers, 142(83.1%) of the respondents said it is important, while 19 (11.1%) of the respondents indicated that it is not important. Meanwhile 10(5.8%) of the respondents were uncertain to that effect. This statement had a mean score of 44.02 ± 9.39 . This indicates that the cost of food prepared and served by the restaurants in Birim Central Municipality is considered. The cost of food to a large extent forms part of a restaurant's image attributes which contribute to choice. In Kivela (1997)'s study, the cost of food was the very first important variable to students among four choice variables whereas to business people and engineers, price was not a factor. This somehow shows that income or occupation as a demographic variable among customers affects whether or not they think consciously (students or low income groups) or unconsciously (others) about pricing. Grobler (2008) results provided some substance that price is an essential factor that contributes to the image of a restaurant and choice decisions of consumers.

On the other hand, with a mean score of 4.01 ± 0.815 , the respondents asserted that presentation/appearance of food prepared and served in the restaurant is considered. As many as 145(84.8%) of the respondent said presentation/appearance of food is important, while 15(8.8%) of the respondents affirmed that it is not important. However, 11(6.4%) of the respondent were uncertain to that effect. Again, flavor was also found to be considered by the restaurants. Statistically, 127(74.2%) of the

respondents said flavor of the food is important, while 38(22.2%) of the respondents revealed that it is not important. However, 6(3.5%) of the respondents were uncertain as to whether flavor of the food is important to be considered or not. This statement reflected a mean of 3.74 ± 1.32 . Namkung and Jang (2007) found that presentation was the most important contributor among food quality attributes in determining customer satisfaction in restaurants.

On the contrary, the respondents indicated that ease of food preparation (2.83 ± 1.30) and colour (2.47 ± 1.19) is not an important factor to consider in the preparation and serving food to the consumers. This statement failed to meet the predetermined cut-off point of 3.0.

The finding shows that taste, nutrient density, aroma, texture, food safety, cost, presentation/appearance, and flavor of food are the most important food qualities considered by the chefs and waiters of restaurants in Birim Central Municipality in their service delivery. Food quality is one of the important components and it is been constantly shown as a core value that a customer will consider in deciding a fast food restaurant (Auty, 1992; Soriano, 2002). As affirmed by Auty (1992), the characteristics of food quality such as; freshness of food, food presentation, food taste, variety of food, food safety, nutritious of the food, food temperature and innovation of food influence consumer intention in the patronage of a particular restaurant. Food quality is considered as key foundation for the customer satisfaction and loyalty.

In addressing the nutritional knowledge level of waiters and chefs, please were asked to indicate their position on the knowledge level towards food nutrition of an individual's health. Table 4.6 presents the result.

Table 4. 6: Nutritional knowledge level of waiters and chefs

Nutritional Knowledge indicator	Responses					Mean± SD	Decision
	1=SD	2=D	3=N	4=A	5=SA		
Mushrooms and soya beans are good source of protein	20 (11.7)	6 (3.5)	---	68 (39.8)	77 (45.0)	4.03±1.28	Agreed
Vegetable and fruit salads provide essential vitamins and more fiber	4 (2.3)	62 (36.3)	9 (5.3)	36 (21.1)	60 (35.1)	3.50±1.35	Agreed
High fat recipes increase bad cholesterol and increase risk of heart diseases	6 (3.5)	61 (35.7)	14 (8.2)	44 (25.7)	46 (26.9)	3.37±1.31	Agreed
Fish, Prawns and Seafood are good for health than meat products	20 (11.7)	47 (27.5)	2 (1.2)	54 (31.6)	48 (28.1)	3.37±1.43	Agreed
Eggs provide good amount of quality protein and iron.	4 (2.3)	64 (37.4)	2 (1.2)	69 (40.4)	32 (18.7)	3.36±1.22	Agreed
Overcooking of food can cause nutrient loss	24 (14.0)	53 (31.0)	2 (1.2)	30 (17.5)	62 (36.3)	3.31±1.55	Agreed
Low fat recipes are good for health and to maintain body weight	19 (11.1)	54 (31.6)	8 (4.7)	50 (29.2)	40 (23.4)	3.22±1.39	Agreed
Overconsumption of sugary food can cause malnutrition	4 (2.3)	75 (43.9)	10 (5.8)	48 (28.1)	34 (19.9)	3.19±1.26	Agreed
Milk and milk products are always good for health	18 (10.5)	61 (35.7)	4 (2.3)	32 (18.7)	56 (32.7)	3.12±1.62	Agreed
Using too much calories can cause obesity	41 (24.0)	42 (24.6)	---	32 (18.7)	56 (32.7)	3.11±1.57	Agreed
Chicken provide good amount of quality protein and iron	33 (19.3)	48 (28.1)	20 (11.7)	52 (30.4)	18 (10.5)	2.85±1.33	Disagreed
Frying of food can cause nutrient loss	65 (38.0)	10 (5.8)	20 (11.7)	50 (29.2)	26 (15.2)	2.78±1.56	Disagreed
Lean meat provides good amount of quality protein and iron	31 (18.1)	58 (33.9)	18 (10.5)	48 (28.1)	16 (9.4)	2.77±1.29	Disagreed
Pulses are good source of protein	37 (21.6)	72 (42.1)	2 (1.2)	28 (16.4)	32 (18.7)	2.68±1.45	Disagreed
Always a combination of cereal and pulses enhances the nutritive value	55 (32.2)	38 (22.2)	20 (11.7)	40 (23.4)	18 (10.5)	2.58±1.41	Disagreed
Whole grains are nutritious than polished ones	54 (31.6)	55 (32.2)	6 (3.5)	28 (16.4)	28 (16.4)	2.54±1.48	Disagreed
Diabetic clients (or) Consumers require 30g of fiber	65 (38.0)	42 (24.6)	6 (3.5)	36 (21.1)	22 (12.9)	2.46±1.48	Disagreed
Diabetic clients (or) Consumers require 50g of vegetables, fiber and low fat and low energy foods	61 (35.7)	50 (29.2)	10 (5.8)	22 (12.9)	28 (16.4)	2.45±1.48	Disagreed
Diabetic consumers require 10g low fat	67 (39.2)	40 (23.4)	18 (10.5)	18 (10.5)	28 (16.4)	2.42±1.49	Disagreed

Diabetic consumers require 15g low energy foods	63 (36.8)	52 (30.4)	14 (8.2)	32 (18.7)	10 (5.8)	2.26±1.29	Disagreed
Germination and fermentation of foods increases the nutritive value in terms of protein and vitamin 'C'	50 (29.2)	73 (42.7)	28 (16.4)	12 (7.0)	8 (4.7)	2.15±1.07	Disagreed

Key: *SD=Strongly Disagree; D=Disagree; N=Neutral; A=Agree; SA=Strongly Agree*

Mean ≥ 3.0 =Agreed; < 3.0 =Disagreed

From the analysis, it should be noted that responses for agree and strongly agree were combined to be “agreed” whereas strongly disagree and disagree were also combined to be “disagreed” based on the predetermined mean of 3.0. However, that of Uncertain (U) was maintained in the write-up. The findings from the study reveal that most of the respondents agreed that the mushrooms and soya beans are good source of protein. As many as 145(84.8%) of the respondents agreed, whereas 26(15.2%) of the respondents disagreed to that effect. This is supported by a mean of 4.03±1.28. This indicates that the chefs and waiters have knowledge on the nutritional value of mushrooms and soya beans. Again, the respondents revealed that vegetable and fruit salads provide essential vitamins and more fiber, 96(56.2%) of the respondents agreed, while 66 (38.6%) of the respondents disagreed. Meanwhile, 9(5.3%) of the respondents were uncertain to the statement that vegetable and fruit salads provide essential vitamins and more fiber with a mean score of 3.50±1.35.

On the issue that high fat recipes increase bad cholesterol and increase risk of heart diseases, 90(52.6%) of the respondents agreed, while 67(39.2%) of the respondents disagreed to that effect. However, 14(8.2%) of the respondents were uncertain to the statement with a mean score of 3.37±1.31. Moreover, the respondents affirmed that fish, prawns and seafood are good for health than meat products. Statistically, 102 (59.7%) of the respondents agreed, while 67(39.2%) of the respondents disagreed. However, 2(1.2%) of the respondents were uncertain with a mean of 3.37±1.43.

Concerning whether eggs provide good amount of quality protein and iron, 101(59.1%) of the respondents agreed, while 68(39.7%) of the respondents disagreed. Meanwhile 2(1.2%) of the respondents were uncertain to the statement with a mean score of 3.36 ± 1.22 . Furthermore, 92(53.8%) of the respondents agreed that overcooking of food can cause nutrient loss, while 77(45.0%) of the respondents disagreed to that. Conversely, 2(1.2%) of the respondents were uncertain with a mean score of 3.31 ± 1.55 . Moreover, 90 (52.6%) of the respondents further asserted that low fat recipes are good for health and to maintain body weight, while 73(42.7%) of the respondents disagreed. However, 8(4.7%) of the respondents were uncertain to the statement with a mean score of 3.22 ± 1.39 .

On the other hand, 82(48.0%) of the respondents agreed that overconsumption of sugary food can cause malnutrition, 79(46.2%) of the respondents disagreed, while 10(5.8%) of the respondents were uncertain to the statement. This statement reflected a mean of 3.19 ± 1.26 . On the issue that milk and milk products are always good for health, 88(51.4%) of the respondents agreed; 79 (46.2%) of the respondents disagreed, while 4(2.3%) of the respondents were uncertain to the statement. This statement attained a mean of $.12 \pm 1.62$. On whether Using too much calories can cause obesity, 88(51.4%) of the respondents agreed, whereas 83(48.6%) of the respondents disagreed to that statement with a mean score of 3.11 ± 1.57 .

The finding indicates the chefs and waiters at the various restaurants in Birim Central Municipality had knowledge on nutrition. The study shows chefs and waiters had knowledge that mushrooms and soya beans are good source of protein, vegetable and fruit salads provide essential vitamins and more fiber, and also high fat recipes increase bad cholesterol and increase risk of heart diseases. Again, chefs and waiters had knowledge that fish, prawns and seafood are good for health than meat products,

and also eggs provide good amount of quality protein and iron. The finding aligns with the study by Rouslin and Veria (1998) that chefs are becoming more knowledge about nutrition and responsive to customer's demands for healthful menu items. Restaurants and other food service outlets are important venues for nutrition programs promoting recommendations to reduce the fat intake content in menus (FitzPatrick et al., 1997). The escalating of eating out highlights the importance of the chef's role in offering and preparing healthful food. The nutrition expertise of chefs is a key component in the continuing effort to convince consumers to change their eating habits and to seek out healthy food items when eating out (Kerbetal, 1997). Nutrition knowledge of chefs and waiters are crucial if restaurants are to stay competitive in the future, as studies have shown that healthful food will be accepted by customers only if the food appeals to the senses, looks exciting and tastes good (Rouslin & Viera, 1998).

The present study concurs with the work of Reichler and Dalton (1998) that chefs had nutritional knowledge and practicing some healthful food preparation techniques, the factors of time, taste and training still posed barriers. For example, more than 50% of the chefs surveyed in the study agreed or strongly agreed that recipe modification was time consuming, and only 39% agreed or strongly agreed that food would taste good if current dietary guidelines were followed. The chefs acknowledged having responsibility for the nutrient content of the dishes prepared and providing nutrition information to patrons. A survey conducted by Fitzpatrick *et al.* (1997) also found that chefs had knowledge on nutrition and customer satisfaction with lower-fat items was significantly greater than satisfaction with their higher fat counterparts, regardless of the menu-item type, dining experience, or respondent characteristics.

Johnson, et al. (2002) on surveyed chefs regarding their knowledge level and perceptions of the role of nutrition in menu planning. The study revealed that chefs have

adequate knowledge about food nutrition. The survey also indicated that chefs no longer perceive that the preparation of low-fat foods requires additional work, and that they can be made equal in taste to foods containing higher amounts of fat. Mertanen, et al. (2016) mentioned that chefs of the selected hotel have good knowledge in preparing healthy food, developing healthy menus and organizing food services customer oriented and health promoting way. The finding aligns with the work Vandana and Kusuma (2017) that chefs of restaurants at Tirumala showed good perceptions in the areas of nutrition and health.

4.4 Perception of waiters and chefs on the importance of nutrition

This section presents the analysis of chefs and waiters perception on the importance of nutrition for the maintenance of an individual's health. These criteria have been identified and ranked according to their descriptive analyse. The results are presented in Table 4.7. It should be noted that the responses for agree and strongly agree were combined to be “agreed” whereas strongly disagree and disagree were also combined to be “disagreed” based on the predetermined mean of 3.0. However, that of Uncertain (U) was maintained in the write-up.

Table 4. 7: Perception of waiters and chefs on the importance of nutrition

Perception on importance of nutrition	Responses					Mean± SD	Decision
	1=SD	2=D	3=N	4=A	5=SA		
Good nutrition improves individual well being	2 (1.2)	10 (5.8)	4 (2.3)	81 (47.4)	74 (43.3)	4.26±0.86	Agreed
Good nutrition helps growth and manage a healthy weight	2 (1.2)	36 (21.1)	---	65 (38.0)	68 (39.8)	3.94±1.16	Agreed
Good nutrition increase an individual's energy level	6 (3.5)	37 (21.6)	6 (3.5)	71 (41.5)	46 (26.9)	3.70±1.19	Agreed
Nutrition improves individual ability to recover from illness or injury	4 (2.3)	44 (25.7)	6 (3.5)	71 (41.5)	46 (26.9)	3.64±1.20	Agreed
Eating nutritious food reduces high blood pressure of individual	23 (13.5)	16 (9.4)	13 (7.6)	69 (40.4)	50 (29.2)	3.63±1.35	Agreed

Healthy diets may lengthen individual life	4 (2.3)	50 (29.2)	4 (2.3)	64 (37.4)	49 (28.7)	3.61±1.24	Agreed
Good nutrition increase focus of individual	16 (9.4)	56 (32.7)	16 (9.4)	39 (22.8)	44 (25.7)	3.23±1.38	Agreed
Nutrition lower high cholesterol of individual	27 (15.8)	49 (28.7)	34 (19.9)	35 (20.5)	26 (15.2)	2.91±1.32	Disagreed
Good nutrition maintains an individual's immune system	29 (17.0)	65 (38.0)	12 (7.0)	35 (20.5)	30 (17.5)	2.84±1.39	Disagreed
Nutrition delays aging of individual	18 (10.5)	73 (42.7)	29 (17.0)	24 (14.0)	27 (15.8)	2.82±1.26	Disagreed
Nutrition and healthy eating positively affect individual mood	24 (14.0)	80 (46.8)	15 (8.8)	30 (17.5)	22 (12.9)	2.68±1.27	Disagreed

Key: *SD=Strongly Disagree; D=Disagree; N=Neutral; A=Agree; SA=Strongly Agree*
Mean ≥ 3.0 =Agreed; <3.0 =Disagreed

As depicted in Table 4.7, the respondents agreed that good nutrition improves individual well being. As many as 155 (90.7%) of the respondents agreed; 12(7.0%) of the respondents disagreed, whereas 4(2.3%) of the respondents were uncertain. This statement had a mean score of 4.26±0.86. Gopalan (2003) states that good nutrition enables one to lead a socially and economically active life and it improves the quality of life as evidenced through enhanced nutritional status of the population groups, better work efficiency rate, reduced mortality and morbidity rate by raising the standard of living.

Again, the respondents agreed that good nutrition helps growth and manage a healthy weight. Statistically, 133(77.8%) of the respondents agreed, whereas 38(22.3%) of the respondents disagreed to that effect. This statement attained a mean of 3.94±1.16. Rouse and Davis (2004) indicated that good nutrition help an individual to reach and maintain a healthy weight, reduce risk of chronic diseases like heart disease and cancer, and to promote overall health. Unhealthy eating habits have contributed to the obesity epidemic in the United States about one-third of U.S. adults 33.8% are obese and approximately 17% of children and adolescents aged 2-19 years

are obese. Even for people at a healthy weight, a poor diet is associated with major health risks that can cause illness and even death.

Moreover, 117(68.4%) of the respondents agreed to the statement that good nutrition increase an individual's energy level, 43(25.1%) of the respondents disagreed, while 6(3.5%) of the respondents were uncertain to the statement. This statement attained a mean of 3.70 ± 1.19 . Also, 117(68.4%) of the respondents agreed that nutrition improves individual ability to recover from illness or injury, 48(28.0%) of the respondents disagreed, whereas 6(3.5%) of the respondents were uncertain to the statement that nutrition improves individual ability to recover from illness or injury. This statement reflected a mean of 3.64 ± 1.20 . The study Dennison et al. (2014), nutritional intake help to increase an individual's energy level and protect individual from these health problems. The risk factors for adult chronic diseases, like hypertension and type 2 diabetes, are increasingly seen in younger ones, often a result of unhealthy eating habits.

Again, it appeared that eating nutritious food reduces high blood pressure of individual. As many as 119 (69.6%) of the respondents agreed; 38(22.9%) of the respondents disagreed, whereas 13(7.6%) of the respondents were uncertain with a mean score of 3.63 ± 1.35 . Kathy (2008) indicated that consuming nutritious food reduces high blood pressure of individual. Kathy affirmed that an individual's nutritional status reflects the degree to which physiologic needs for nutrients are being met. Thus, nutrient intake depends on actual food consumption which is influenced by factors such as economic situation, eating behaviour, emotional climate, cultural influences, effects of various diseases on appetite and the ability to consume and absorb adequate nutrients.

Concerning whether healthy diets may lengthen individual life, 113(66.1%) of the respondents agreed, while 54(31.5%) of the respondents disagreed to that effect. However, 4(2.3%) of the respondents were uncertain to the statement with a mean score of 3.61 ± 1.24 . On the issue that good nutrition increase focus of individual, 83(48.5%) of the respondents agreed with a mean score of 3.23 ± 1.38 . However, 72(42.1%) of the respondents disagreed to the statement, while 16(9.4%) of the respondents were uncertain to the statement that good nutrition increase focus of individual. Tontisirin, et al. (2002) indicated that good nutrition may lengthen individual life, increase focus of individual, and reduced chronic disease risk. By taking various steps to eat healthy, a person will be on the way to getting the nutrients that the body needs to stay strong. As going on physical activity, as making small changes in diet can go a long way, and it is easier. The connections towards foods, the nutrients are provided and heaths are safe, but have reaching consequences for individuals and society.

On the contrary, the respondents disagreed that nutrition lower high cholesterol of individual (2.91 ± 1.32), good nutrition maintains an individual's immune system (2.84 ± 1.39), nutrition delays aging of individual (2.82 ± 1.26), and nutrition and healthy eating positively affect individual mood (2.68 ± 1.27)

The finding reveals that chefs and waiters of restaurants in Birim Central Municipality perceived that good nutrition improves individual wellbeing, helps growth and manage a healthy weight, increase an individual's energy level, and improves individual ability to recover from illness or injury. The chefs and waiters further perceived that eating nutritious food reduces high blood pressure of individual, lengthen individual life, and increase focus of individual. According to Kathleen and Sylvia (2008) when adequate nutrients are consumed to support the body's daily needs and

any increased metabolic demands, the person moves into an optimal nutritional status. This status promotes growth and development, maintains general health, protect them from or predispose them towards chronic disease. Good nutrition is the fundamental requirement for positive health, functional efficiency and productivity. Nutrition science, thus, provides abundant evidence on the importance of nutrition, not only in promoting proper physical growth and development but also ensures adequate immunocompetence, cognitive development and work capacity.

4.5 Relationships between socio-economic and knowledge on nutrition

The relationship between the socio-economic characteristics i.e. gender, age and educational level were ascertain. The statement that met the predetermined cut-off of 3.0 was used.

4.5.1 Gender difference on knowledge level of waiters and chefs on nutrition

An independent sample t-test was performed to compare the knowledge level on nutrition means scores of males and females waiters and chefs.

Table 4. 8: Independent sample t-test on knowledge level on nutrition

	Mean		Std. Dev.		t	df	Sig. (2-tailed)
	Male	Female	Male	Female			
Mushrooms and soya beans are good source of protein	4.28	3.96	1.256	1.289	1.308	169	.192
Vegetable and fruit salads provide essential vitamins and more fiber	4.11	3.34	1.116	1.367	3.114	169	.002*
High fat recipes increase bad cholesterol and increase risk of heart diseases	4.06	3.19	1.094	1.300	3.683	169	.000*
Fish, Prawns and Seafood are good for health than meat products	4.22	3.14	.722	1.492	4.213	169	.000*
Eggs provide good amount of quality protein and iron.	4.06	3.17	1.094	1.194	4.019	169	.000*
Overcooking of food can cause nutrient loss	4.06	3.11	1.241	1.572	3.335	169	.001*

Low fat recipes are good for health and to maintain body weight	3.72	3.09	1.059	1.448	2.453	169	.015*
Overconsumption of sugary food can cause malnutrition	3.44	3.13	1.182	1.272	1.354	169	.178
Milk and milk products are always good for health	3.94	2.60	1.286	1.580	4.704	169	.000*
	4.0	3.19	1.116	1.249	6.832	169	.000*

Note: *p-value is statistically significant at 5% (0.05)

As depicted in Table 4.8, a significant difference was found between males and females knowledge that vegetable and fruit salads provide essential vitamins and more fiber ($t= 3.114$, $df=169$, $P=0.002<0.01$), high fat recipes increase bad cholesterol and increase risk of heart diseases ($t= 3.683$, $df =169$, $P=0.000<0.01$), fish, prawns and seafood are good for health than meat products ($t= 4.213$, $df =169$, $P=0.000<0.01$). The study further shows that male and female chefs and waiters knowledge differ in respect that eggs provide good amount of quality protein and iron ($t=4.019$, $df =169$, $P=0.000<0.01$), overcooking of food can cause nutrient loss ($t=4.446$, $df =169$, $P=0.000<0.01$), low fat recipes are good for health and to maintain body weight ($t=2.453$, $df =169$, $P=0.015<0.01$), milk and milk products are always good for health ($t=4.704$, $df =169$, $P=0.000<0.01$). The study further shows no significant differences between male and female, and the other variables (i.e. Mushrooms and soya beans are good source of protein, and overconsumption of sugary food can cause malnutrition).

However, on whether the mean for knowledge level of chefs and waiters differ with respect to their gender difference, there was a significant difference ($t= 6.832$, $df=169$, $p=0.000$ [$p<0.01$]) between knowledge on nutrition and gender of chefs and waiters This indicates that the difference between the two means ([Male ($M= 4.0$, $SD=1.116$)), [Female ($M=3.19$, $SD=1.249$))] shows statically significant different from zero at the 5% level of significance. Creswell (2003) emphasized that a p-value greater than 0.05 indicates no significance difference, this means that no significance difference

exist when the value of the significant is below 0.05. The finding aligns with numerous studies (De Groote & Kimenju 2008; Gonzalez et al., 2009; Hayat et al. 2010) indicated that gender of hotel staff is a potential determinants of nutritional knowledge. Hossain and Onyango (2004) conclude that males are generally knowledgeable about nutrition than females, by which they are presumably more likely to accept and consume nutritious food.

4.5.2 Association between Age Group and knowledge on Nutrition

A one-way between groups analysis of variance was conducted to explore the association between age group of waiter/waitress and chefs knowledge on nutrition. Participants were divided into six groups according to their age category (*Below 21years; 21-30 years; 31-40years; 41 – 50years; 51 – 60years; Above 60years*).

Table 4. 9: ANOVA of strands when grouped by age group of respondents

		Mean	Std. Dev.	95% Confidence Interval for Mean		df	One – Way ANOVA ^(a)	
				Lower Bound	Upper Bound		F	Sig.
Mushrooms and soya beans are good source of protein	Below 21years	3.57	1.284	2.83	4.31	167	.786	.504
	21-30years	4.05	1.266	3.84	4.26			
	31-40years	4.17	1.528	3.20	5.14			
	41-50years	4.40	1.342	2.73	6.07			
	Total	4.03	1.285	3.84	4.22			
Vegetable and fruit salads provide essential vitamins and more fiber	Below 21years	2.86	1.406	2.05	3.67	167	2.309	.078
	21-30years	3.49	1.349	3.27	3.72			
	31-40years	4.17	1.115	3.46	4.87			
	41-50years	4.00	1.225	2.48	5.52			
	Total	3.50	1.352	3.30	3.71			
High fat recipes increase bad cholesterol and increase risk of heart diseases	Below 21years	2.86	1.406	2.05	3.67	167	1.158	.328
	21-30years	3.39	1.273	3.17	3.60			
	31-40years	3.50	1.567	2.50	4.50			
	41-50years	4.00	1.225	2.48	5.52			
	Total	3.37	1.306	3.17	3.57			
Fish, Prawns and Seafood are good for health than meat products	Below 21years	2.21	1.578	1.30	3.13	167	3.697	.013*
	21-30years	3.45	1.375	3.22	3.68			
	31-40years	3.50	1.567	2.50	4.50			
	41-50years	4.00	1.225	2.48	5.52			
	Total	3.37	1.434	3.15	3.58			
	Below 21years	3.57	.852	3.08	4.06	167	2.843	.039*

Eggs provide good amount of quality protein and iron.	21-30years	3.24	1.240	3.04	3.45			
	31-40years	4.17	1.115	3.46	4.87			
	41-50years	4.00	1.225	2.48	5.52			
	Total	3.36	1.225	3.17	3.54			
Overcooking of food can cause nutrient loss	Below 21years	2.57	1.342	1.80	3.35			
	21-30years	3.30	1.539	3.04	3.56			
	31-40years	3.83	1.749	2.72	4.94	167	2.386	.071
	41-50years	4.40	1.342	2.73	6.07			
Total	3.31	1.554	3.08	3.54				
Low fat recipes are good for health and to maintain body weight	Below 21years	2.71	1.204	2.02	3.41			
	21-30years	3.28	1.440	3.04	3.52			
	31-40years	3.00	1.044	2.34	3.66	167	.915	.435
	41-50years	3.60	1.342	1.93	5.27			
Total	3.22	1.397	3.01	3.43				
Overconsumption of sugary food can cause malnutrition	Below 21years	2.86	1.406	2.05	3.67			
	21-30years	3.14	1.238	2.94	3.35			
	31-40years	4.00	1.044	3.34	4.66	167	2.281	.081
	41-50years	3.60	1.342	1.93	5.27			
Total	3.19	1.257	3.00	3.38				
Milk and milk products are always good for health	Below 21years	2.07	1.639	1.13	3.02			
	21-30years	2.93	1.621	2.66	3.20			
	31-40years	2.83	1.403	1.94	3.73	167	2.053	.108
	41-50years	4.00	1.225	2.48	5.52			
Total	2.88	1.615	2.64	3.13				
		3.36	1.381	3.15	3.57	167	1.743	0.083

Note: *p-value is statistically significant at 5% (0.05)

As indicated in Table 4.10, ANOVA analysis of the difference between respondents view on knowledge on nutrition in different age group shows no significant association value ($F(df)=1.743, p=0.083>0.05$). This is because P-Value is greater than 0.05. On the individual item, there was a statistically significant association between age group of chefs and waiters, and fish, prawns and seafood are good for health than meat products ($F(df) = 3.697, p=0.013 <0.05$), and eggs provide good amount of quality protein and iron ($F(df) = 2.843, p=0.039 <0.05$).

This shows that age group of the chefs and waiters does not differ in respect to their knowledge level on nutrition. The findings concurs with the study by Hayat et al. (2010) who reported that age of individuals are not to be significantly associated with knowledge on nutrition. The finding contradicts with the various studies (De Groote & Kimenju 2008; Muzhingi et al. 2008; Stevens & Winter-Nelson 2008; Gonzalez et al. 2009; Sabbe et al. 2009; De Steur et al. 2012) who observed that age range of hotel staff

have significant different on nutritional knowledge. Moreover older people have been shown to be generally more favour of food with nutritional benefits (Hossain & Onyango 2004; Peng et al. 2006; Sabbe et al. 2009; Markovina et al. 2011), which is likely to be a consequence of their higher sensitivity to, and knowledge of dietary issues (Bogue et al. 2005).

4.5.3 Association between educational level and knowledge of nutrition

Table 4.10 shows One-Way ANOVA test results on the knowledge level of the waiter/waitress and chefs on nutrition according to their different educational level.

Table 4.10: ANOVA of strands when grouped by educational level

		Mean	Std. Dev.	95% Confidence Interval for Mean		df	One – Way ANOVA ^(a)	
				Lower Bound	Upper Bound		F	Sig.
Mushrooms and soya beans are good source of protein	Primary education	5.00	.000	5.00	5.00	167	2.408	.069
	Junior high education	4.14	.990	3.76	4.51			
	Sec./tech. education	3.80	1.448	3.49	4.10			
	Tertiary education	4.33	1.080	4.03	4.63			
	Total	4.03	1.285	3.84	4.22			
Vegetable and fruit salads provide essential vitamins and more fiber	Primary education	5.00	.000	5.00	5.00	167	6.882	.000*
	Junior high education	3.00	1.195	2.55	3.45			
	Sec./tech. education	3.89	1.254	3.62	4.15			
	Tertiary education	3.08	1.398	2.69	3.47			
	Total	3.50	1.352	3.30	3.71			
High fat recipes increase bad cholesterol and increase risk of heart diseases	Primary education	5.00	.000	5.00	5.00	167	5.507	.001*
	Junior high education	2.90	.976	2.53	3.27			
	Sec./tech. education	3.68	1.300	3.41	3.96			
	Tertiary education	3.04	1.328	2.67	3.41			
	Total	3.37	1.306	3.17	3.57			
Fish, Prawns and Seafood are good for health than meat products	Primary education	5.00	.000	5.00	5.00	167	7.684	.000*
	Junior high education	2.97	1.375	2.44	3.49			
	Sec./tech. education	3.80	1.205	3.54	4.05			
	Tertiary education	2.81	1.585	2.37	3.25			
	Total	3.37	1.434	3.15	3.58			
Eggs provide good amount of quality protein and iron.	Primary education	4.00	.000	4.00	4.00	167	7.226	.000*
	Junior high education	2.62	1.049	2.22	3.02			
	Sec./tech. education	3.70	1.205	3.45	3.96			
	Tertiary education	3.15	1.161	2.83	3.48			
	Total	3.36	1.225	3.17	3.54			
Overcooking of food can cause nutrient loss	Primary education	5.00	.000	5.00	5.00	167	4.396	.005*
	Junior high education	2.55	1.454	2.00	3.10			
	Sec./tech. education	3.59	1.580	3.26	3.93			
	Tertiary education	3.19	1.429	2.79	3.59			
	Total	3.31	1.554	3.08	3.54			
	Primary education	5.00	.000	5.00	5.00	167	5.093	.002*
	Junior high education	2.62	1.399	2.09	3.15			

Low fat recipes are good for health and to maintain body weight	Sec./tech. education	3.52	1.295	3.25	3.80			
	Tertiary education	2.98	1.421	2.59	3.38			
	Total	3.22	1.397	3.01	3.43			
Overconsumption of sugary food can cause malnutrition	Primary education	5.00	.000	5.00	5.00			
	Junior high education	2.48	.986	2.11	2.86			
	Sec/tech. education	3.50	1.184	3.25	3.75	167	7.365	.000*
	Tertiary education	3.00	1.314	2.63	3.37			
	Total	3.19	1.257	3.00	3.38			
Milk and milk products are always good for health	Primary education	4.00	.000	4.00	4.00			
	Junior high education	2.10	1.698	1.46	2.75			
	Sec/tech education	3.30	1.510	2.98	3.62	167	5.510	.001*
	Tertiary education	2.58	1.564	2.14	3.01			
	Total	2.88	1.615	2.64	3.13			
		3.358	1.381	3.151	3.567	167	2.735	0.005

Note: **p*-value is statistically significant at 5% (0.05)

Inferring from Table 4.10, ANOVA analysis of the association between chefs and waiters view in different education level on their knowledge of nutrition shows significant values. This means, the knowledge level of chefs and waiters differ with respect to their educational level ($F(df)=2.735, P=0.005<0.01$). Additionally, there was a significant association between educational level of the chefs and waiters on the knowledge that vegetable and fruit salads provide essential vitamins and more fiber ($F(df)= 6.882, P =0.000<0.01$); high fat recipes increase bad cholesterol and increase risk of heart diseases ($F(df)= 5.507, P=0.001<0.01$), and fish, prawns and seafood are good for health than meat products ($F(df) =7.684, p=0.000<.001$). In addition, a significant difference was found between educational level of the chefs and waiters on the knowledge that eggs provide good amount of quality protein and iron ($F(df)=7.226, p=0.000<0.01$), overcooking of food can cause nutrient loss ($F(df)=4.396, p=0.005<0.01$), low fat recipes are good for health and to maintain body weight ($F(df)=7.365, p=0.000<0.01$), and overconsumption of sugary food can cause malnutrition ($F(df)=4.396, p=0.005<0.01$), and milk and milk products are always good for health ($F(df)=5.510, p=0.001<0.01$)

There was a statistically significant association between educational level of respondents and their level of knowledge regarding nutrition. The association is one of

a positive association where the level of knowledge increased with educational level. The result suggests that the higher the educational level of the individual the higher the individual's level of knowledge of the nutrition. The knowledge level of the nutrition was however low among the respondents with basic education. A study by Hossain and Onyango (2004) indicated that highly educated people are more positively associated with the knowledge on nutrition and willing to pay for nutritious foods. According to Hossain and Onyango (2004), educational level is generally included as potential determinants of hotel staff nutritional knowledge.

4.6 Consumers patronage Behaviour of Restaurants

The questionnaire for the consumers had close ended questions and some open ended questions providing flexibility in the choice of responses open to the respondents.

4.6.1 Demographic Characteristics

The demographic characteristics of the traders concentrate on their gender, age category, and educational level. The background of the consumers were very necessary to determine the authenticity of the research.

Table 4. 11: Gender distribution of consumers

Gender	Frequency (N)	Percentage (%)
Male	125	67.6
Female	60	32.4
Total	185	100.0

From Table 4.11, the male customers account for 67.6%, while 32.4% of the customers were female. This implies that there are more men visiting restaurants in Birim Central Municipality than women. The finding aligns with the study conducted

by Ayuba (2014). According to the study there are more male (59.0%) that visits restaurants than their female counterparts. The implication of these results is that most of the responses are coming from the male respondents' point of view and previous researches have shown that men derive satisfaction from functional service quality. Therefore, they are likely to report on being satisfied on the functional aspect. The relational aspect of the service quality will most likely not be properly rated (Molina 2010; Baker 2010, Malik *et al.* 2012). The views of female respondents who are reported to gain satisfaction more through relational aspect of service are more involved in pre-purchase and post purchase behaviours (Ayuba 2014).

Table 4. 12: Age group of consumers

Age group	Frequency (N)	Percentage (%)
Below 21years	6	3.2
21-30years	29	15.7
31-40years	99	53.5
41-50years	41	22.2
51-60years	10	5.4
Total	185	100.0

As depicted in Table 4.12, 3.2% of the consumers included in the study were below 21years; 15.7% of the consumers were between the age bracket of 21 – 30years; 53.5% of the consumers were in the age bracket of 31-40years, while 22.2% of the respondents were in the age group of 41-50 years. On the other hand, 5.4% of the consumers were between the ages of 51-60 years. From the illustration, most customers that visits the selected restaurants in Birim Central Municipality are below 40 years. This indicates that the restaurants are visited by youthful customers. This could be attributed to the ability to spend and need to adventure on the part of the youths.

Table 4. 13: Educational background of consumers

Educational level	Frequency (N)	Percentage (%)
No formal education	5	2.7
Primary education	20	10.8
Junior high education	24	13.0
Secondary/Technical education	57	30.8
Tertiary education	79	42.7
Total	185	100.0

The results obtained indicate that no formal education was 5 (2.7%), primary education was 20 (10.8%), junior high education was 24(13.0%), and secondary/technical education was 57 (30.8%). The tertiary education constituted 65 (36.9%). The finding reveals that majority of the consumers that visits the selected restaurants in Birim Central Municipality has some form of education. This observation is in agreement with the findings by Boyce, Dixon, Fasolo, and Reutskaja (2010) who asserted that educational level plays a major role in deciding which services will result in high customer satisfaction. The implication of this finding is that well educated customers get more engaged in searching and evaluating of products and services which make them more likely to be involved in switching from one restaurant to another in order to get maximized satisfaction (Fernandes *et al.* 2013).

4.6.7 Influence of nutritional knowledge on consumers patronage of restaurants

The fourth research question sought to assess the influence of nutritional knowledge of waiters and chefs on consumer's patronage of the restaurants. Respondents were asked to state their level of agreement on their patronage behavior of the restaurants. Table 4.14 shows the responses of the consumers on their patronage behavior of restaurants. It should be noted that responses for strongly agree and agree

were merged in the write-up to mean ‘agreed’, disagree and strongly disagree were also combined to mean “disagreed”, while uncertain (U) was maintained in the write-up.



Table 4. 14: Responses on consumers on patronage behavior of restaurants

Consumers patronage behaviour	Responses					Mean± SD	Decision
	1=SD	2=D	3=N	4=A	5=SA		
I intend to continue patronizing the restaurant due to the knowledge of waiters and chefs on nutrition	---	26 (14.1)	13 (7.0)	78 (42.2)	68 (36.8)	4.02±1.003	Agreed
I consider this restaurant to be my first choice when I decide to eat outside	8 (4.3)	23 (12.4)	7 (3.8)	80 (43.2)	67 (36.2)	3.95±1.139	Agreed
I feel proud anytime I purchase from this restaurant	---	35 (18.9)	11 (5.9)	77 (41.6)	62 (33.5)	3.90±1.071	Agreed
I am satisfied with the food purchased from the restaurant	10 (5.4)	24 (13.0)	8 (4.3)	78 (42.2)	65 (35.1)	3.89±1.181	Agreed
I have a strong preference for the restaurant due the knowledge of waiters and chefs on nutrition	9 (4.9)	29 (15.7)	5 (2.7)	88 (47.6)	54 (29.2)	3.81±1.163	Agreed
I say positive things about this restaurants to others.	7 (3.8)	37 (20.0)	8 (4.3)	83 (44.9)	50 (27.0)	3.71±1.174	Agreed
I believe this is a good restaurant due the knowledge of waiters and chefs on nutrition	16 (18.6)	30 (16.2)	7 (3.8)	71 (38.4)	61 (33.0)	3.71±1.311	Agreed
I highly recommend the restaurant to my friends and family	10 (5.4)	31 (16.8)	9 (4.9)	90 (48.6)	45 (24.3)	3.70±1.168	Agreed
I am a loyal customer of this restaurant because of knowledge of waiters and chefs on nutrition	28 (15.1)	66 (35.7)	7 (3.8)	46 (24.9)	38 (20.5)	3.00±1.430	Disagreed
I spend a lot time in the restaurant	30 (16.2)	76 (41.1)	13 (7.0)	47 (25.4)	19 (10.3)	2.72±1.287	Disagreed
I do not consider the price before patronizing the restaurant	34 (18.4)	76 (41.1)	8 (4.3)	46 (24.9)	21 (11.4)	2.70±1.329	Disagreed
I visit the restaurant everyday	57 (30.8)	97 (52.4)	10 (5.4)	15 (8.1)	6 (3.2)	2.01±.992	Disagreed

Key: SD = Strongly Disagree, D = Disagree, U= Uncertain, A = Agree, SA = Strongly Agree
() Percentages in brackets $\bar{x} \geq 3.0$ =agreed

From Table 4.14, the consumers indicated that they intend to continue patronizing the restaurant due to the knowledge of waiters and chefs on nutrition, 146 (79.0%) of the respondents agreed to the statement, while 13(7.0%) of the respondents remained uncertain. On the contrary, 26(14.1%) of the respondents disagreed to that effect with a mean score of 3. 4.02±1.003. On whether the consumers consider the restaurant to be their first choice when they decide to eat outside, 147 (79.4%) of the

respondents agreed with the statement. However, 7(3.8%) of the respondents were uncertain, while 31 (16.7%) of the respondents disagreed to the statement that they consider the restaurant to be their first choice when they decide to eat outside. This statement had a mean score of 3.95 ± 1.139 .

Concerning whether the consumers feel proud anytime they purchase from the restaurant, 139(75.1%) of the respondents agreed, 11(5.9%) of the respondents were uncertain, while 35(18.9%) of the respondents disagreed to the statement. This statement had a mean of 3.90 ± 1.071 . With reference that consumers are satisfied with the food purchased from the restaurant, 143(77.3%) of the respondents agreed to the statement. However, 8(4.3%) of the respondents remained uncertain, whereas 34(18.4%) of the respondents disagreed to that effect with a mean score of 3.89 ± 1.181 .

On whether the consumers have a strong preference for the restaurant due the knowledge of waiters and chefs on nutrition, 142 (76.8%) respondents agreed, while 5(2.7%) of the respondents remained uncertain to the statement. Conversely, 38(20.6%) of the respondents disagreed to the statement, with a mean score of 3.81 ± 1.163 .

On whether the consumers say positive things about the restaurants to others, 133 (71.9%) of the respondents agreed to the statement. However, 8(4.3%) of the respondents were uncertain, whereas 44 (23.8%) of the respondents disagreed to that effect. This statement had 3.71 ± 1.174 mean score. Again the consumers believe the restaurant is good due the knowledge of waiters and chefs on nutrition. As many as 132(71.4%) of the consumers agreed to the statement, 7(3.8%) of the respondents were uncertain, whereas 46(34.8%) of the respondents disagreed to the statement. This statement attained a mean of 3.71 ± 1.311 .

Again, 135(72.9%) of the consumers agreed that they highly recommend the restaurant to their friends and family, while 41(22.2%) of the respondents disagreed to that effect. However, 9(4.9%) of the respondents were uncertain with a mean score of 3.70 ± 1.168 . On the contrary, the consumers disagreed that they are loyal customer of the restaurant because of knowledge of waiters and chefs on nutrition (3.00 ± 1.430), spend a lot time in the restaurant (2.72 ± 1.287), do not consider the price before patronizing the restaurant (2.70 ± 1.329), and visit the restaurant everyday ($2.01 \pm .992$). These statements failed to meet the predetermined cut-off point of 3.0.

The finding shows that consumers have good behavior towards the patronage of the restaurants in the Birim Central Municipality. It was discovered that the consumers intend to continue patronizing the restaurant, consider the restaurant to be the first choice when they decide to eat outside, feel proud anytime they purchase from the restaurant, and are satisfied with the food purchased from the restaurant. It was further revealed that the consumers have a strong preference for the restaurant, say positive things about the restaurants, and highly recommend the restaurant to friends and family

4.6.2 Regression Analysis

In order to determine the influence of nutritional knowledge on consumer's patronage of restaurants, regression analysis was used. The results are summarized and the original Table from SPSS-23.0.

Table 4. 15: Regression result on the effect of nutritional knowledge on consumers patronage

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.445 ^a	.198	.194	1.020	.198	45.200	1	183	.000

a. Predictors: (Constant), knowledge on nutrition variables

b. Dependent Variable: Customer patronage behaviour variables

From the summary model Table 4.15, the study found a positive and significant ($F(df)=45.20, p=0.000<0.01$) relationship between nutritional knowledge of chefs and waiters, and consumers patronage behaviour. It also reveal that the number of column R, is the relationship between nutritional knowledge and consumers patronage of restaurant (correlation coefficient) is 0.445 which means there is a strong and direct or positive relationship between nutritional knowledge level of chefs and waiters on consumers patronage of a particular restaurant. R square states the magnitude of the influence of nutritional knowledge of waiters and chefs on consumer’s patronage of the restaurants (coefficient of determination) is 0.198. This means the magnitude of the effect of nutritional knowledge of chefs and waiters on consumers patronage is 19.8%, while the remaining 80.2% ($100\% - 19.8\%$) is influenced by variables – other variables not examined in this study.

Table 4.16: Result of Coefficient Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.240	.265		8.464	.000
Knowledge on nutrition	.468	.070	.445	6.723	.000

a. Dependent Variable: consumer patronage behaviour

Based on the Table 4.16 of regression coefficient test results, then obtained are analyzed that the regression equation to estimate consumers patronage of a restaurant is influenced by the nutritional knowledge level of chefs and waiters. Based on the results, it is known that there is influence of nutritional knowledge of waiters and chefs on consumer’s patronage of the restaurants, then the consumer’s patronage of the restaurants will continue to increase if the knowledge level of chefs and waiters upgraded and improved. Therefore, for further research, it is advisable to add another

independent variable. There is strong evidence that nutritional knowledge of restaurants staff and information or claims about the nutritional/health benefits of foods, influence consumers' acceptance, purchase intentions and actual consumption. Studies (Annunziata & Vecchio, 2010; De Steur et al. 2010; Hayat et al., 2010; De Groote et al., 2011) reported a significant effect of nutritional knowledge of restaurant staffs on consumers purchase patronage of a particular restaurants.

The finding concurs with the by Riechier and Dalton (1998) who affirmed that consumers are concerned about nutrition which influence their patronage to a particular restaurant. Center of Science in the public interest found that 74 percent of adults considered healthy choices is an important factor when selecting a restaurant (Lewis, 1994). The nutrition expertise of chef is a key component in the continuity of effort to convince consumers to change their eating habits and to seek out healthy food items when eating out. Spronk, et al. (2014) examined the relationship between nutrition knowledge and consumer patronage of restaurants. The majority of the studies (65.5%; community 63.6%; athletic 71.4%) reported significant, positive, but weak ($r=0.5$) associations between higher nutrition knowledge and consumer patronage of restaurants product.

The result agrees with the work of Verbeke (2006) that nutritional knowledge of chefs and waiters increases the likelihood to consumers believe the foods actually have a positive benefit to their diet and overall health. Regarding the type of knowledge, both overall and nutrient-specific knowledge significantly affects the outcomes of consumer patronage of a particular restaurant (Peng et al. 2006; Pounis et al. 2011; De Groote et al., 2011; De Steur et al., 2012), even in the case of sensitive products (Vecchione et al. 2015).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter sums up the findings from the study, draws conclusions arising from the study and makes relevant recommendations based on the findings and conclusions.

5.2 Summary of Key Findings

A number of findings were made after a discussion of the responses. They are summarized as below;

5.2.1 Nutritional knowledge level of waiters and chefs

- The finding showed that taste, nutrient density, aroma, texture, food safety, cost, presentation/appearance, and flavor of food are the most important food qualities considered by the chefs and waiters of restaurants in Birim Central Municipality in their service delivery.
- The study indicated the chefs and waiters at the various restaurants in Birim Central Municipality had knowledge on nutrition. The study shows chefs and waiters had knowledge that mushrooms and soya beans are good source of protein, vegetable and fruit salads provide essential vitamins and more fiber, and also high fat recipes increase bad cholesterol and increase risk of heart diseases.

- It was evident that chefs and waiters had knowledge that fish, prawns and seafood are good for health than meat products, and also eggs provide good amount of quality protein and iron.

5.2.2 Perception of waiters and chefs on the importance of nutrition

- The study found that chefs and waiters of restaurants in Birim Central Municipality perceived that good nutrition improves individual wellbeing, helps growth and manage a healthy weight, increase an individual's energy level, and improves individual ability to recover from illness or injury.
- It was further emerged that the chefs and waiters perceived that eating nutritious food reduces high blood pressure of individual, lengthen individual life, and increase focus of individual.

5.2.3 Relationships between socio-economic and knowledge on nutrition

- The study revealed that the mean for knowledge level of chefs and waiters differ with respect to their gender difference ($t= 6.832$, $df=169$, $p=0.000$ [$p<0.01$])
- The study indicated that the mean difference between chefs and waiters knowledge on nutrition in different age group shows no significant association value ($F(df)=1.743$, $p=0.083>0.05$).
- It appeared that the association between chefs and waiters view in different education level on their knowledge of nutrition shows significant values ($F(df)=2.735$, $P=0.005<0.01$).

5.2.4 Influence of nutritional knowledge on consumers patronage of restaurants

- The study found a positive and significant ($p=0.000<0.01$) relationship between nutritional knowledge of chefs and waiters, and consumers patronage behaviour
- It appeared from the study that the effect of nutritional knowledge of chefs and waiters on consumers patronage of the restaurant is 19.8%, while the remaining 80.2% ($100\% - 19.8\%$) is influenced by other variables

5.3 Conclusion

According to the study taste, nutrient density, aroma, texture, food safety, cost, presentation/appearance, and flavor of food are the most important food qualities considered by the chefs and waiters of restaurants in Birim Central Municipality in their service delivery. Also, the chefs and waiters at the various restaurants in Birim Central Municipality had knowledge on nutrition. The study showed chefs and waiters had knowledge that mushrooms and soya beans are good source of protein, vegetable and fruit salads provide essential vitamins and more fiber, and also high fat recipes increase bad cholesterol and increase risk of heart diseases.

It can expediently concluded that chefs and waiters have good perception of nutrition health. Chefs and waiters of restaurants in Birim Central Municipality perceived that good nutrition improves individual wellbeing, helps growth and manage a healthy weight, increase an individual's energy level, and improves individual ability to recover from illness or injury. The study revealed that the knowledge level of chefs and waiters on nutrition differ with respect to their gender difference. It was discovered that there is no significant difference between chefs and waiters knowledge on nutrition in different age group shows. On the other hand, the association between chefs and waiters view in different education level on their knowledge of nutrition shows

significant values. It was concluded that the knowledge level of chefs and waiters have influence on consumer's patronage of restaurants. The effect of nutritional knowledge of chefs and waiters influence on consumer's patronage of the restaurant is 19.8 percent.

5.4 Recommendations

Based on the findings of the study and conclusions drawn from them, the following recommendations are being made:

- The management of the restaurants should work together with the chefs and waiters to find innovative ways to improve chefs and waiters knowledge and attitude towards nutrition in order to convince the public on making healthful selections when eating out.
- Since the chefs and waiters strongly believe that nutrition is important, however there is a great need to create facilitating environments to put perceptions into sustaining practices at the various restaurants in Birim Central Municipality.
- Concerned bodies like the government officials should seriously consider or support the hospitality business to make the restaurants in Ghana more international brand and to give attentions to the hospitality sectors like other disciplines.

5.5 Suggestion for Further Research

Several research implications and limitations emerged from this study. First, the study limited to examine restaurants located in Birim Central Municipality. It means that limited to geographical area and data analyzed only considering 527 questionnaires. The relevance of suggested consider other areas and analyzed data by using at least 356 completed questionnaires. Second the

researcher developed questionnaire by referring literature review and it has been done based on one article which have conducted similar study in Ghana. For future researchers can choose different items by reviewing relevant more articles and this has to be explored further.

Finally, the results of this study may not have been representative of the whole population, due to the fact that a purposive sampling method was used to collect the data. To be able to generalize the findings for this specific restaurant segment, a study that would include more restaurants in a variety of regional settings. Also, future research should continue to focus on identifying barriers to healthful eating in the commercial food service industry.



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APPENDIX A

SAMPLE SIZE DETERMINATION

Required Sample Size[†]

Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	128	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	280	398	526	739	383	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3642
7,500	365	710	1275	4211	610	1147	1980	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
300,000,000	384	784	1537	9603	663	1354	2654	16586

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CLASS A					
Bright Sky hotel					
Rabbson hotel					
Quafari hotel					
Green Pearls restaurants					
Ages Abba Hotel					
Outlook hotel					
Ntiamoah hotel					
CLASS B					
Kanamp Rest					
Dominion Hotel					
Chrisrose Hotel					
Premier rest/hotel					
Home sweet home rest/hotel					
Beauty of nature rest					
Morning Star Hotel					
CLASS C					
Fadakye Loung					
Vary Vane Hotel					
Seven Souls Hotel					
Adom Rest					
Hospital food Joint					
Baffoah Hotel					
Linda's Rest					
Liberty Rest					
Ankoma Lounge					
Peace and Love Rest					
Dennidor Rest					
Diana Asare Lounge					
Snor white bar					
Two sisters joint					
CLASS D					
Anokyewaa Hotel					
Sister Lounge					
Dabills Rest					
O'Right Rest					
Akron city Rest					
Bugatty rest					
Ogray rest					
Eli Eli Hotel					
Awuakyewaa Hotel					
Caprice Hotel					
Oman hotel					
Mandalina Hotel					
CLASS E					
Home Away Rest					
Top café rest					
African joint					

King Solomon rest					
Kitchen woman rest					
Melting Pot Joint					
Milson rest					
Samdora Rest					
Kanashie Rest					



APPENDIX B

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

QUESTIONNAIRE FOR WAITERS AND CHEFS

Preamble: The researcher is a student of the University of Education Winneba – Kumasi Campus, and is undertaking a study on the topic “**nutritional knowledge of waiters and chefs in selected restaurants in the Birim Central Municipality**”. The research is a requirement for the award of Master of Technology in Catering and Hospitality Education. Your responses to the questions below are very important to the outcome of the study, which is purely for academic use. Your responses will be treated with absolute confidentiality. Thank you for your time and co-operation.

Section A: Background Information of Respondents

1. What is the title of your job?
Waiter/waitress [] Chef []
2. Please indicate your gender.
Male [] Female []
3. Please indicate your age group
Below 21years [] 21-30 years [] 31-40years []
41 – 50years [] 51 – 60years [] Above 60years []
4. How long have you been working in your current institution?
Below 1 years [] 1 – 5 years [] 6 – 10 years []
11–15 years [] Above 15years []
5. What is your highest academic qualification?
No formal education [] Primary education []

Junior High education [] Secondary/Technical education []
 Tertiary Education [] Other (please specify):.....

Section B: Nutritional Knowledge level of Waiters and Chefs

6. Have you had any nutritional training as a waiter or chef?

Yes [] No []

If “Yes” explain kind of nutritional training received during your studies.

.....

7. Are you equipped to make good nutritional choices for your client?

Yes [] No []

8. Please in order of 1=not important; 2=Little important; 3=Uncertain; 4=important; 5=Very important indicate how you consider these food qualities in your service delivery

S/n	Food qualities	Responses				
		1	2	3	4	5
1.	Presentation/appearance					
2.	Colour					
3.	Flavour					
4.	Aroma					
5.	Taste					
6.	Texture					
7.	Nutrient density					
8.	Cost (Profit margin)					
9.	Ease of preparation					
10.	Food Safety (free from chemical, physical and microbiological hazards)					

9. Do you have clients with special nutrient needs?

Yes []

No []

If “Yes” what are some of the nutritional concerns of your clients?

1. Vegetarianism :

.....

2. Cardiovascular disease:.....

.....

3. Obesity:

.....

4. Diabetes:

.....

5. Any other, please specify:.....

.....

.....

10. Which special diets do you recommend on your menu for those with the following problems or needs?

Dietary problem/choices	Menu	Content
Vegetarian		
Cardiovascular disease		
Obesity		
Diabetes		
Any other, please specify:		

11. Please indicate your position on the knowledge level towards food nutrition of an individual's health. Please rate your responses using a scale of 1 to 5: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). **Please tick the box which best reflect your view**

S/n	Nutrition knowledge level	Score				
		1	2	3	4	5
1	Overconsumption of sugary food can cause malnutrition					
2	Vegetable and fruit salads provide essential vitamins and more fiber					
3	Always a combination of cereal and pulses enhances the nutritive value.					
4	Germination and fermentation of foods increases the nutritive value in terms of protein and vitamin 'C'					
5	Eggs provide good amount of quality protein and iron.					
6.	Chicken provide good amount of quality protein and iron.					
7.	Lean meat provides good amount of quality protein and iron.					
8.	Fish, Prawns and Seafood are good for health than meat products					
9.	Low fat recipes are good for health and to maintain body weight					
10.	High fat recipes increase bad cholesterol and increase risk of heart diseases					
11.	Diabetic clients (or) Consumers require 50g of vegetables, fiber and low fat and low energy foods.					
12.	Diabetic clients (or) Consumers require 30g of fiber					
13.	Diabetic consumers require 10g low fat					
14.	Diabetic consumers require 15g low energy foods					
15	Milk and milk products are always good for health					
16	Using too much calories can cause obesity					
17	Overcooking of food can cause nutrient loss					
18	Frying of food can cause nutrient loss					
19.	Whole grains are nutritious than polished ones					

20.	Pulses are good source of protein					
21.	Mushrooms and soya beans are good source of protein					

Section C: Perception on the importance of nutrition for the maintenance of an individual's health.

12. To what extent do you agree or disagree with the following statements. Indicate your position on the importance of nutrition for the maintenance of an individual's health. Please rate your responses using a scale of 1 to 5: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). **Please tick the box which best reflect your view and state briefly where necessary**

	Perception on importance of nutrition					
22.	Good nutrition helps growth and manage a healthy weight					
23.	Eating nutritious food reduces high blood pressure of individual					
24.	Good nutrition improves individual well being					
25.	Nutrition lower high cholesterol of individual					
26.	Nutrition improves individual ability to recover from illness or injury					
27.	Good nutrition increase an individual's energy level					
28.	Good nutrition maintains an individual's immune system					
29.	Nutrition delays aging of individual					
30.	Nutrition and healthy eating positively affect individual mood					
31.	Healthy diets many lengthen individual life					
32.	Good nutrition increase focus of individual					

APPENDIX C

**UNIVERSITY OF EDUCATION, WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION, KUMASI**

QUESTIONNAIRE FOR CONSUMERS

Preamble: The researcher is a student of the University of Education Winneba – Kumasi Campus, and is undertaking a study on the topic “**nutritional knowledge of waiters and chefs in selected restaurants in the Birim Central Municipality**”. The research is a requirement for the award of Master of Technology in Catering and Hospitality Education. Your responses to the questions below are very important to the outcome of the study, which is purely for academic use. Your responses will be treated with absolute confidentiality. Thank you for your time and co-operation.

Section A: Background Information of Respondents

1. Please indicate your gender.
Male [] Female []

2. Please indicate your age group
Below 21years [] 21-30 years [] 31-40years []
41 – 50years [] 51 – 60years [] Above 60years []

5. What is your highest academic qualification?
No formal education [] Primary education []
Junior High education [] Secondary/Technical education []
Tertiary Education [] Other (please specify):.....

6. What is your occupation?
Self-employed [] not employed [] Government /private job []

If Other specify:.....

12. To what extent do you agree or disagree on the influence of nutritional knowledge of waiters and chefs on consumers patronage of the restaurants. Please rate your responses using a scale of 1 to 5: Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). **Please tick the box which best reflect your view and state briefly where necessary**

S/n	Consumers patronage behavior of the restaurants	Score				
		1	2	3	4	5
1.	I have a strong preference for this restaurant due the knowledge of waiters and chefs on nutrition					
2.	I say positive things about this restaurants to others.					
3.	I highly recommend the restaurant to my friends and family.					
4.	I consider this restaurant to be my first choice when I decide to eat outside					
5.	I believe this is a good restaurant due the knowledge of waiters and chefs on nutrition					
6.	I am satisfied with the food purchased from the restaurant					
7.	I am a loyal customer of this restaurant because of knowledge of waiters and chefs on nutrition					
8.	I feel proud anytime I purchase from this restaurant					
9.	I intend to continue patronizing the restaurant due to the knowledge of waiters and chefs on nutrition					
10.	I spend a lot time in the restaurant					
11.	I do not consider the price before patronizing the restaurant					
12.	I visit the restaurant everyday					