

THE INFLUENCE OF OPEN MARKET PACKAGING MATERIALS ON THE MARKETING AND CONSUMPTION OF MEAT AND MEAT PRODUCTS IN GHANA

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Abstract: As Ghana makes transition into a developed economy, a greater percentage of the population is demanding and eating high quality and safe meat and meat products. The demand heave for meat and meat products needs to be met by increasing supply of neatly packaged meat and meat products in an efficient and convenient package. This study was to determine the influence of open market packaging materials on the marketing and consumption of meat and meat products in Ghana. A total of 210 open market consumers and retailers of meat and meat products in Accra, Kumasi and Tamale Metropolis were interviewed. Data was analysed using SPSS version 16 under descriptive statistics and result presented in the form of tables and charts. Majority (82.6%) of the customers range between the ages of 26 and 40 years. Majority (92%) of open market packaging was plastic type materials. The quality, quantity and packaging of the products had influence on consumers' choice. About half (47.33%) of the open market consumers were satisfied with the open market meat packaging. Packaging type, packaging materials, convenience and price were factors that influenced purchases. The level of education, income level, religion and age had influence on shopping outlet. Retailers and packaging designers should focus on packaging, packaging designs, certification labels, shopping environment and colour attributes of meat since it influences marketing.

Keywords: Consumption, Marketing, Meat and meat products, Open market, Packaging.

1. INTRODUCTION

The aim of any packaging system for fresh muscle foods is to prevent or delay undesirable changes in the eating qualities (appearance, flavour, odour, and texture). Deterioration in these qualities can result in economic losses due to consumer rejection of the products. Therefore, a preservative packaging should ideally inhibit undesirable enzyme activities, but not interfere with, or inhibit, activities that are beneficial. The non-enzymatic reactions that affect the organoleptic qualities of raw meats are invariably undesirable, and these should preferably be slowed or prevented by a preservative packaging. Packaging fresh meat is done to avoid contamination, delay spoilage, permit some enzymatic activity to improve tenderness, reduce weight loss, and where applicable, to ensure an oxymyoglobin or cherry-red colour formation in red meats at retail or customer level (Brody, 1997; Matthew and Jaganathan, 2017). When considering the packaging of processed meat products, factors such as dehydration, lipid oxidation, discolouration and loss of aroma must be taken into account (Mondry, 1996; Matthew and Jaganathan, 2017).

Each type of packaging material has advantages and disadvantages, consumer and marketing issues, environmental considerations, and cost (Marsh and Bugusu, 2007). Fresh meat packaging is only minimally permeable to moisture and surface desiccation is prevented, while gas permeability varies with the application method (Faustman and Cassens,

1990). However, the chilling method affects the growth of microorganisms and meat quality (McKee, 2001; Sanchez *et al.*, 2002). The chilling method also affects post-mortem biochemical reactions, water-holding capacity, flavour, appearance, tenderness, microbial flora, and shelf life of meat (Schreurs, 2000; Fletcher, 2002).

As processors are successful in providing more services to the consumer, consumers recognise the quality of these products and are willing to pay more for brand name products in spite of the generic connotation of meat (Akoto, 1995). The majority of consumer purchasing decisions are made at the point of purchase (Court *et al.*, 2009) and in fact, as many as 70 percent purchasing decisions are made in the store (Clark, 2008).

In the food industry consumers have a large range of products to choose from, and approximately 20,000 grocery products are launched every year (Rideout, 2014). The package of a product can transfer information to consumers while they are active in the decision-making process and it is a tool marketers can use very importantly (Butkeviciene *et al.*, 2008). To the best of our knowledge, work on how fresh meat packaging influence consumers' decision in Ghana is unavailable. Therefore, this study was conducted to determine the influence of packaging material on the sale and consumption of meat and meat products in Ghana.

2. MATERIALS AND METHODS

2.1 Location of study areas

The study was conducted in the Tamale, Kumasi and Accra Metropolis of Ghana. These are the three most populated and active cities in Ghana. The Tamale Metropolis is one of the 26 districts in the Northern Region. It is located in the central part of the Region and shares boundaries with the Sagnarigu District to the west and north, Mion District to the east, East Gonja to the south and Central Gonja to the south-west. The Metropolis has a total estimated land size of 646.90180sqkm (Ghana Statistical Service (GSS), 2010). Geographically, the Metropolis lies between latitude 9°16 and 9° 34 North and longitudes 0° 36 and 0° 57 West (GSS, 2014).

The Kumasi Metropolis is one of the thirty (30) districts in Ashanti Region. It is located between latitude 6.35°N and 6.40°S and longitude 1.30°W and 1.35°E, and elevated 250 to 300 meters above sea level (GSS, 2014). The Metropolis shares boundaries with Kwabre East and Afigya Kwabre Districts to the north, Atwima Kwanwoma and Atwima Nwabiagya Districts to the west, Asokore Mampong and Ejisu-Juaben Municipality to the east and Bosomtwe District to the south. It has a surface area of approximately 214.3 square kilometres which is about 0.9 percent of the region's land area (GSS, 2010).

The Accra Metropolitan Area (AMA) is the Regional capital for the Greater Accra Region. In addition, it serves as the national capital of Ghana. The city of Accra is bounded to the north by Ga West Municipal, the west by Ga South Municipal, the South by the Gulf of Guinea, and the East by La Dadekotopon Municipal. It covers a total land area of 139.674 Km², located on longitude (05°35'N) and on latitude (00°06'W) (GSS, 2014).

2.2 Economic activities of study areas

The economic activities can indirectly influence the purchase and choice of packaging for fresh meat. The economic activities of the study areas according to GSS (2014) are as follows:

The occupation with the highest population in the Tamale Metropolis is service and sale workers (33.0%). This is followed by those in the craft and related trades (21.5%). The proportion of the employed persons engaged in skilled agricultural forestry and fishery is 17.6%, which is the third largest occupation in the metropolis. There are more males compared to females in almost all the occupations with the exception of service and sales where only 16.5% of males are engaged, compared to a large proportion of 50.3% for females. Also, there are more females (11.3%) than males (6.1%) in the elementary occupation category. Agriculture, forestry and fishing are the next major occupation in the Metropolis with a proportion of 18.2 percent of both sexes engaged in this sector. The next occupation that follows is manufacturing (12.5%), employing 12.1% of males and 12.9% of females. Wholesale and retail, agriculture and manufacturing activities account for 64.1% of the industrial base of the Metropolis.

The Kumasi metropolis has 38.4% of the employed population into wholesale and retail, manufacturing and repair activities which contribute 13.6%, other service activities (8.8%), accommodation and food service activities (8.0%), education (6.3%), transport and storage (5.8%), and construction (5.0%). Nearly half (46.1%) of the proportion of females are in wholesale and retail, further 13.6% of females are employed in accommodation and food service industry

compared with only 2.1% of males. On the other hand, whereas 11.4% of males employed are in transportation and storage industry, only 0.5% of females employed are in this particular industry. Furthermore, 9.8% of males are employed in construction industry while only 0.3% of females are employed in the same industry.

The Accra Metropolitan Area is the economic hub of the Greater Accra Region and the whole country. It hosts a number of manufacturing industries, oil companies, financial institutions, telecommunication, tourism, and education as health institutions and other important establishments. These institutions provide employment opportunities to residents of the city. Their presence continues to attract people from all parts of the country and beyond to transact various businesses. Majority of residents in the city are engaged basically in the primary, secondary and tertiary sectors of the economy. They are engaged in occupations or employments such as trading, construction, fishing, farming, services, manufacturing among others. The indigenous people until recently were mostly engaged in fishing and farming.

2.3 Climatic conditions of study areas

Climatic conditions have influence on the shelf life of fresh meat. The right packaging material can reduce the impact of climate and help extend the shelf life of meat products. Generally, the Tamale Metropolis is about 180 meters above sea level (GSS, 2012). The land is generally undulating with a few isolated hills (GSS, 2014). The Metropolis receives only one rainfall season in a year and this has affected effective agricultural production in the area (GSS, 2012). Daily temperature in the Metropolis varies from average minimum 22°C and average maximum of 38°C from season to season (GSS, 2012). During the rainy season residents experience high humidity, slight sunshine with heavy thunder storms, compared to the dry season which is characterized by dry Harmattan winds from November-February and high sunshine from March-May (GSS, 2014).

The Kumasi Metropolis falls within the wet sub-equatorial type (GSS, 2010). The average minimum temperature is about 21.5°C and the maximum average temperature is about 30.7°C (GSS, 2010). The average humidity is around 84.16% at sunrise and 60% at sunset (GSS, 2012). The moderate temperature and humidity have a direct effect on population growth and the environment as it has precipitated the influx of people from every part of the country and beyond its frontiers to the metropolis (GSS, 2012).

The Accra Metropolitan Area lies in the dry equatorial climatic zone (GSS, 2010). It experiences two rainy seasons. The first begins in March and ends in mid-July while the second season begins in mid-August and ends in October (GSS, 2012). It has an average annual rainfall of about 730mm which is the lowest in the country (GSS, 2012). There is very little variation in temperature throughout the year. The mean monthly temperature ranges from 24.7°C in August (the lowest) to 33°C in March (the higher) with annual average of 26.8°C (Dickson and Benneh, 2001). As the area is close to the equator, the daylight hours are practically uniform throughout the year. Relative humidity is generally high varying from 65% in the mid-afternoon to 95% at night (GSS, 2010).

2.4 Sampling techniques and sample size

Simple random sampling technique was used in selecting open market meat retailers. Consumers on the other hand were selected using convenience sampling. Sixty (60) open market retailers, one hundred and fifty (150) open market consumers were involved in the study. To ensure the validity of the questionnaires, a pre-test was done. Pretesting of the consumer's questionnaire was undertaken by selecting at least 10 respondents from the open market consumers and 10 from open market retailers. These questions were then modified after the pretesting.

2.5 Data analysis

Data was analysed using SPSS version 16. Analysed data were presented in the form of tables and charts to facilitate the interpretation of the analysis. Descriptive statistics was used to describe open ended questions.

3. RESULTS AND DISCUSSION

3.1 Background of respondents

Table 1 shows the background of the respondents. Majority (46.7%) were above 40 years and were females (72.0%). The findings of this study suggests that adult women were more involved in the purchase of fresh meats. Most (62.0%) of the respondents were also Christians. This simply confirms the dominance of Christians in Ghana. The educational level (primary to tertiary) of the consumers was relatively high (96.0%), which might have an influence on income, where they

will buy their meat from and possibly quality and type of meat they will buy taking their health into consideration. Tessier *et al.* (2010) indicated that the highly educated consumers frequently purchase their food stuff from the supermarkets. Meng *et al.* (2014) also stated that people with college education have higher tendency to buy food items from supermarkets. Sanlier and Karakus (2010) reported that well educated households are more concerned about food quality.

The study revealed that most people in Tamale, Kumasi and Accra and perhaps Ghana as a whole are self-employed, followed by those that were employed by the private sector. The government was the third employer of Ghanaians. Type of employment and income level has a way of influencing consumer choice for items. Furthermore, skills, time, consideration of the health, trend towards convenience and easy usage of meat and meat products are major influencers for purchasing of a particular food. Januszewska *et al.* (2011) indicated that health, convenience and price are among the five most important factors that influenced consumers purchasing power. The convenience food market is estimated to continue its growth.

Table 1: Background of respondents

Category	frequency	%
Age		
Below 18	5	3.3
18-25	26	17.3
26-40	49	32.7
Above 40	70	46.7
Gender		
Male	42	28.0
Female	108	72.0
Religious denomination		
Christianity	93	62.0
Islamic	42	28.0
Traditional	15	10.0
Level of Education		
No formal education	6	4.0
Primary	16	10.7
Junior high	20	13.3
Senior high	34	22.7
Technical/Vocational	21	14.0
Tertiary	53	35.3
Type of Employment		
Self	60	40.0
Government	25	16.7
Private	41	27.3
Self and government	3	2.0
Self and private	20	13.3

3.2 Materials used in the open market meat packaging

Majority (92%) of the packaging materials used in the open market were plastic type. Paper materials were the next type (7.3%) and the least (0.7%) used packaging materials in the open market was metal type (Figure 1). Levy (1993) found that about two thirds of foods and beverages were portion-packaged in plastics and most common types of plastics used were low-density polyethylene, high-density polyethylene, polyethylene terephthalate, polypropylene and polystyrene. The materials used are influenced by its cost and accessibility by the retailer. Also consumers sometimes recommend

packaging materials they want for their meat products. It was observed that packaging materials used in the open market provided easy handling, protection of product from exposure, but did not provide other quality of good packaging material, which is to preserve product and maintain the quality of meat. The metal packaging was observed by consumers who patronised canned meat and meat products. Paper materials were used for frozen chicken, fish and other meat products in the open market. Plastic materials were used generally for packaging any meat and meat product type.

Food and Agriculture Organization (FAO) (2014) reported that total packaging materials on the market were made up of paper (34%), followed by rigid plastic (27%), metal (15%), glass (11%), flexible packaging (10%), and others (3%). Among these plastic materials that were used by the retailers, it was observed that black polythene dominated across the entire three metropolises and was dominated by retailers of fresh meat and meat products. Retailers of imported meat and meat products equally preferred using the plastic based materials. According to the respondents it is easy and cheap to use, and convenient for the clients during transportation and handling. Few of the retailers use white plastic, according to this group, the white plastic material is quality, convenient and good for the storage of fresh meat and meat products, and preferred by customers to the black plastic material.

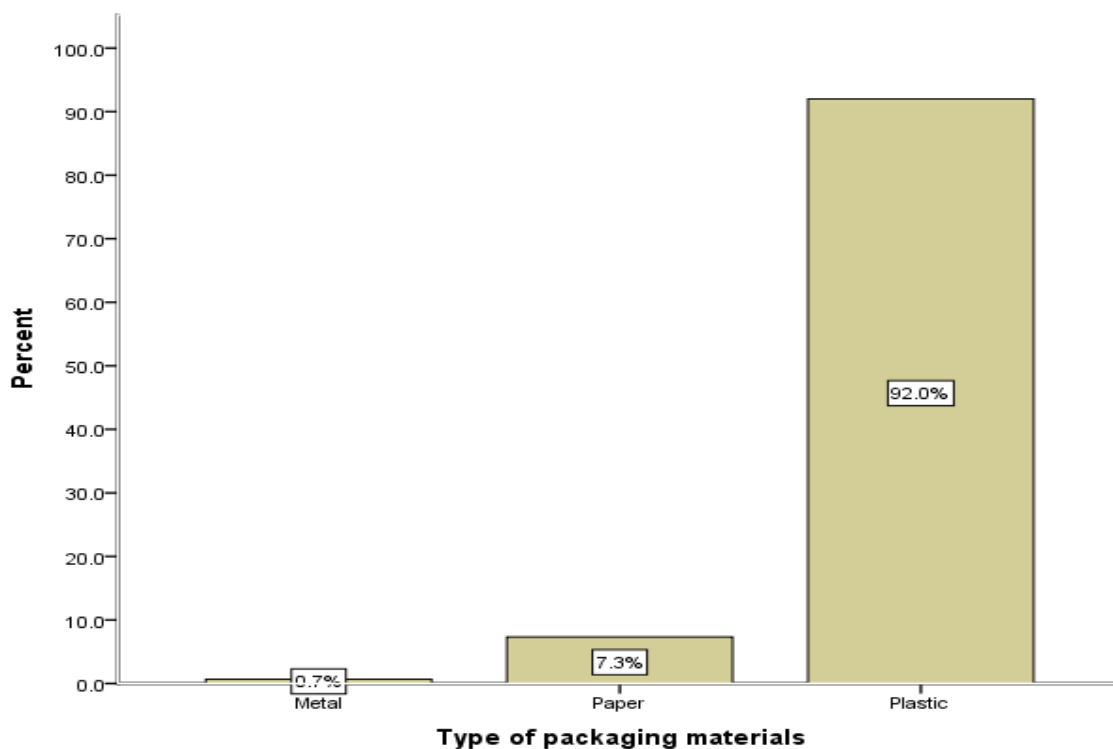
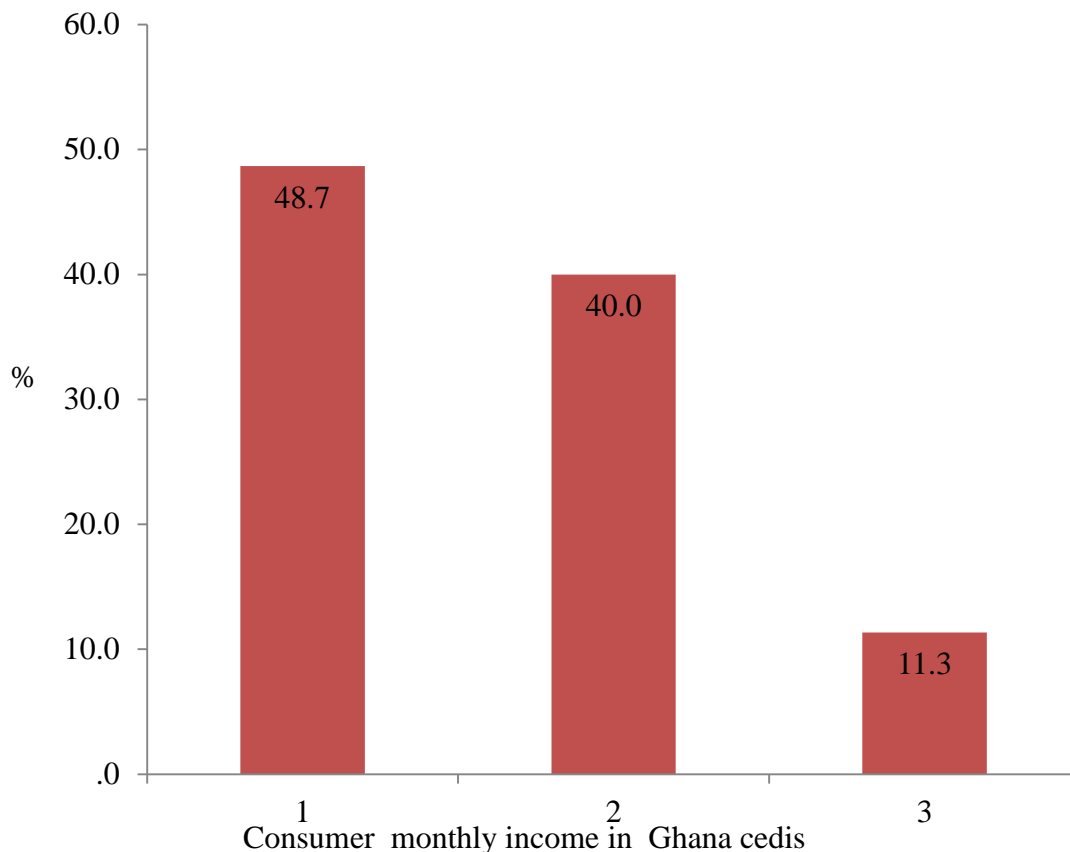


Figure 1: Types of packaging materials used at open markets for meat and meat products

3.3 Income level of consumers of meat and meat products

The income levels of consumers in this study is shown in Figure 2. The consumption and purchase of meat from open market depends on or is influenced by the purchasing power and income levels of consumers. This study agrees with the findings of Hunt and Lautzenheiser (2011) who reported that consumers always react to maximize their utilities when buying commodities. The result further shows that the majority of least income earners patronize meat and meat products from the open market, which confirms that income levels have an influence on the purchasing power of consumers. Thus the expenditure patterns of consumers on meat are influenced by their income levels and where purchasing is done.

Majority of higher income respondents buy meat less often from open market than lower income respondents. It can be concluded that increasing income of consumers will change the market outlet from where they purchase meat and its products. This finding supports the statement of Goldman *et al.* (1999) that income significantly influences where consumers shop.



1: Ghs 101-1000 2: Ghs 1001-2000 3: More than Ghs 2000

Figure 2: Consumers monthly income in Ghana cedis

3.4 Factors influencing open market consumer choice

Packaging had influence on the choice of meat and meat products purchased by consumers at the point of purchase (Silayoi and Speece, 2004). Majority of the consumers (84%) are always influenced by the packaging of the product (Figure 3). This finding affirms the report by Schupp and Gillespie (2001) that, consumers often look for distinguishing product features while shopping for food products. Most of these features can include unique packaging, store signs, brand names and brand logos (Clement, 2007).

Consumers who always consider packaging of the product before buying linked quality of packaging to product quality. This shows that packaging adds value to product appearance and acceptability by majority of the consumers. Majority of the respondents confirmed that they are mostly influenced by the wrapping nature (packaging) of a product. Most consumers were not happy with the packaging of open market meat and meat products. They consider it a deviation from good packaging and do not allow consumers to know the source of the product. Buying certain products which hitherto are not planned for as a result of attractive nature of the package was not found among the open market consumers. Respondents in the open market described convenience of meat they buy with regards to handling, transporting and the retailer appearance. These attributes attract them and convinced them to purchase and used such products.

Majority of the seller's indicated that packaging is important factor which sometimes promote sales. Retailers of meat in the market attested that packaging materials have influence on buyers, which supports the finding of Rettie and Brewer (2000) who found that food packaging has appeared as a key factor that determines consumer's dietary behaviour. The results indicated that majority of the consumers are influenced by the type of packaging materials used for the packaging of meat and meat product purchased. This study affirms the report of Rundh (2009) that package appeals consumer's attentiveness towards a certain brand, increases its image, and stimulates consumer's perceptions about product. They were of the view that, good packaging of products mostly attracts consumers' attention, hence influencing their purchasing decision. Indeed, the analysis of the sales trend of the selected retailers show that an improvement in the packaging material mostly lead to increment in sales.

3.5 Appearance quality of the products

In this study, quality was a major factor which attracted consumers to open markets outlets, the finding of this study is similar to that of Hsu and Chang (2002). They reported that consumers consider freshness and quality alongside factors such as the reputation of the place of purchase. For instance, in determining the freshness of beef, consumers expected the meat to have a bright red colour (Noah *et al.*, 2019). Many of the consumers commented on this issue, indicating that red colour of beef implies that the beef is still fresh, and the cattle has just been slaughtered. The result supports Hsu and Chang (2002) on the situation at traditional markets in Malaysia and Taiwan where fresh meat is displayed on counters or hung on hooks. Consumers were allowed to touch the meat before deciding which cuts to buy according to Hsu and Chang (2002).

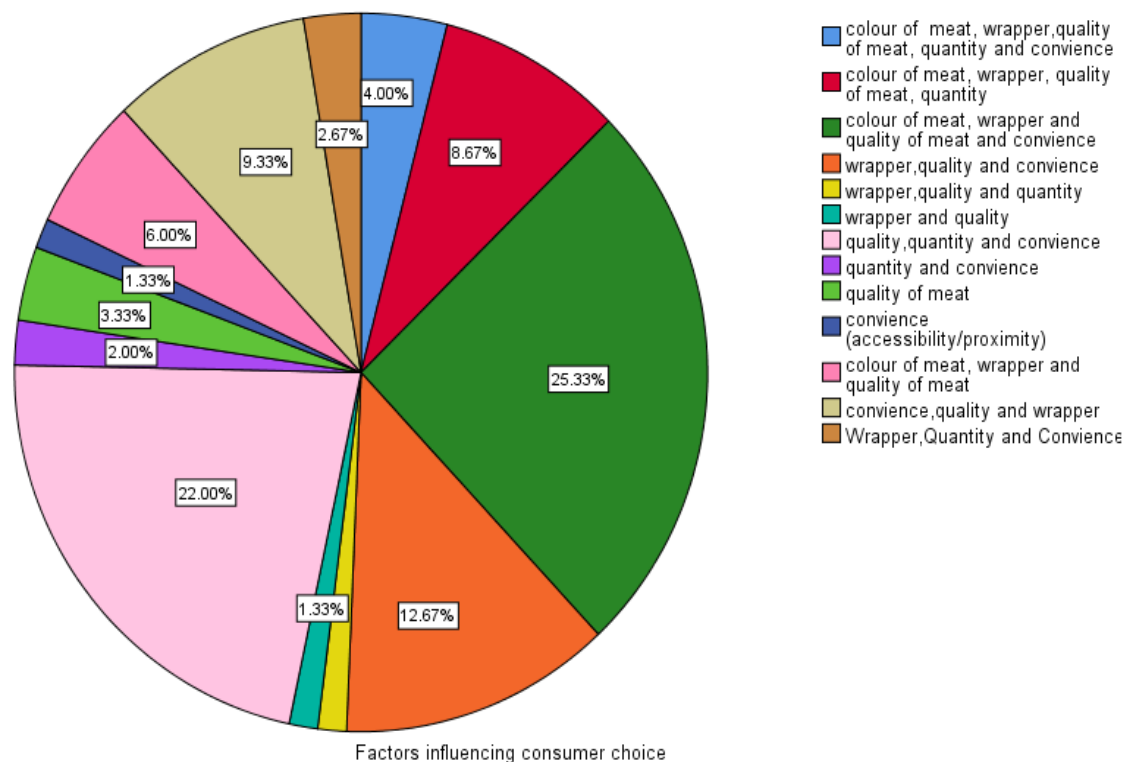


Figure 3: Factors influencing open market consumer choice

3.6 Problems facing open market meat consumers in Ghana

There are several problems facing consumers of meat and meat products in the traditional or open market in Ghana (Figure 4). Kotler and Armstrong (2001) reported that, consumers around the world are different in various factors such as age, income, education level and preferences, which may affect the way consumers purchase goods and services.

Open market consumers pay much attention to the quality of packaging and handling of meat and meat products they purchase. This study revealed that, the major problem consumers faced in the open market is poor packaging and handling of the products. The poor quality of meat in the open market may be as a result of poor packaging, and dirty environment which is similar to how consumers in Hong Kong described traditional markets (Goldman *et al.*, 1999).

The poor quality due to poor packaging observed in the open market also agrees with report by Abdalkrim and Al-hrezat (2013). They reported that there is a connection between ability of the package to protect the product and consumer's perception of quality product. The problems of poor packaging are with all the locally produced beef, chevon, mutton, fish and many other local meats sold in Ghanaian markets. This poor packaging in the open market may be due to lack of technology. The retailers are not considering packaging as a factor which could improve the quality of the meat, marketing and acceptability of meat and meat products in the open market. These problems may also be as a result of regulatory institutions under performing in the meat industry.

Most of the consumers stated that food quality was the most important criteria regarding their choice of food. This finding is similar to Feng *et al.* (2012) who found that quality and safety were considered the most important factors affecting consumers' purchasing decisions in food products.

The open market consumers paid less attention to branding of fresh meat products, but inconsistency of packaging and handling of the products had influence on their choice, which is different from the report of Ares *et al.* (2010), who indicated that brand is a key factor influencing consumers' choice of yoghurt.

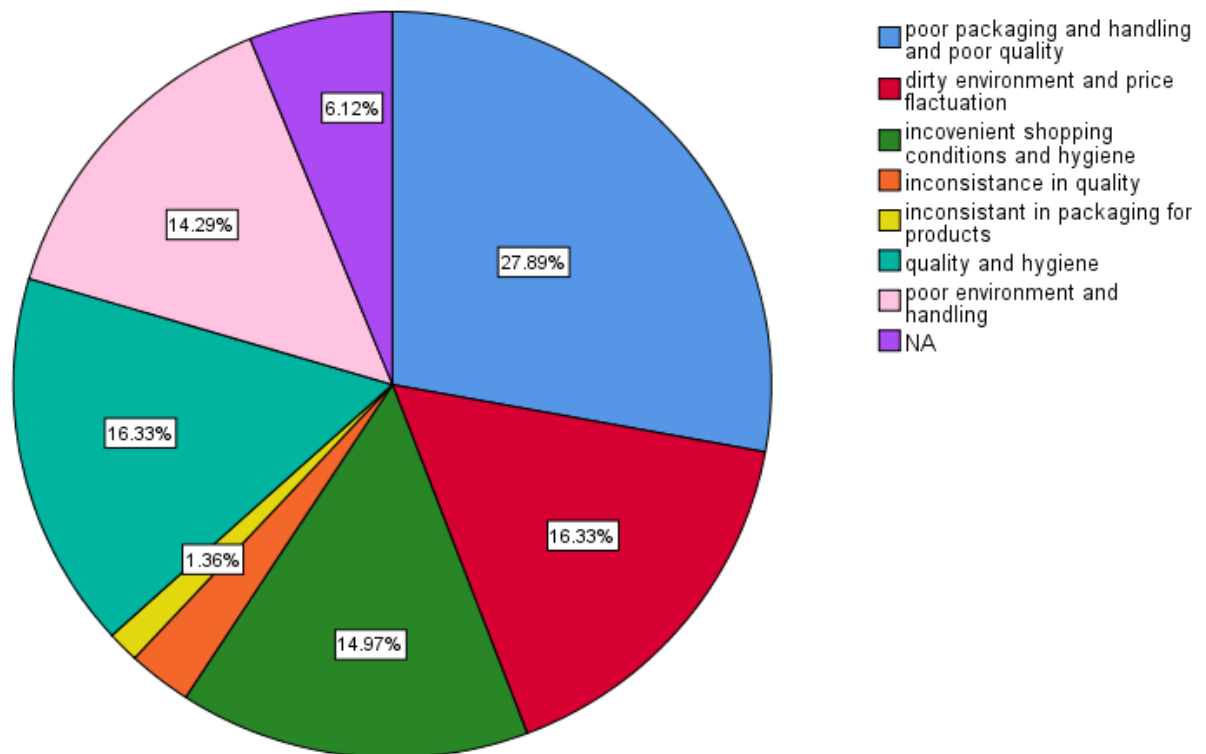


Figure 4: Problems facing open market meat consumers in Ghana

4. CONCLUSIONS

This study revealed that, shopping environment, packaging materials and convenience are extremely important factors considered in purchasing meat and meat products in the open market (traditional market). Education and income level had influence on the selection of retailer outlets from which consumers purchased their meat and meat products. Therefore, designing attractive packaging, making products easy to handle, providing certification label, specification of slaughter method and hygienic shopping environment could influence consumption of meat and meat products produced in Ghana.

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