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# Food Choice Behaviour among Ghanaians: Implications for Health Promotion

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**Abstract** Even though the key drive for eating is hunger, what one chooses to eat is not determined solely by physiological or nutritional needs. Consumers make their purchasing decisions based on a number of factors, hence the need for greater understanding of these determinants to facilitate outcome of successful interventions. The study was to investigate the determinants of food choice behaviour among Ghanaians in the Greater Accra Region. A cross-sectional survey, mainly by questionnaire, was used to source information on socio-demographic, medical history and food choice behaviours of consumers between the ages of 18-75 years who patronize some super markets and shopping malls within the Greater Accra Region. Multivariate logistic regression model was used to examine and assess associations between determinants of food choice behaviour and socio-demographic predictors. All analyses were two-tailed and a 'p' value less than 0.05 was considered statistically significant. Money (cost), time (convenience), adverts and label information were some key determinants that influenced food choice behaviour of most respondents. Females were mostly influenced by nutrition/diet books and food label information as compared to male respondents. Our findings also suggested that respondents with education up to middle school or no formal education were more likely to be influenced by advertisement on mass media compared to those with formal education from the senior high school up to the university levels. Perceived body weight did not influence food choice behaviour much since most participants thought they had normal weight. Socio-economic status, level of education and gender are key determinants of food choice behaviours. These are key factors to be considered to plan interventions to help Ghanaians make better food choices.

***Keywords:*** *food choice behaviour, health implications, consumer, advert, food label, ghana*

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## 1. Introduction

The world is rapidly shifting from a dietary period in which the higher-income countries are dominated by patterns of degenerative diseases to one in which the whole world is increasingly being dominated by these diseases. Parallel to this phenomenon is the changes in diet, which appears to be shifting universally toward one, dominated by higher intakes of animal and partially hydrogenated fats and lower intakes of fibre [1]. This has contributed to the emerging rise of non-communicable diseases globally [2]. Since the 1950s, the link between diet and chronic diseases such as cancer and cardiovascular disorders has been increasingly well recognised world-wide [3]. Increased consumption of foods containing high levels of sugar, fat, saturated fatty acids, trans-fatty acids and sodium, have impacted eating habits negatively in many parts of the world [4]. For instance, changes in the food environment, including the proliferation of super markets, convenience and fast foods high in energy and fat content, have paralleled the obesity epidemic [5]. According to the World Health Organization (WHO) estimates, by the year 2020, chronic non-communicable diseases will account for approximately three-quarters of all deaths in the developing world [2]. To prevent such nutrition related diseases, the WHO has recommended the reduction in sugars, fat, saturated fats and trans fats in processed foods, in order to improve the nutritional value of food products [6]. As a result, consumers are now becoming more aware of the role diet can play in their health. While health is valued by everybody and therefore is one of the fundamental drivers of human behaviour, attempts to change eating patterns by informing consumers about the link between diet and health have been difficult [7]. Even though the key drive for eating is hunger, what one chooses to eat is not determined solely by physiological or nutritional needs. Food choice behaviour is influenced by a large number of factors including social, cultural, economic, physical, psychological, biological, attitude, knowledge about food among others [8]. Factors such as cost, appearance, convenience of use and perceived quality of product among others, influence decisions made in shopping centers and marketplaces. A study by De Irala-Estevez et

al. [9] showed that low-income groups have a greater tendency to consume unbalanced diets and in particular have low intakes of fruit and vegetables. Given the priority of dietary changes globally, there is a need for a greater understanding of these determinants to facilitate outcome of successful interventions. Therefore, the research question for this study was: What are the factors that influence consumers' food choice behaviour pattern among Ghanaians?

## 2. Materials and Methods

The study was conducted in the Accra Metropolis chosen from selected first, second and third class residential areas based on income/socio-economic zones as outlined in the Local Government Bulletin (2002) of the Accra Metropolitan Assembly. The specific study sites were well patronized super markets and shopping centres located in each of these income/socioeconomic zones. A pre-tested standardized validated questionnaire consisting of closed ended questions with multiple choice answers and open-ended questions (a modified version of Duyff's [10] research questionnaire) was used to solicit information on socio-demographics, food choice behaviours and medical history of respondents. Illustration charts were also used to further elaborate specific examples during the face-to-face interviews. The minimum sample size was determined using a desired error margin of 0.04 %, a critical z-score of 1.96 % and 0.5% representing the proportion of the population that patronizes super markets and shopping centres in the greater Accra region, since the prevalence was not known. The final sampled population after data cleaning consisted of 616 consumers between the ages of 18-75 years. Exclusion criteria: Respondents with training or work experience in the health sector such as dieticians, nutritionists, physicians, dietetic / nutrition students were excluded from the study to avoid bias.

A systematic random sampling was used for this study. Blocking for gender was used during data collection to balance the female to male ratio, since traditionally more females visit the shopping and market centers than their male counterparts. Every 3rd shopper who entered the shopping/market center for each gender was randomly selected separately to participate in the study. When a respondent declines to participate, the next person was approached. Data was collected between August 2010 and March 2011 from all the shopping centres, six days in a week (Monday to Saturday), from morning to late afternoon, to ensure better coverage of all types of consumers. The mode of data collection was by face-to-face interviews and self-administered questionnaires. Those who did not have the time to talk immediately but were willing to participate were interviewed at a later time via telephone.SPSS Version 16 for Windows was used to analyze the data. Chi-square tests were conducted for qualitative variables to assess for all associations. Multivariate logistic regression model was used to examine and establish associations between two attributes as well as other variables of interest. All analyses were two-tailed, and a p-value less than 0.05 was considered statistically significant.

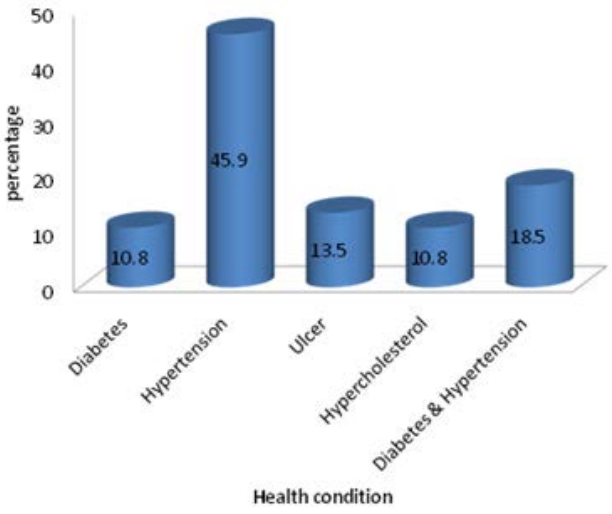
## 3. Results

### 3.1. Background Characteristics

An overview of the socio-demographic characteristics of the participants is presented in Table 1. A total of 616 individuals participated in the study out of which 304 (49.4%) were males while 312 (50.6%) were females. Most participants were young adults, 15-24 years or middle adults, 25-44 years, (284; 46.1% and 244; 39.6%) respectively. Only 6 (1.1%) were ≥ 65 years. A greater number of participants (458; 74.5%) were either single, separated, divorced or widowed while the rest were married. Educational profile indicated that 343 (56.2%) respondents had tertiary education with only 12.0% having either primary or no education at all. About half of the respondents 291 (47.2%) were Akans with 325 (52.8%) being non Akans. Majority 425 (69.0%) of the respondents were employed and living in high socioeconomic class residential areas 349 (56.0%).

### 3.2. Medical History of Respondents and Family

Most respondents perceived themselves to have good health status 477 (77.5%) with only 13 (2.1%) thinking they had poor health (Table 1). Table 2 shows that majority of the respondents were neither on any special diet, did not have any diet related medical condition nor any family history of any diet related medical condition. More females had a family history of diet related diseases compared to males (8.3% vs. 4.2%; p=0.013). Hypertension (45.9%) was identified as the most common diet related health condition among the respondent who said yes, followed by Hypertension and Diabetes. Of the respondents who had a family history of diet-related medical condition, overweight/obesity (33%) was the most prevalent followed by high cholesterol/stroke (27%).




### 3.3. Determinants of Food Choice Behaviours

Most respondents' choice of food product was often influenced by label information (41.1%) while advertisement (44.1%), size of product (38.9%) and attractiveness (37.7%) was found to sometimes influence

their food choice behaviour. The size of product (20%) was the least to influence most respondents, followed by attractiveness of product, value/weight of product (25.9%) then advertisement on mass media (26.2%) (Figure 1). Approximately half 340 (55.1%) of the respondents reported that their choice of food is influenced by money (cost), 38.9% by time (convenience) and 31.9% by a nutrition/diet book guide (Figure 2). Most respondents 259 (42.0%) were influenced by cost attributed that to insufficient funds. Majority 232 (37.7%) of respondents assessed food product well before purchase, thus were mostly influenced by time positively (Table 3). Majority of the participants 413 (67.7%) were satisfied with their perceived body size (weight) as participants 459 (75.2%) perceived they had normal weight and did not affect their food choice. Only 14 (2.3%) thought they were obese.

**Table 1. Socio-demographic profile of respondents by gender**

| Characteristics | Male N=304[a] | Female N=312[a] | Total N=616[a] | p-value |
|---|---|---|---|---|
| *Age groups (yrs) | | | | |
| 15-24 | 137(45.1) | 147(47.1) | 284(46.1) | |
| 25-44 | 127(41.8) | 117(35.5) | 244(39.6) | |
| 45-64 | 38(12.5) | 44(14.1) | 82(13.3) | |
| ≥ 65 | 2(0.7) | 4(1.3) | 6(1.1) | |
| Marital status | | | | |
| Married | 84(27.6) | 74(23.5) | 158(25.5) | |
| [1]Others | 220(72.4) | 238(76.5) | 458(74.5) | |
| | | | | 0.550 |
| Educational level | | | | |
| [2]Tertiary | 169(55.6) | 175(56.1) | 343(56.2) | |
| Senior high school(SHS) | 104(34.2) | 94(29.5) | 196(31.8) | 0.237 |
| [3]Others | 31(10.2) | 43(13.5) | 77(12.0) | |
| | | | | 0.390 |
| Length of Stay | | | | |
| less than 1 yr | 17(5.6) | 20(6.4) | 37(6.0) | |
| 1-4 yrs | 57(18.8) | 72(23.0) | 129(21.0) | 0.534 |
| 5 yrs or more | 230(75.7) | 220(70.5) | 450(73.1) | |
| | | | | 0.123 |
| Tribe | | | | |
| Akans | 152(50) | 139(44.6) | 291(47.2) | |
| [4]Non akans | 152(50) | 173(55.4) | 325(52.8) | 0.206 |
| Employment status | | | | |
| [5]Employed | 217(71.4) | 208(66.7) | 425(69.0) | |
| [6]Unemployed | 87(28.6) | 104(33.3) | 191(31.0) | |
| | | | | 0.508 |
| [7]SES | | | | 0.458 |
| High | 166(54.6) | 184(58.7) | 349(56.7) | |
| Middle/Low | 138(45.4) | 128(41.0) | 267(43.3) | |
| Health Status | | | | |
| Good | 244(80.3) | 233(74.7) | 477(77.5) | |
| Fair | 54(17.8) | 72(23.1) | 126(20.4) | |
| Poor | 6(2.0) | 7(2.2) | 13(2.1) | |

*Age group based on UN classification into young adulthood, middle adulthood, older adulthood and retirement age respectively; [1]Others denotes Single, Divorced, Separated and Widowed; Tertiary denotes diploma, degree, postgraduate; [3]Other denotes educational levels up to Middle School, Primary School and No Education; [4]Non akans denotes Ga/adangbes, Ewes, Northners, others; [5]Employed denotes bankers, educationist, health workers, manufacturers, traders, farmers, artisans, others; [6]Unemployed denotes students etc; [7]SES denotes socioeconomic residential status; [a] Values in the columns are n (%).

**Table 2. Medical history of respondents by gender**

| Characteristic | Male n(%) | Female n(%) | Total N=616 | p-value |
|---|---|---|---|---|
| On special diet | | | | |
| Yes | 13(2.1) | 19(3.1) | 32(5.2) | |
| No | 291(47.2) | 290(47.1) | 581(94.3) | 0.134 |
| Not sure | 0 | 3(0.5) | 3(0.5) | |
| History of diet-related disease | | | | |
| Yes | 19(3.1) | 27(4.4) | 46(7.6) | |
| No | 248(40.3) | 247(40.1) | 495(80.4) | |
| Not sure | 37(6.0) | 38(6.2) | 75(12.2) | 0.521 |
| Family history of diet-related disease | | | | |
| Yes | | | | |
| No | 26(4.2) | 51(8.3) | 77(12.5) | |
| Not sure | 198(32.1) | 189(30.7) | 387(62.8) | 0.013* |
| | 80(13.0) | 72(11.7) | 152(24.7) | |

All * Significant at p<0.05

A binary logistic regression showed no significant influence by advertisement and size of product across the socio-demographic strata of respondents except their level of educational. Respondents educated to the secondary level and above were less likely to be influenced by advertisement of product compared to the ones with primary or no education at all (OR, 0.52; 95% CI, 0.29—0.94; p = 0.031) (Table 3).There were no significant influence by label information and cost of product on respondents across their socio-demographic strata though males were about 10% less likely to be influenced by label information compared to females (OR, 0.88; 95% CI, 0.63—1.22; p = 0.427). Cost of product was less likely to influence employed respondents compared to unemployed ones (OR, 0.84; 95% CI, 0.55—1.27; p= 0.403) (Table 4). Male respondents were less likely to be influenced by diet/nutrition books, as well as time compared to females (OR, 0.68; 95% CI, 0.47—0.98; p = 0.040) and (OR, 0.70; 95% CI, 0.50—0.98; p = 0.036) respectively. Young and middle adults were less likely influenced by diet/nutrition books compared to adults at retirement age (OR, 0.06; 95% CI, 0.01—0.63; p = 0.019 and OR, 0.05; 95% CI, 0.01—0.53; p = 0.012 respectively). These were all significant.

**Table 3. Association between socio-demographic and food choice behaviours**

| | Time (convenience) | | | Diet/nutrition book | | |
|---|---|---|---|---|---|---|
| Predictors | OR | 95% CI | p-value | OR | 95% CI | p-value |
| Age | | | | | | |
| 15-24 | 0.50 | 0.09—2.77 | 0.430 | 0.06 | 0.01—0.63 | 0.019* |
| 25-44 | 0.75 | 0.14—3.99 | 0.734 | 0.05 | 0.01—0.53 | 0.012* |
| 45-64 | 1.49 | 0.08—2.77 | 0.414 | 1.07 | 0.01—0.68 | 0.022* |
| 65+ | 1.00 | Reference | | 1.00 | Reference | |
| Gender | | | | | | |
| Male | 0.70 | 0.50—0.98 | 0.036* | 0.68 | 0.47—0.98 | 0.040* |
| Female | 1.00 | Reference | | 1.00 | Reference | |
| Educational level | | | | | | |
| Tertiary | 0.66 | 0.38—1.16 | 0.147 | 1.19 | 0.64—2.24 | 0.576 |
| SHS | 0.96 | 0.54—1.71 | 0.900 | 0.96 | 0.50—1.88 | 0.921 |
| Others | 1.00 | Reference | | 1.00 | Reference | |
| Marital status | | | | | | |
| Married | 1.13 | 0.72—1.80 | 0.594 | 1.20 | 0.72—1.98 | 0.490 |
| Others | 1.00 | Reference | | 1.00 | Reference | |
| Employment | | | | | | |
| Employed | 1.03 | 0.67—1.58 | 0.881 | 1.15 | 0.72—1.85 | 0.549 |
| Unemployed | 1.00 | Reference | | 1.00 | Reference | |
| SES | | | | | | |
| High | 0.67 | 0.37—1.23 | 0.200 | 0.93 | 0.47—1.86 | 0.842 |
| Middle | 1.71 | 0.38—1.32 | 0.274 | 0.97 | 0.48—1.98 | 0.942 |
| Low | 1.00 | Reference | | 1.00 | Reference | |
| Health status | | | | | | |
| Good | 2.16 | 0.57—8.26 | 0.259 | 3.44 | 0.78—15.14 | 0.102 |
| Fair | 2.10 | 0.53—8.34 | 0.294 | 3.68 | 0.80—16.88 | 0.093 |
| Poor | 1.00 | Reference | | 1.00 | reference | |

Reference group: Do not influence food choice behaviour; **Dependent** variables, Time and Diet/nutrition books; **independent** variables, socio-demographic characteristics of respondents; Hosmer-Lemeshow test significance = 0.753and 0.783 respectively;* Significant at p<0.05.

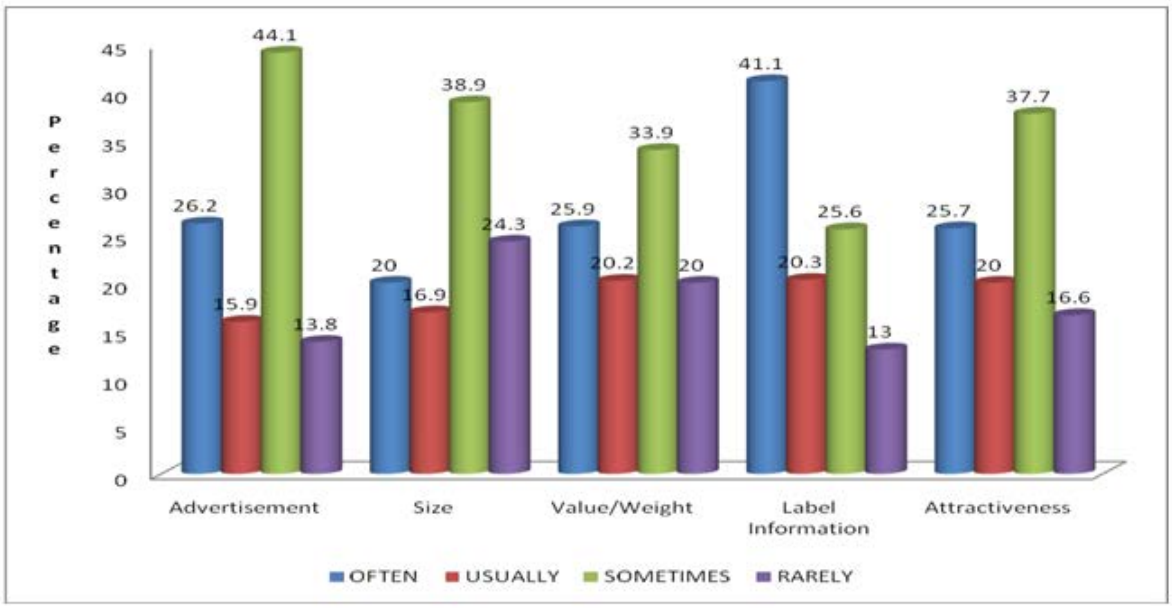



**Figure 1.** Percentage distribution of food choice behaviour of respondents

**Table 4. Continuation: Association between socio-demographic and food choice behaviours**

| Predictors | OR | Advertisement 95% CI | p-value | OR | Product size 95% CI | p-value |
|---|---|---|---|---|---|---|
| Age | | | | | | |
| 15-24 | 0.67 | 0.12—3.82 | 0.651 | 0.30 | 0.05—1.79 | 0.188 |
| 25-44 | 0.63 | 0.11—3.47 | 0.590 | 0.35 | 0.06—1.99 | 0.234 |
| 45-64 | 0.58 | 0.10—3.35 | 0.543 | 0.29 | 0.05—1.73 | 0.173 |
| 65+ | 1.00 | reference | | 1.00 | reference | |
| Gender | | | | | | |
| male | 1.14 | 0.82—1.60 | 0.435 | 1.05 | 0.74—1.47 | 0.809 |
| female | 1.00 | reference | | 1.00 | reference | |
| Educational level | | | | | | |
| Tertiary | 0.76 | 0.44—1.33 | 0.340 | 0.59 | 0.36—1.04 | 0.067 |
| SHS | 0.52 | 0.29—0.94 | 0.031* | 0.11 | 0.35—1.12 | 0.112 |
| Others | 1.00 | reference | | 1.00 | reference | |
| Marital status | | | | | | |
| Married | 0.72 | 0.45—1.15 | 0.173 | 1.30 | 0.81—2.09 | 0.281 |
| Others | 1.00 | reference | | 1.00 | reference | |
| Employment | | | | | | |
| Employed | 1.12 | 0.73—1.72 | 0.592 | 0.93 | 0.60—1.44 | 0.742 |
| Unemployed | 1.00 | reference | | 1.00 | reference | |
| SES | | | | | | |
| High | 1.10 | 0.59—2.07 | 0.766 | 0.63 | 0.34—1.17 | 0.145 |
| Middle | 1.45 | 0.76—2.76 | 0.258 | 4.89 | 0.47—1.68 | 0.725 |
| Low | 1.00 | reference | | 1.00 | reference | |
| Health status | | | | | | |
| Good | 1.97 | 0.55—7.14 | 0.301 | 0.83 | 0.26—2.63 | 0.746 |
| Fair | 1.55 | 0.41—5.88 | 0.518 | 0.55 | 0.16—1.86 | 0.335 |
| Poor | 1.00 | reference | | 1.00 | reference | |

Reference group: Do not influence food choice behaviour; **Dependent** variables, Advertisement and size of product; **independent** variables, socio-demographic characteristics of respondents; Hosmer-Lemeshow test significance = 0.087 and 0.783 respectively;*Significant at p<0.05.

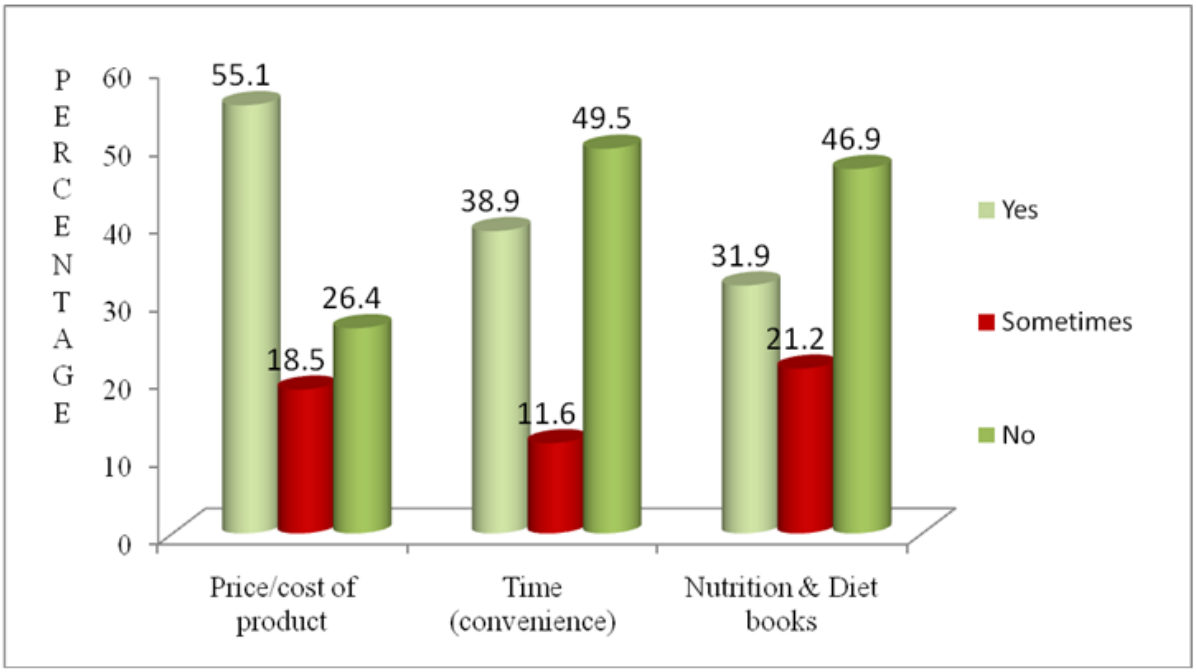



**Figure 2.** Percentage distribution of impact of cost, time and nutrition/diet books on food choice behaviour

## 4. Discussion and Implication of Study

Food Choice Behaviour across Socio-demographic Strata: Consumers make their purchasing decisions based on a number of factors. Apart from the price of the product, factors such as appearance, convenience and perceived quality determine the decisions made in the shopping centres and marketplaces [11]. Results from this research showed parallel findings, where consumers were influenced by advertisement, value, size, label information and attractiveness of products in their purchasing decisions. Other important factors like cost of product, time (convenience) spent during shopping and diet/ nutrition books were key determinants of food choice behaviour for most consumers. The cost of product as well

as time (convenience) had both positive and negative influences on respondents. For cost, reasons like, "...insufficient funds make me buy cheaper alternative of similar products...", "...I am very frugal when I visit the market to buy products....", "...I buy quality product so far as it good for my health no matter the cost..." were the main factors. This is supported by Lange et al. [12] study results which revealed differences between consumer behaviours under economic constraints. Some reasons for the influence of time on food choice behaviour of consumers were "..... It is a waste of time spending too much time shopping...", "... I have other important business to take care of so I am always in a hurry....", "....It is important to spend much time to assess the products well before I buy them...". Apart from buying reliable foods and having proper budget in mind, time is very important if consumers are to be properly nourished [13-18]. A study by Glanz et al. [19] showed that price or cost seemed to be most important in unemployed and retired subjects. A possible reason could be insufficient or lack of funds associated with unemployment or retirement. This study found a similar trend with the cost of product influencing unemployed consumers compared to the employed ones. This could lead to poor food choice behaviour among these consumers, which could subsequently impact negatively on their health status due to lack of fund to purchase healthier food products. The results also indicated that less educated consumers were more influenced by advertisement on mass media compared to the more educated consumers. Possible explanation to this trend could be linked to the massive proliferation of television, radio and print media and their effect on viewers and listeners (adverts in local languages) in recent years. Public health implications to such influence could be massive, since majority of Ghanaians has no formal education or semi-literate. Such consumers may end up buying product that may not benefit them nutritionally. This could impact on their overall nutritional and subsequent health status. Similar to this research, the "Popular media" (television and friends) were cited by [20,21,22,23], as main sources being used by consumers to know about food products. Kearney et al. [24] also indicate that the level of education can influence dietary behaviour during adulthood. The implication is that government can take advantage of the wide reach of television and other mass media to effectively educate consumers [17,25]. Women read label information in a larger ratio than men, and they take notice of food safety and health information [26,27]. Additionally, they are more involved with food safety, thus spend much time to find food product for consumption more easily compared to men [28]. In other studies, it was also determined that the information on the labels "always" or "sometimes" influenced female consumers [26,29]. In the Pan-European study, females and older subjects considered 'health issues' to be particularly important. This was consistent with results from this study, where diet/nutrition books were a key food choice determinant for females and older respondents. The implication of this is that those females are likely to make healthier food choices and thus increase their life expectancy as it is the case in Ghana

## 5. Conclusion

Consumers were influenced by advertisement, nutrition/diet books, size of product, label information and attractiveness of products in their purchasing decisions. Gender, age and the level of education of consumers also play key role in food choice behaviour among Ghanaians. These are key interventional factors worth considering when planning any policy on better health promotion.

## 6. Limitations/Generalizability of Results

Since the study was only exploratory and qualitative in nature relating to only respondents from one city, the findings cannot be generalized to the larger Ghanaian consumer population and are only representative of specific participants included in the sample. All data were also self-reported and was subject to both random and systematic bias.

## Acknowledgement

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## Declaration of Interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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