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Consumption patterns and characteristics of free-range chicken consumers in Embakasi Sub-County, Nairobi County, Kenya

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Abstract

Consumption of free range chicken is on the increase in Kenya and more so in urban set up with sources being Peri-urban or rural areas. Limited information exists on consumption pattern of free range chicken among peri-urban inhabitants in major Kenyan cities, Nairobi included. The current study aimed at determining the consumption pattern among inhabitants in Embakasi Sub-county Nairobi County. This was a cross-sectional survey involving both qualitative and quantitative aspects, data was collected using semi-structured questionnaire. The results showed that there was high consumption of free-range chicken (78.1%) than exotic broilers (15.7%) among the 242 inhabitants that were surveyed. Consumption was also high among males (61%) compared to females (39%). Those who consumed the free-range chicken once a week accounted for 35.1% while those who consumed the chicken once a month accounted for 22.7%. Chicken muscle had a preference of 85.1%. The gizzard and liver had a preference of 4.5%, and 1.7%, respectively. The units of packaging ranged from 0.25kgs to >1kg, though most consumers preferred whole chicken at 47.5%. Significantly ($p<0.05$) high number of respondents (43.8%) purchased poultry products from the street-side market, Kiosk-Butchers (40.5%) while few (8.3%) purchased products from supermarkets. Consumption of free-range chicken is more popular among male gender, frequencies are dependent on disposable income, occupation and quality attributes such as taste. This study provides information on free range chicken consumption useful to consumer, producer, policy makers, authorities and other stake holders in Poultry research.

Keywords: *Consumption; free range chicken offal; peri-urban*

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Introduction

Agriculture contributes 26% to Kenyan gross domestic product (GDP) through export earnings (65%) while livestock production contributes about 25% of the agriculture contribution to the GDP (Alessandro and WBG. 2015)

Chicken is one of the sources of protein with a high demand in the market given the fact that it is a white meat hence considered healthier compared to beef. The demand for chicken in urban areas has created business opportunities for several players in the poultry sector. According to the Kenya National Bureau of Statistics (2009) census figures, free range chicken population is estimated to be 25,756,500 chickens about 81% of the total poultry population. Most currently Government of Kenya (2010) indicate increase in numbers of chicken to about 28M out of which 79% of this is free range. According to

Nyaga (2007) the poultry sector plays a critical role in fostering the economy of Kenya as it is among those that contributes to 30 % of the total GDP contributed by the agricultural sector. Chicken is mostly considered luxury by rural population (Strategia *et al.*,, 2016)

Free range chickens (*Gallus domesticus*) according to National Flock Identification Scheme (NFIS) is defined as chicken that are adopted to harsh environmental conditions that include extensive, small-scale, free range and organic production system. They are also referred to as traditional, scavenging, back-yard, village, local or family chicken (Ayieko *et al.*,, 2015).

Introduction of improved free range chicken breeds has played instrumental role in increasing production (Ayieko *et al.*,, 2015). Among those introduced include Kenya Agricultural Research Institute improved Kienyeji, Kenbro by Kenchic Ltd and Rainbow roosters with reported advantage of early maturity of about 5 months (Otieno *et al.*,, 2016).

The consumption significance of free-range chicken in urban areas is evidenced by increase in bird production estimated to be about 25,756,500 KNBS (2009), daily transportation from metropolis such as Thika, Machakos, Makueni around Nairobi due to ready markets offering better prices with meat being favored due to sweetness and leanness. (Omondi *et al.*,, 2014).

The free-range chicken is mostly preferred among consumers due to its health benefit as compared to the exotic broilers. In addition, the meat from free range chicken is preferred due to its leanness, unique taste, and color. (Adoum *et al.*,, (2015) Rural areas, as well as peri-urban areas, have increased production of free-range chicken to meet the growing demand in urban areas (Kabuge, 2017). Free range chicken, therefore, has a role in enhancing food and nutrition security in Kenya since it satisfies the two main elements of food security, which are, accessibility and availability (Kiilholma, 2007). According to Nyaga (2007), in nearly all rural areas and Peri urban families in Kenya keep on average, 13 birds which contribute to their social, economic and cultural welfare. This notably contributed to the rise in per capita consumption of meat from 14.9 Kgs in 1991 to 16 Kgs in 2007 which is expected to rise to 22 Kgs by year 2050.

According to Bett *et al.,* (2012), markets for free range chicken and meat in general in urban set up in Kenya can be categorized into 3 levels which vary in product, operations, location and number of participants at each level. According to Aringa (2008), the 3 levels indicate social and economic stratification of the population, primarily the segmentation being based on income levels of the consumers. The First level is composed of the low-end income, which consumes meats classified as i) meat on borne, ii) tripes, and iii) liver, where there are no refrigeration facilities. The Second level, also referred to as middle level, has meat products offered in varying proportions and types including i) steak, ii) meat on borne, and iii) tripes. The Third level consists of consumers willing to pay extra for benefits of packaging, safety and quality of product and non-division of free-range chicken and meat products into to smaller portions. The three levels exist within Embakasi, the area of study, due to existence of low, mid and few high-end estates.

It is thus vital that the consumption of chicken is studied to obtain the frequencies of consumption and later use the data combined with contamination levels to determine the Food Safety implications by use of risk assessment-based tools such as Monte Carlo. The study was designed to determine current consumption pattern, frequencies, diversity and preference of free-range chicken in the urban areas of Nairobi Embakasi Sub County.

Materials and methods

Area of study:

Data on the consumption of chicken were purposely collected in selected Embakasi Sub County areas with high population density classified into four main geographical and environmental condition, based on presence of river network, proximity to municipal dump site, high peri-urban farming activity coupled with high residence homesteads and areas with high industrial activities. The considered estates include: Dandora, Kariobangi, Umoja, Buruburu, Mukuru Kwa Njenga, Embakasi Village, Kayole Pipeline, Saika, Nyayo Estate and Imara Daima.

Data collection:

A Cross-sectional survey was adopted and a total of 242 respondents randomly interviewed based

on population (n) size of area and areas coverage involved in the survey. A semi-structured questionnaire was utilized to collect data from the respondents with the help of research assistants. Data was collected from 18th June 2018 to 30th June 2018. The questionnaire was pre-tested using one of the sub-county wards to eliminate bias. The questionnaire captured chicken consumption frequency, prices, quantity purchased, gender, age, academic levels, Source of chicken, complaints among respondents, average prices, chicken parts and portions preferred and reason for preference.

Sample size determination

The sample size was determined according to Cochran formula (Glenn. 1993).

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Where n_0 = Cochran large population sample size recommended= 385, N is population size and n is new adjusted sample size. For purpose of this study N=650 was considered as target chicken consumer households (Glen. 1993). Using small sample Cochran formulae sample size was determined as follows

$$n = \frac{385}{1 + (\frac{384}{650})}$$

$$n = \frac{385}{1.59} = 242.1$$

Respondents were selected randomly across the Embakasi region and consent for their responses sought. Table 1.0 indicates the distribution of the 242 respondents. The sample distribution was based on the area coverage as well as the reception from the respondents.

Table 1. Distribution of free-range consumer respondents in Embakasi, Kenya

Distribution	Zone description	No. Respondents
Dandora phase; 1,2,3,4, and 5, Kariobangi South and North	A=High effluent (river networks)	56
Mukuru Kwa Ruben, Imara Daima	B=Dumping site	38
Umoja, Pipeline, Jogoo Road and Nyayo Estate	C=High industrial activity	84
Buruburu, Kayole, Saika, Njiru and Kangundo Road	D=High residential population	64
Total respondents		**242**

Data analysis

Consumption data collected were subjected to analysis of variance using SPSS for windows software version 20 (IBM version 20). Chi square analysis was done to determine levels of various associations and test of significance set at p=0.05.

Collection of questioners hard copies was done and data entry of each respondent entered in SPSS version 20 software by entering the variants namely consumption frequency, levels of education, preferred part, gender, respondents

age, income levels, occupation, preferred sources, portions, weights of respondents and respective observed responses. Using descriptive statistics and cross tabulation, frequencies were analyzed to establish percentage, associations and frequencies of the various observations.

Results

Socio-demographic and socio-economic characteristics of free-range chicken consumers in Embakasi

The social demographics and social economic characteristics of chicken consumers is represented in Table 2.0. There were more male (61%) consumers while females accounted for 39% of respondents similar to findings by Nyanja (2016) in Baringo in which male accounted for 55% while female accounted for 45%. More similarities are noted in Chad according to Adoum (2015), male respondents constituted 70% while female was 30% in preference of free-range chicken. The dominance in male respondents in the study over female can be explained by the fact that family budget decision is predominantly made by male who are working or engage in business activities therefore more endowed Ndenga *et al.,,* (2017).

The age of respondents ranged from 15 years to over 40 years with majority (38.8%) being 26-30 years of age. For education levels most of the respondents had attained advanced secondary education at 39.7% followed by tertiary education (26.9%) reflective of the general inhabitants of the sub county composed of fairly educated population. Similar findings were noted by Nyanja (2016) with >66 % of respondents having education above advanced secondary level of education.

Income ranged from < USD. 100 to > USD.650 with the majority (26%) of the respondents earning between USD. 100-150 per month followed by those earning USD. 350-450 per month while those earning > USD. 650 constitute only 1.2% of the respondents. According to KNBS (2018) wages payable to urban workers has continued to increase on average between 2016 to 2017 from an average of KShs. 15980 (USD159.8) to KShs 17423 (USD. 174.23) per month for dwellers in Nairobi, Mombasa and Kisumu. The rates translate to about USD5.8 per day payment which is above the recommended a dollar a day baseline for people living below poverty line. From the study findings majority of respondents (Casual labor and Business/self-employment) indicated a mean of USD 5 per day for the casual labor while the Self- employed indicated a mean on USD12 per day. This generally indicate ability of respondents to frequently consume free range chicken based on one's desire.

Occupation was diverse with casual workers noted to be highest among the respondents (37.6%) followed by business or self-employed (35.5%) while the blue collar accounted for 14.9% of the respondents. Occupation according to KNBS (2018) is classified based on task one performs with general works include sweepers, gardeners, watchmen, house ayaya (housemaid), messengers among others, in public sectors occupation is defined based on grades with the lowest grade B1 earning KShs 14442 (USD144.4) per month while in private sector occupation types vary with salary scales dependent on tasks performed. Among the most important group to be considered include the youth according to British council (2017) constitute 61% of the population and mostly engaged in information technology and small business enabling residents earn to consume various services and goods.

Gender, Age and types of chicken consumed in Embakasi area

Among the chicken available for choice, the free-range chicken was the most commonly purchased (78.1%) followed by exotic breeds (15.7%) while a population of 6.2% indicated not to consume chicken (Figure 1). The popularity can be attributed to overall improved and introduction of new early maturity breeds by breeders and proximity of traders of free-range chicken to house locations (Bett *et al.,,* 2012) more similarities are attested by Adoum (2015) who noted free range chicken were more popular (43%) among bird's meat in city of N'Djamena in Chad.

Figure 1 indicates the consumption of free-range chicken with respect to the age bracket for both men and women

Table 2. Socio-demographic and socio-economic characteristics of free-range chicken consumers in Embakasi

Characteristics	Frequency (n=242)	Percentages
Gender		
Female	95	39
Male	147	61
Age range		
15-20	47	19.4
21-25	71	29.3
26-30	94	38.8
31-35	25	10.3
36-40	5	2.1
>40	0	0
Education levels		
Primary Education	29	12
Secondary Education	52	21.5
Advanced Secondary	96	39.7
Tertiary Education	65	26.9
Income Levels (USD) (1USD=100ksh)		
<100	31	12.8
100-150	63	26.0
151-250	9	3.7
251-350	21	8.7
351-450	54	22.3
451-550	46	19
551-650	15	6.2
>650	3	1.2
Occupation types		
White collar	36	14.9
Business and self employed	86	35.5
Casual worker	91	37.6
Student	14	5.8
Others (Domestic servant, Driver)	15	6.2

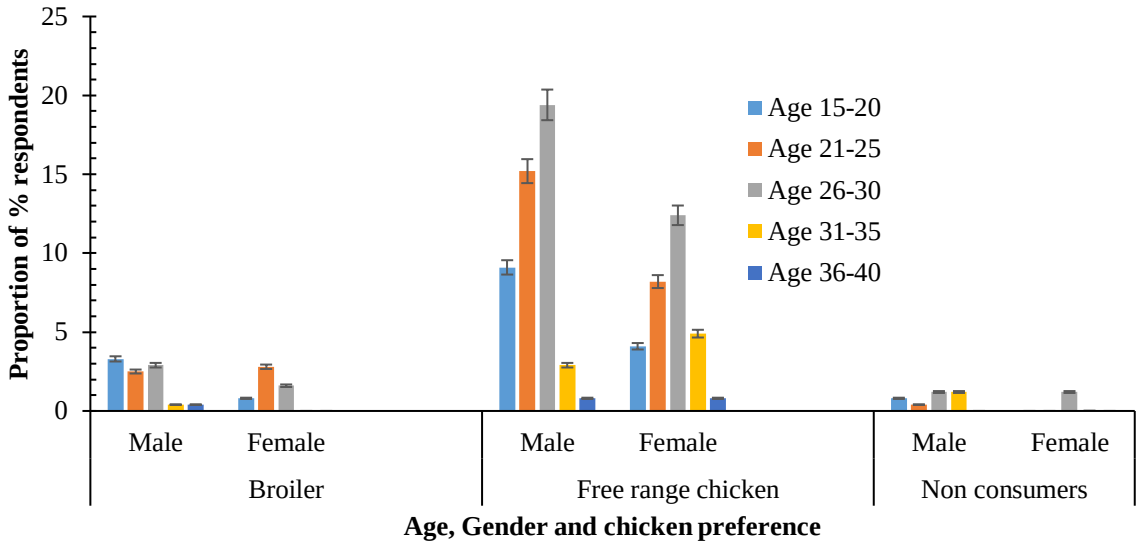

Figure 1. Gender, age and chicken type preferred. The bars indicate standard error of means

Consumption of free-range chicken is slightly lower (9%) and (4%) for both men and women respectively at the age bracket of 15-20 years. This can be attributed to the fact that most people at this age cannot afford free range chicken which is slightly more expensive. It is also noted that the age bracket of 26-30 years is when the consumption of free-range chicken is at its peak (19%) and (12%) for both men and women respectively.

Gender, chicken type and preferred parts Figure 2 indicates gender relation to chicken type and preferred part of chicken.

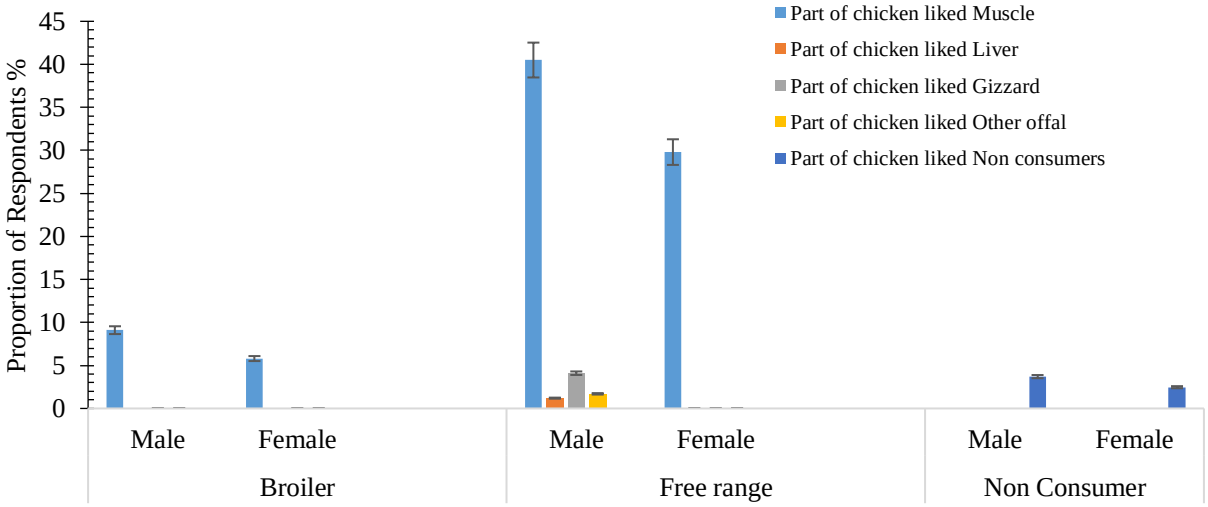

Figure 2. Gender, chicken types and preferred poultry part of consumers in Embakasi. The bar represents standard error of means.

The study showed (Figure 2) both male and female prefer muscle at 41% and 30% respectively part of the chicken compared to other portions. However, gizzard is only

preferred by 4.5% of the respondents who majority were males.

Education levels and chicken consumption

The study analyzed the level of education among the consumers of the free-range chicken around the Embakasi region, Figure 3 highlights the education levels of the respondents.

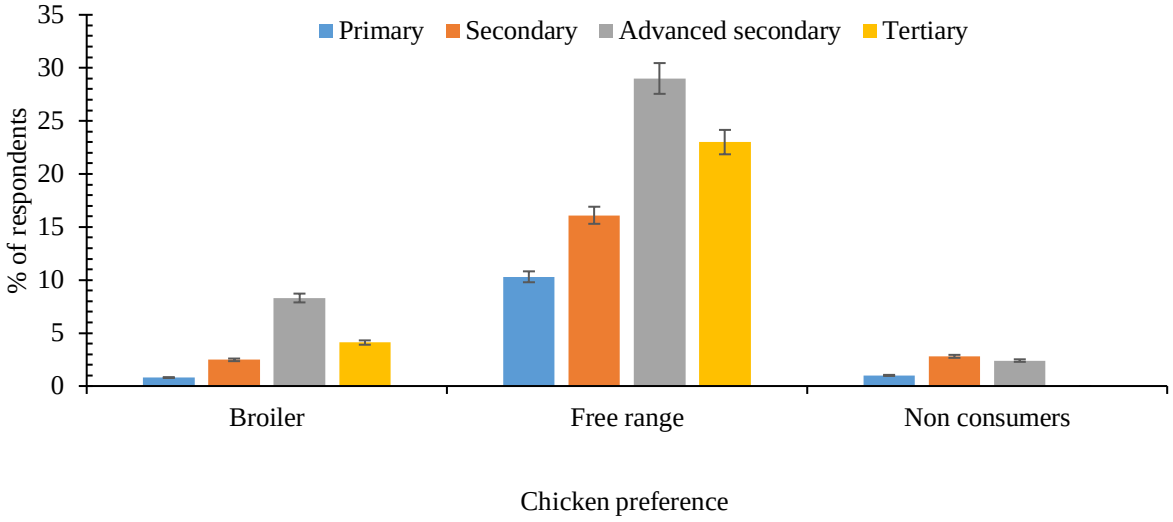

Figure 3. Education levels and preferred chicken type. The bars indicate standard error of means.

The education level of education among free range chicken consumers within Embakasi varied with a significant proportion (29%) having achieved advanced secondary education, tertiary accounted for 23%. Secondary 16% while primary education level accounted for 11% of free-range chicken respondents.

Education level and free-range chicken portion in Embakasi area

From the study findings (Figure 4) those who consumed muscles part of the chicken were the highest numbers (83%) among all categories of level of education while advanced secondary (33%) had the highest preference of muscle among the education levels, liver had the list number of consumers only 2% of respondents advanced secondary with no one with primary education preferring to consume liver.

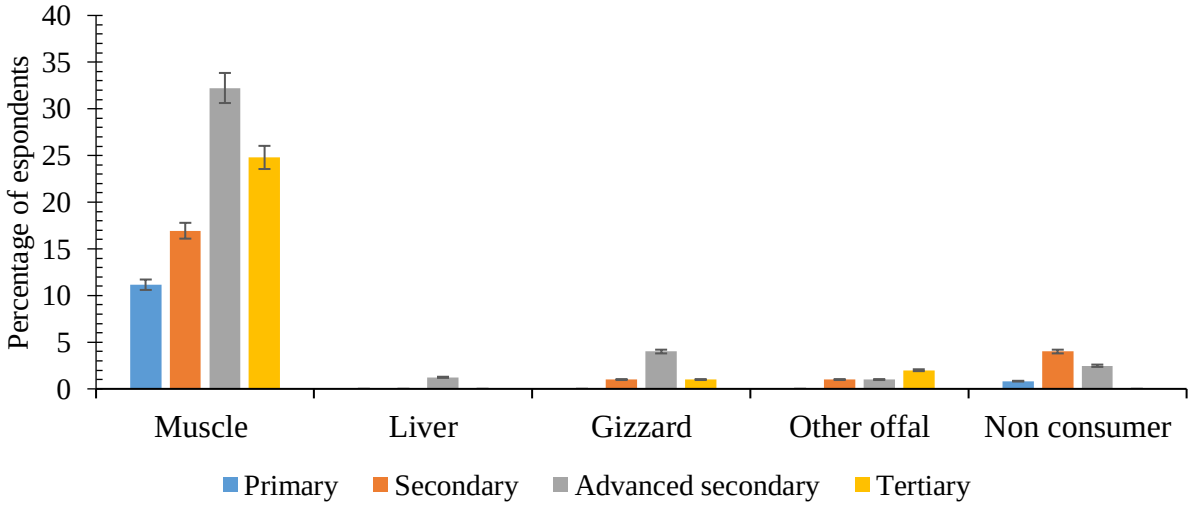

Figure 4: Education level and chicken portion consumed. The bars represent standard error means.

The findings indicate overall education level of respondents does not determine what parts of chicken one consumes but has a statistically significant effect on type of chicken consumed. According to Silva *et al.,,* (2010) price was indicated as the most determining factor for determination of chicken consumption levels agreeing with study findings that other factors apart from education determines consumption choices.

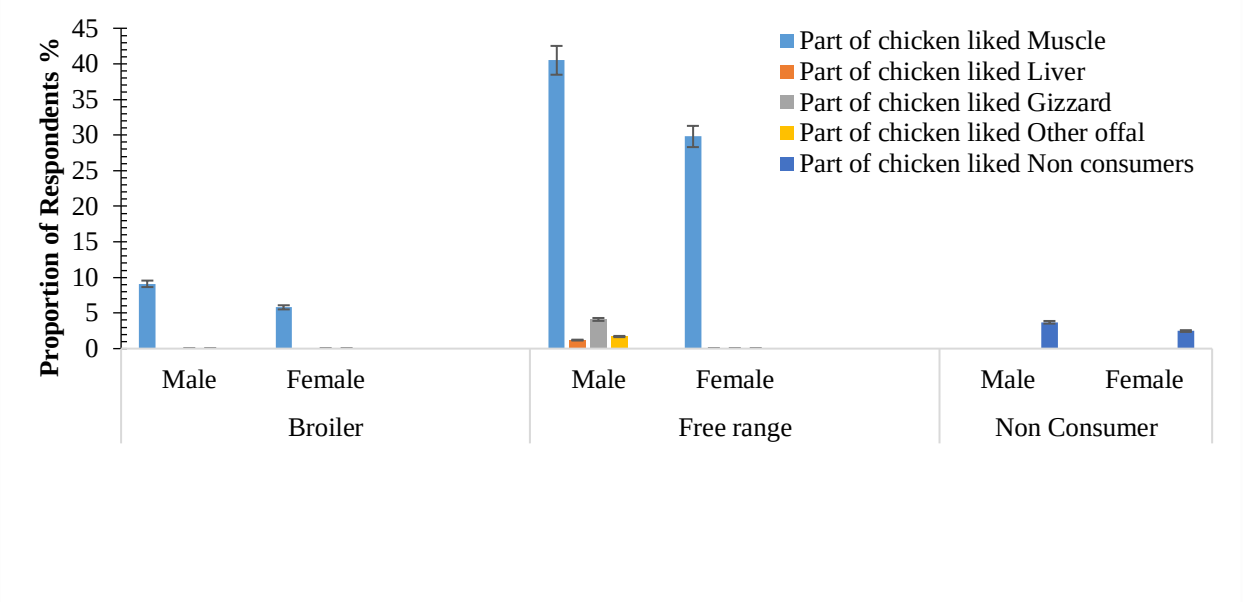

Figure 5: Education level, type of chicken and parts preferred by consumers of free-range chicken in Embakasi. The bars indicate standard error of means

The study established relationship between Education and reasons for preference of free-range chicken (Table 3.0) showing that respondents had various reasons for preference with majority of the respondents (38%) due to sweetness in relation to taste, healthy (28%) while the least 1% indicated ease of preparation as reason for choice.

Table 3. Education levels of respondents in Embakasi and reason for preference of free-range chicken

	Reason for preference of free-range chicken						
Academic level	Sweet	Healthy	Free of chemicals	Cheap	Easy to prepare	Non consumers	Total %
Tertiary	14	5	4	3	0	0	26
Advanced secondary	13	10	6	8	0	2	39
Secondary	7	8	2	2	0	3	22
Primary	4	5	2	1	1	1	13
Correlation(r)	0.6	0.01	0.1	0.2	-0.02	-	
Total %	38	28	14	13	1	6	100%

A high number of respondents with tertiary level (14%) and advance secondary (13%) of education indicated taste as a driving reason for choice but did not consider much of (5%) for tertiary, (10%) for advanced secondary) health as a reason for choice this study bares similarities with those of Bett *et al.,,* (2012) and Adoum *et al.,,* 2015 who noted that customers make choices based on taste, pigmentation among other preferences. The study findings are further supported by findings by Silva *et al.,,* (2010) that decision to consume meat products is primarily done due to culinary taste (62%) and not nutritive value.

A proportion of respondents (13%) across all levels of education indicated price to be a determining factor for the choice of type of chicken consume.

Income levels, chicken parts and type of chicken preferred by consumers

The respondents within the study area of Embakasi region have different sources of income depending on their respective occupation this influence their living standards and eating habits information of chicken preference. Figure 6 indicates the income range for the respondents and level of association with type of chicken preferred.

Figure 6. Income of respondents, chicken type and part preferred by consumer of free-range chicken in Embakasi. The bars indicate standard error of means

The finding of this study concurs with another study (Omondi, 2014) that found out that the income level of people is a determinant of consumption levels. There is a correlation between occupation type and disposable income among free range chicken consumers in Embakasi area, the high number of casual laborers is indicative of the salary range among consumers with those within the minimum wage noted as 34.3%. Most business and self-employed (29%) indicated a salary range between 150 to 350 USD per month based on business performance on average within this range most consumers indicate a consumption frequency of free-range chicken of once in a week while muscle part of free-range chicken being preferred over other parts. A significant low number of consumers earn more than 350 USD. It can be argued out that with the few high-end estates within Embakasi area house rent takes a significant portion of disposable income thus reduce intake of free-range chicken. Majority of the population within the study area are middle class and low-income earners.

The income range among the respondents for this study within the Embakasi region is <10000 > 65,000Ksh. (100USD- 650 USD).

Occupation, consumption frequency and portion sizes of chicken consumers in Embakasi

The respondents within the study area have diverse occupations with different consumption patterns and preferences Figure 7 indicate various trends exist in consumption in line with occupation and portion sizes of free-range chicken.

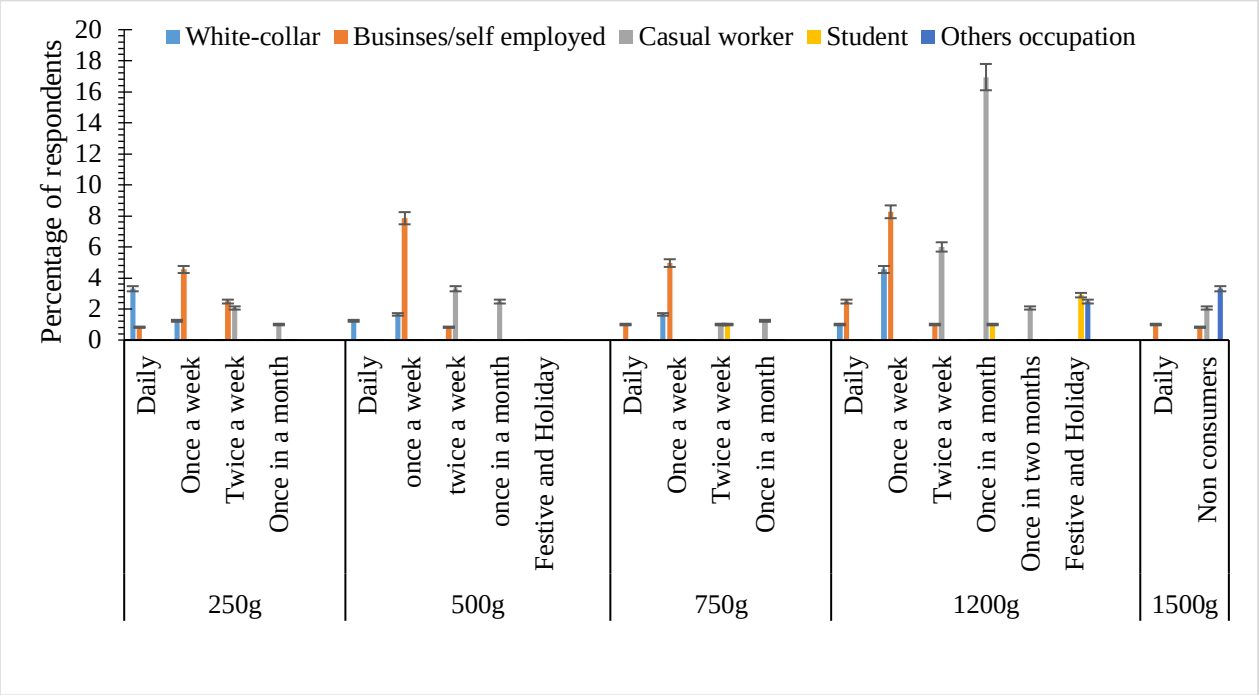

Figure 7: Occupation, consumption frequency, portion sizes of chicken consumers in Embakasi. The bars indicate standard error of means

Consumption frequency based on portions were reflective of price indicating there was a significant association between income and portions or sizes being purchased. From the studies portions of chicken were 0.25kg, 0.5 and 1.2kg assumed to be whole chicken (Aringa. (2008) choice of size to be purchased by residents is strongly determined by occupation which is assumed to be influenced by income.

Consumption of chicken type and parts

Consumption frequency

Figure 8 indicates the consumption frequency of chicken in Embakasi, Kenya. Consumption of free-range chicken among those who consumed once per week (35.1%) was high followed by those who consumed it once per month (22.7%).

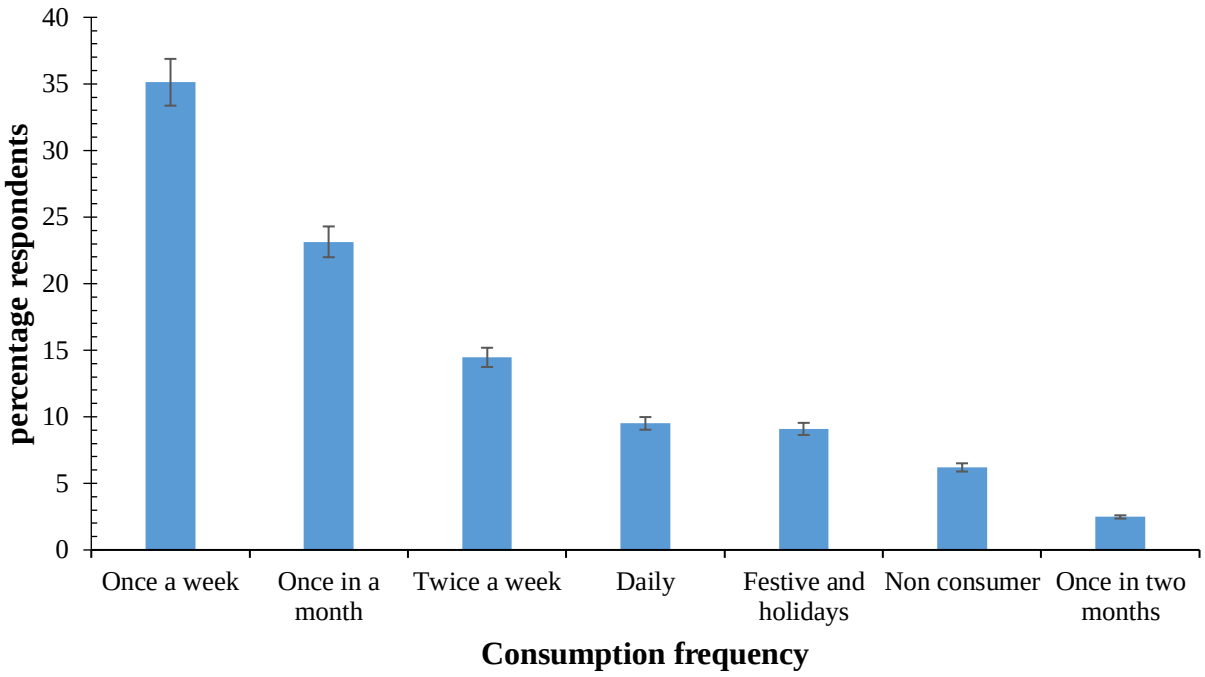

Figure 8 Consumption frequency of chicken by residents of Embakasi. The bars represent standard error of means

The study found out that those who consumed chicken more than once per week bought the chicken in small portions, for instance, 120 grams, 250 grams with the highest portion being 1.2kg or whole chicken (Aringa. (2008). Consumption of broilers declined sharply when the frequency of free-range chicken consumption declines. A similar trend was found by other researchers (Musyoka, *et al.*,, 2010). For instance, among the respondents who consumed chicken once per two months, there were 9.5% respondents and none of them consumed broilers.

Sources of chicken for consumers in Embakasi area

The most preferred source of the free-range chicken among the respondents within Embakasi region are shown in Figure 9.

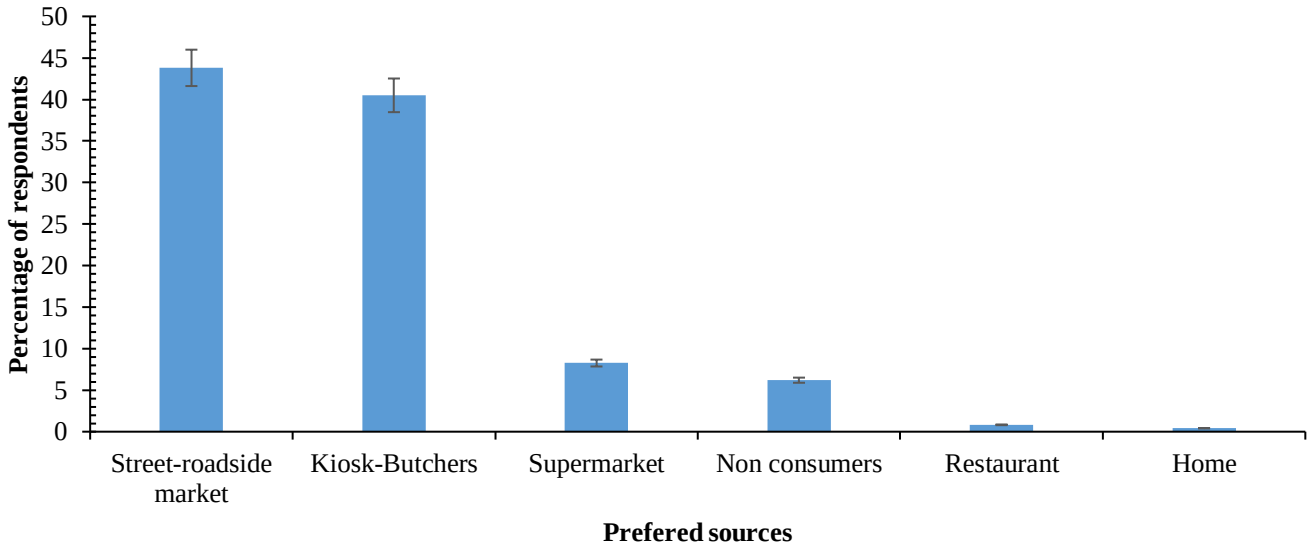

Figure 9: Preferred sourcing location for free range chicken in Embakasi area. The bars indicate standard error of means

Most consumers preferred sourcing chicken products from the roadside street markets (43%) followed by Kiosk/butchers (40%). Affordability in terms of price offered and ability to haggle for best price was the reason provided by 43.8% of the respondents who preferred street roadside markets.

Age, occupation, education and gender association levels with free range chicken consumption frequencies, parts and portions

The study findings show age, education level and occupation influence consumption frequency of free-range chicken within the study area. The more educated the more preference towards consumption of free-range chicken with respondents of age within 26-30 years (Table 4.0) having the highest preference when all factors are considered.

Table 4. Factors associated with free range chicken consumption among residents of Embakasi area -Nairobi county

Social demographics factors	Chicken part χ^2	P value	Chicken type χ^2	P-value	Chicken portion χ^2	P Value	Reasons for chicken type Preference χ^2	P-Value	Consumption frequency χ^2	P value
Gender	8.07	0.89	0.05	0.99	6.5	0.16	3.0	0.69	5.1	0.52
Age	14.5	0.57	17.86	0.02	48.8	0.000	41.4	0.003	45.3	0.005
Education	18.5	0.10	13.5	0.042	40.0	0.000	26.3	0.035	197	0.035
Occupation	80.41	0.000	68.01	0.000	95.1	0.000	84.7	0.000	336	0.006
Income	25.5	0.622	30.6	0.006	84.31	0.000	51.2	0.38	247	0.004

Discussion

From the study consumption of free-range chicken in Embakasi is slightly lower (9%) and (4%) for both men and women respectively at the age bracket of 15-20 years. Figure 1 indicates the consumption of free-range chicken with respect to the age bracket for both men and women. This can be attributed to the fact that most people at this age cannot afford free range chicken which is slightly more expensive. It is also noted that the age bracket of 26-30 years is when the consumption of free-range chicken is at its peak (19%) and (12%) for both men and women respectively. A similar study conducted by Musyoka (2010) also found out that at this age people are economically empowered hence can afford free range chicken. The high consumption trend among youth is in agreement with Abong' *et al.,* (2010) on potato snacks consumption.

This study attributes the high consumption rate by persons at this age bracket to their health-consciousness. The decline in the consumption of free range among people between age 36 - 40 years (2.1%) can be associated with an increased responsibility, for instance paying school fees for secondary school which is expensive thus reduction in purchasing power.

Age above 40 years recorded low levels of preference. Similarities were reported by Ndenga *et al.,* (2017) where consumption was noted to decrease with increase in age in Makueni, with age among households' head having a negative and significant $P<0.001$ influence on consumption of free-range chicken.

The study among gender on popularly of chicken meat is contrary to findings by Silva *et al.,* (2010) that noted female prefer chicken meat (70%) compared to male (30%) in Sri Lanka, while age between 31-40year had more (35.1%) liking to chicken meat.

This informs the level of awareness of healthy consumption habits and choice of type of chicken preferred within Embakasi area.

Within Embakasi area 8% of respondents with advanced secondary education indicated they preferred exotic chicken (broiler) while only 1% of those preferred exotic breeds attained primary school level of education. Education levels in this study agree with Nyanja (2016) on age of respondents participating in free range chicken consumption and value chain enhancement in Baringo.

From the study findings education levels have an influence of consumption frequency, type of chicken consumed and reason for preference, the results collaborate other findings by Ndenga *et al.,* (2017) indicating a better educated family have better nutrition consciousness.

Similar studies conducted in Malaysia had similar results (Jayaraman *et al.,* 2012). It can be argued out that muscle parts are more favored as they constitute more of the edible part compared to other parts which are offal. The association was weak between gender and preferred part this could be as a result of less options offered for selection and generalization of the muscle part which in reality is further distributed into wings, drumstick, and breast.

The occupation levels among free range chicken consumers in Embakasi indicates a high level of casual labor (35%) mostly working in the industrial parts of Nairobi city. JKIA Airport and other logistics linkage business facilities offer employment to the wider population within the study area, offering disposable income to middle class who drive consumption level of free-range chicken within the white-collar segment. The business or self-employed workforce constituted 28.9 % and this mainly is composed of business men operating in the Central Business District (CBD) who are attracted in the area by lower housing rents within Embakasi area. Student population was found to be low (7%) this can be attributed to the few numbers of educational institutions around Embakasi area while high transportation cost to institution of higher learning forms a significant prohibitive factor among the student population in this area of study.

The findings of this study indicate that the cheapness of broilers chicken makes them affordable though free range chicken remains more popular among respondents. A small

number of respondents (9%) consumed free range chicken during occasions such as festive season, family gatherings and wedding functions. The price of a whole broiler chicken across the Embakasi area ranged from USD 4.5 to USD5 while the price of a whole free-range chicken ranged from USD 6 to USD 12 study finding on price is contrary to Adoum (2015) in which broiler prices were found to be higher than reformed and free-range chicken. The prices reduced if one purchased in small portions indicating price as a determinant of frequency of consumption since most residents who purchase in butcheries (42%) make the choice due to flexibility of prices and size they can afford.

Overall, from the study consumption frequency was found to be influenced by education status($p<0.01$), prices, and household income and occupation($p<0.01$). Similarities in study were reported by Adoum *et al.,* (2015) on effects of price, size and income on free range chicken consumption frequencies.

In addition, the respondents sourcing free-ranged chicken from the street sides indicated after-sale service and cleanliness offered by vendors attracts them. The after-sale services included packaging, slaughtering, de-feathering of flock and credit services. Approximately 40.5% of consumers preferred the butcheries due to cleanliness, ability to get lower units of measure while supermarkets and restaurants had the lowest preference at 8.3% and 0.8%, respectively. This can be attributed to high and fixed prices as compared to other sources. A study conducted in Nairobi on preferred source of chicken by consumers (Otieno *et al.,* 2016) had similar results with findings of this study. Further comparison with other meat sectors indicates preferred location according to Aringa, (2008) Tegemeo institute butcheries are the main source of beef meat products (93.3%), compared to findings in this study were street side kiosk lead (45%) in preference followed by butcheries (42%) while supermarket in distant third (8.2%) due to perceived high prices.

From the study, consumption of free range is strongly associated by respondent's occupation which is strongly significant with an observed $p=0.006$, which is also associated with disposable income $p=0.004$ this can be attributed to availability of disposable income to spend on purchase and consumption of free-range chicken.

Various other social demographic also indicates strong significant association with free range chicken consumption with age of respondents indicating significant effect on influence on consumption frequency on free range chicken with $p=0.005$.

From the study there was no association observed between gender and various variables tested, it was observed $p>0.05$ for all factors contributing to consumption of free-range chicken with no influence on respondent's gender. Free range chicken was found to be popular amongst all gender thus not dependent on gender.

Education levels amongst respondents had significant association on free range chicken consumption frequency, portions and reasons for preference amongst respondents with $p=0.035$ but no effect on parts of chicken favored or chicken type.

Conclusion

The consumption of free-range chicken is high as compared to that of broilers and this can be attributed to respondents' perception of healthy and preferred culinary taste. There is also significant association between disposable income, consumption frequency and occupation, this study recommends that further research needs to be conducted to determine the high preference by consumers to purchase free range chicken on roadside markets as opposed to consumer sourcing from supermarkets across various urban centers, establish the food safety aspects and risk levels through contaminants and exposure assessments based on Monte Carlo simulations to assess the food safety status of consumed free range chicken across Nairobi. One of the most common reasons advanced by respondents on choice of purchase is the slaughter and de-feathering services offered by the street-road- side markets vendors. However, the absence of formal abattoirs fully equipped with necessary food safety requirements such as County veterinary inspection services cannot go unnoticed. Therefore, the study recommends that County veterinary inspection services should be enhanced.

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