STATUS OF UTILIZATION OF NUTRITION INFORMATION ON PROCESSED MEAT PRODUCTS IN MAKING PURCHASING DECISIONS AMONG CONSUMERS IN NAKURU TOWN, KENYA

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APRIL, 2017
DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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This work is dedicated to the memory of my mother Christine Ndiema. You are my strength and inspiration in life.
ACKNOWLEDGEMENT

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<th>Description</th>
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<tbody>
<tr>
<td>CGIAR</td>
<td>Consultative Group on International Agricultural Research</td>
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<tr>
<td>EUFIC</td>
<td>European Food Information Council</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
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<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
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<td>GDA</td>
<td>Guide Daily Amounts</td>
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<td>HDS</td>
<td>Health and Diet Survey</td>
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<td>KEBS</td>
<td>Kenya Bureau of Standards</td>
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<td>KMC</td>
<td>Kenya Meat Commission</td>
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<tr>
<td>KNLS</td>
<td>Kenya National Adult Literacy Survey</td>
</tr>
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<td>KNNA</td>
<td>Kenya National Nutrition Action Plan</td>
</tr>
<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
</tr>
<tr>
<td>NFP</td>
<td>Nutrition Facts Panel</td>
</tr>
<tr>
<td>NIP</td>
<td>Nutrition Information Panel</td>
</tr>
<tr>
<td>NCD</td>
<td>Non Communicable Diseases</td>
</tr>
<tr>
<td>NLEA</td>
<td>Nutritional Labeling and Education Act</td>
</tr>
<tr>
<td>PDV</td>
<td>Percentage Daily Value</td>
</tr>
<tr>
<td>SDG</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>WCRFI</td>
<td>World Cancer Research Fund International</td>
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<td>WHO</td>
<td>World Health Organization</td>
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OPERATIONAL DEFINITION OF TERMS

Socio-economic characteristics: Consumer characteristics such as age, sex, marital status, household size, religion, level of education, income and occupation.

Consumer: Adult 18 years and above of age shopping in a supermarket.

Nutrition information: Information on nutrient content (sodium, cholesterol, calories, fats, protein, and dietary fibre among others) provided on the food label of processed meat products.

Preservatives: Substances added to processed meat products to prevent quality degradation.

Processed meat: Meat products produced in Kenya which has been modified to either extend its shelf life or alter the taste. The main methods are smoking, curing, or adding salt, spice and/or preservatives. These products include; bacon, sausages, hot dogs, smokies, brawn, corned beef, bites, ham, burgers and meat balls.

Purchase decision: Deciding to buy or not to buy.

Purchase patterns: Type, frequency and quantity of processed meat products purchased.

Utilization of nutrition information: Practice of reading nutrition information on the label to make purchasing decisions, among other reasons.
ABSTRACT

There has been an increased effort globally to sensitize consumers to read and utilize nutrition information on processed foods in order to reduce cases of diet related diseases. Manufacturers are required to provide adequate and easy to read nutrition information on the label of their products. High consumption of processed meat products has been associated with non-communicable diseases such as cancer, obesity and cardiovascular diseases among others. The economic effects of NCDs are more severe in developing countries. They reduce labor force participation by 61% in Kenya. Dietary factors contribute to approximately 30% of cancer cases globally. Effective utilization of nutrition information can positively influence consumer diet. There is limited literature in Sub-Saharan Africa, Kenya and particularly Nakuru County on the utilization of nutrition information by consumers when purchasing processed meat products. The purpose of this study was to determine the status of utilization of nutrition information in purchasing decisions of processed meat products in supermarkets in Nakuru town. A cross-sectional analytical study design with mixed methods qualitative and quantitative techniques was adopted in data collection, analysis and presentation. A researcher-administered questionnaire, key informant interview guide and observation checklist were used to elicit information from participants. Simple random sampling was conducted to select the supermarkets while consecutive sampling was used to select 422 participants shopping in supermarkets in Nakuru town where shoppers who purchased processed meat during data collection period were selected to participate. Data was analyzed using SPSS version 22. Statistical significance was set at p< 0.05. The findings of this study revealed that majority (66.1%) of processed meat products purchasers were female and young adults aged between 29-39 years (48.6%), with an average income of between Kshs 10,001- 20,000 (24.6%). On the other hand, majority of the participants (92.6%) had education above secondary level. Only one of the brands in the market under study provided nutrition information on the label of its products. Most of the participants (66.8%) read nutrition information on the labels of processed meat products. Cholesterol (26.1%), sodium (17.8%) and fats (15.4%) were the nutrient of most interest. Sausages were the most (41.1%) frequently purchased and majority (40.5%) consumed processed meat products once a week. More than a half (58.2%) of consumers experienced challenges when reading nutrition information on the label of processed meat products. Technical terms used on nutrition information of processed meat products label was identified as the most (72.6%) challenging for consumers. Consumers aged between 29-39 years were two times more likely to utilize nutrition information on processed meat products compared to consumers aged between 18-28 years (OR: 1.95; CI: 0.83-1.51; P=0.038). There were no differences between the other age groups in the utilization of nutrition information on processed meat products. Female consumers were 66.1% more likely to use nutrition information on processed meat products compared to males (OR: 6.61; CI: 1.26-5.69; P=0.010). Religion (OR: 0.04; CI: 0.03-0.14; P=1.00) and occupation were not associated with the utilization of nutrition information on processed meat. Based on these findings, it is recommended that KEBS, Ministry of health and nutritionists should ensure that the information on processed meat products are simplified and are easy to be read by consumers. The government of Kenya should also set policies and make nutrition labeling mandatory on all processed foods to protect consumers and improve access to health related information.
CHAPTER ONE: INTRODUCTION

1.1 Background to the study

Processed meats are modified to either extend their shelf life or alter the taste (WHO, 2015). The main processing methods for processed meat are smoking, curing, or adding salt or preservatives. Processed meats includes bacon, sausages, hot dogs, smokies, brawn, corned beef, bites, ham, burgers and meat balls, among others (Campos et al., 2011). Nutrition information is a component of food labeling information found on processed food products. It primarily provides consumers with information on the nutritional content of food products (Grunert & Wills, 2007). According to a survey by Derby and Levy (2001) in Canada, nutrition information guided consumers in making their purchasing decisions.

Similarly, studies in the United States of America investigated consumers’ use of nutrition label information on pre-packaged foods and found it to have positive effects on the quality of consumers’ diets (Kim et al., 2000; Nayga, 1999). A study by Worsley (2003) indicated that most of the processed meat products available in the market in Britain are high in calories, fat, refined carbohydrates and sodium. These products if consumed excessively can result in obesity and other diet related diseases such as cancer and cardiovascular diseases, among others (World Health Organization [WHO] & Food and Agriculture Organization [FAO], 2015).

The United State Department of Agriculture Continuing Survey ([DACS] 2014) evaluated the impact of utilization of nutrition information on the labels on consumers and reported that reading nutrition labels on processed meat decreased caloric intake from total fat by 6%, saturated fat by 2.1%, cholesterol by 67.6 mg and sodium by 29.6
mg. Hawkes (2014) in France reported that many consumers in developed countries appreciated nutrition information on the labels of processed meat products and found nutrition information important when making purchasing decisions, especially when buying a product for the first time. People who read labels tend to use them to compare products and find out how much fat and calories the food contains (WHO, 2004). Nutrition labels have also been shown to encourage more healthful diets among people who read the labels (Hawkes, 2014). The effectiveness of nutrition information on labels in improving national dietary patterns relies largely on a motivated and educated public to make healthful choices (Hawkes, 2014).

The nutrition information on the label has emerged as a prominent policy tool for promoting healthy eating in developed countries as explained by Cowburn and Stockley (2005) and Campos et al. (2011) in America. The Nutrition Labeling and Education Act of 1990 (NLEA) is a United States Federal Law which gives the Food and Drug Administration (FDA) the authority to require nutrition information on food labels (Campos et al., 2011). The NLEA regulations are applicable to Europe, Middle East, Asia and Africa (Campos et al., 2011). The regulations of NLEA were aimed at altering nutrition label information such that the usefulness of the information for consumers is increased with implications for consumer welfare (Burton et al., 2007). In the United States, Middle East, Asia and European member countries, nutrition information on the label is mandatory, largely because of their populations’ drift towards healthy and wellness foods and also reflects a response to consumer’s right to know the content and nutrition information of a food product (Campos et al., 2011; European Food Information Council [EUFIC], 2014). In some Sub Saharan African countries such as Burundi, Kenya, Nigeria, Rwanda, among others, nutrition labeling is voluntary and
the state provides guidelines to be followed voluntarily (European Food Information Council [EUFIC], 2014). The EUFIC defines which nutrients should be listed and on what basis, but nutrition information on the label is not mandatory for the manufacturers to display unless a health or nutrition claim is made or unless the food is for special dietary uses (EUFIC, 2014). The prevailing view in countries with mandatory and voluntary nutrition labeling alike is that standardized information are preferable to a multitude of different nutrition labels. There remains broad disagreement, however, on what format is most effective at influencing consumer choice (EUFIC, 2014).

In the East Africa region, the East Africa Standards 38:2000 were developed to provide guidelines of nutrition information labeling besides other labeling requirements. The East Africa Standards 38:2000 identifies what nutrition information should appear on processed meat products and how it should appear. In Kenya, the Kenya Bureau of Standards (KEBS) enforces the standards by the East Africa Standards 38:2000. Kenya Bureau of Standards provides, for common and repeated use, rules, guidelines or characteristics for products and services and related processes or production methods, aimed at the achievement of the optimum degree of order in a given context. It also includes or deals exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method. Standards, therefore, help to make sure that products and services are fit for their purpose and are comparable and compatible.

The government of Kenya also developed the food and nutrition security policy, an overarching policy that addresses nutrition in the country. This policy places nutrition
Meat consumption levels are still low in Kenya, but are expected to rise rapidly with increasing GDP and a growing middle class of increasingly conscious consumers (Herbling, 2015). It is expected that meat consumption in Kenya will double in the period 2000 to 2030 (Herbling, 2015). According to Herbling (2015), Kenyan meat production, processing and distribution sectors will have to make enormous efforts to satisfy the demand. There are six major meat processing companies in Kenya.

Supermarkets in Kenya are the main food stores where consumers purchase a wide range of products including processed meats. The processed meat products are displayed for customers to view and make their purchasing choices. The supermarkets are available country wide. Kenya’s commitment to the realization of Sustainable Development Goals (SDGs) and Vision 2030 is expected to contribute to the goal of having a healthy population. It is therefore important for regulatory bodies such as KEBS and Kenya food processors to determine utilization of nutrition information by consumers so as to identify barriers and optimize their use. It is against this background that this study was conducted.

1.2 Problem statement

Nutrition-related non-communicable diseases were once seen as a problem of the rich people and countries, but increasingly, they are representing the larger part of the morbidity and mortality in lower income countries and groups (WHO, 2004). Common non-communicable diseases are cardiovascular diseases and diabetes, including their
associated metabolic conditions such as high blood pressure, high blood sugar, high cholesterol, overweight and obesity (Popkin, 2006). Many cancers are associated with the same unhealthy diet patterns and are also considered NCDs (World Cancer Research Fund/American Institute for Cancer Research, 2007). Intake of processed meat is associated with a 30% higher rate of cardiovascular diseases and is known to cause cancer (Micha et al. 2012; WHO, 2015). This is because processed meat products contain high concentration of nutrients such as sodium, cholesterol and fats, among others. Further, they contain various chemical compounds (sodium chloride, nitrites, monosodium glutamate, cholesterol and fats among others) that are harmful to health if consumed frequently and for a long period (World Cancer Research Fund [WCRF], 2007). Cancer research in the United Kingdom estimated that 3% of all cancers are linked to red or processed meat in London (Pearson & Tauber, 2012). There is however limited information on prevalence of cancer associated with consumption of processed meat in Kenya. Processed meats increase the risk of cancer by 67% due to the chemical preservative sodium nitrite used (Pearson and Tauber, 2012). Cancer has been ranked 4th cause of death in Kenya, however definite prevalence and incidence studies are lacking. The World Health Organization (2012) estimated the prevalence of diabetes in Kenya at 3.3% and predicts a rise to 4.5% in 2025. Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes; cardiovascular diseases and cancer, in Kenya 4.2% of adults are obese.

Heike and Taylor (2012) indicated that people spend more than 30% of their budget on processed foods in Australia. It is therefore important for consumers to utilize nutrition information on processed foods to prevent the rise of NCDs (United State Department of Agriculture Continuing Survey [DACS], 2014). Health problems associated with
processed foods (obesity, cancer and cardiovascular diseases) are on the rise in Kenya, presenting challenges in achieving sustainable development goals (SDG) and the Kenya vision 2030 because they increase the health expenditure and lower the productivity of the citizens. The economic effects of NCDs are more severe in developing countries. Machio (2012) found that chronic illness reduces labor force participation by 61% in Kenya. Many jobs in lower income countries require manual labour that is difficult or impossible for people with NCDs (WHO & World Bank, 2011). According to research conducted by International Food Information Council Foundation (IFICF), (2014) in Washington DC, consumers showed high awareness more than use of nutrition information on the label. Furthermore, a study in the United Arab Emirates by Washi (2012) indicated that nutrition information on the label has not been effectively utilized to achieve healthier consumer purchasing behaviour. Other studies by Drichouts et al. (2006); Loureiro et al. (2006) in Europe also provided evidence that consumers in many cases are unable to understand and use product information and quantify their nutrition needs due to illiteracy among other factors thus exposing them to risks of NCDs.

Consumers can however, protect themselves from the dangers of processed meats by always reading nutrition labels, not buying any meat product made with sodium nitrite or monosodium glutamate and not eating processed meat but rather base diet on whole fresh foods (WCRF, 2007). There is limited literature in Sub Saharan Africa, Kenya and Nakuru County, on the utilization of nutrition information on the processed meat products in purchasing decisions.
1.3 Purpose of the study

The purpose of this study was to determine the status of utilization of nutrition information on labels of processed meat products and its influence on purchasing decisions among consumers in Nakuru town.

1.4 Specific objectives

1. To determine the socio-economic characteristics of processed meat consumers in supermarkets in Nakuru town.
2. To establish the nutrition information on processed meat products sold in supermarkets in Nakuru town.
3. To determine the status of utilization of nutrition information in purchasing decisions of processed meat products among consumers in supermarkets in Nakuru town.
4. To determine the purchase patterns of processed meat products among consumers in supermarkets in Nakuru town.
5. To identify factors influencing purchasing decisions of processed meat products sold in supermarkets in Nakuru town.

1.5 Research hypotheses

\( H_{01} \): There is no significant relationship between status of utilization of nutrition information on processed meat products and purchasing patterns of processed meat products among consumers in supermarkets in Nakuru town.

\( H_{02} \): There is no significant relationship between status of utilization of nutrition information on processed meat products and the socio-economic characteristics of consumers purchasing processed meat in supermarkets in Nakuru town.
1.6 Significance of the study

The findings of this study may be significant to stakeholders such as the Ministry of Health at both national and county levels in highlighting the importance of utilizing nutrition information on labels of processed meat products among the consumers. The findings will also be useful to Kenya Bureau of Standards (KEBS) in identifying challenges to using nutrition labels on processed meat products by consumers and in identifying gaps in the current nutrition labeling situation. These findings may also provide information to other researchers on the utilization of nutrition information in making purchasing decisions among consumers.

1.7 Delimitations

The study was conducted in supermarkets in Nakuru town and therefore, findings can only be generalized to populations and geographical areas with similar characteristics.

1.8 Limitation

The study was cross-sectional and thus may not reveal the influence of seasonality or times of the year on consumers’ purchasing behaviour.
1.9 Conceptual framework

This study adopted and modified a conceptual framework by Affram and Darkwa, (2015) on consumers' utilization of nutritional information on food labels (Figure 1.1).

Figure 2.1: Conceptual framework on the relationship between utilization of nutrition information and purchasing decision of processed meat products

Source: Modified from Affram and Darkwa, (2015)

The conceptual framework explains the relationship between utilization of nutrition information and purchasing decisions of processed meat products. Socio-economic characteristics such as; income, education, occupation, age, sex, marital status and household size have an influence on the utilization of nutrition information on
processed meat products. These factors influence consumers’ decision to buy and consumption of the processed meat products. Young adults tend to read more nutrition information on processed meat products than older adults. Education enables consumers to read the information on the processed meat products and make their purchasing decisions while income and occupation also helps the consumer to decide which product to purchase in line with their ability to read and exposure to nutrition information. Other factors like time available to shop, price of the processed meat product, taste and brand, on the other hand, affects consumer decision on which processed meat product to purchase, when to purchase and why purchase the processed meat product.

Generally, Consumers deal with the various processes that help them choose products that best fulfill their needs among multiple options. Consumers’ evaluation of nutrition information may have an influence on their decision to purchase the processed meat product or not purchase. They may also actively search for nutrition information on food labels if they understand the information.
CHAPTER TWO: LITERATURE REVIEW

2.1 Processed meat products and nutrition information labeling

Most processed meat products have high cholesterol, sodium and fats among other nutrients which if consumed frequently can be harmful to health (Washi, 2012). Further, processed meat products also contain various chemical compounds (sodium chloride, nitrites, monosodium glutamate, cholesterol and fats among others) that are harmful to health if consumed frequently and for a long period (World Cancer Research Fund [WCRF], 2007). Consumers however, are ill-informed on the use of nutrition information on the processed meat product labels in their purchasing decisions (Darkwa, 2014; Kim et al., 2001; Washi, 2012; Young & Nestle, 2002).

Nutrition information on the processed meat provides the consumers with the information on the nutrient content. Nutrition labeling on processed meat products can be an effective means of helping consumers to make healthful food choices, although existing evidence concerning the effect of nutrition information on diet and public health is insufficient in France (Hawkes, 2014). A study by Washi (2012) in the United Arabes reported that increasing incidences of diet related diseases are linked to high consumption of processed foods and inadequate use of nutrition labels (Washi, 2012). Nutrition labeling of processed meat products, with respect to their nutritional characteristics along with information campaign to educate consumers can significantly affect consumer use of nutrition information and consequently their purchasing decision according to Teisl et al. (2001) in America.
2.2 Socio-economic characteristics of processed meat consumers

Studies by Worsley (2003) in Britain and Satia et al. (2005) in North Carolina reported that women in general are more likely to consume processed meat products than men. This may be because men attach less importance to processed meat products provided their households have enough food supply according to Loureiro et al. (2006) in Italy. In Italy young adults are reported to consume more processed meat products compared to older individuals (Drichoutis et al., 2005). Younger consumers place a lower importance on processed meat products as the prominent meal component in Netherlands (Schösler et al., 2012).

Consumers with higher education have been reported to consume processed meat products in South Africa (Wiles et al., 2009). Drichoutis et al. (2005) reported that individuals with higher education in Italy are more likely to read and understand nutrition information on the label of processed meat products compared with lower educated but still consume high quantities of processed meat products. Consumers with larger households have been associated with lower consumption of processed meat products than those in smaller household sizes (McArthur et al., 2001; McLean-Meyinsse, 2001) in the United State. Drichoutis et al. (2005) in Italy and Kim et al. (2001) in the United Kingdom reported that consumers with higher income and highly ranked occupation are reported to consume more processed meat products because they can afford the products. Nayga (2000) and Hupkens et al. (2000) reported that main meal planners of high income households in the United King and New York respectively are more likely to consume less processed meat products because of specific concerns on calories, sodium, cholesterol and fat content. There is limited information linking socio-economic characteristics and the
utilization of nutrition information in purchasing decisions among consumers in Sub-Saharan Africa, particularly in Kenya.

2.3 Nutrition information on processed meat products

A key difference between countries' approaches to nutrition labelling is the choice of which nutrients are listed on the label, and how they are presented according to Grunert and Wills (2007) in Oxfordshire. The nutritional information may be presented in either numeric or non-numeric formats. Numeric formats present nutrition information quantitatively and non-numeric formats convey information in written form or graphically such as logos, symbols and colour coding (Cowburn & Stockley, 2005; Maubach, 2010). The Nutrition Facts Panel (NFP) or Nutrition Information Panel (NIP) provides quantitative information on the energy and nutrient content of the food in 3 ways: 1) per serving basis; 2) per 100g (or 100ml if liquid), 3) and as Percentage Daily Value (PDV) and this is usually based on recommendations for an average person requiring 2000 Kcal per day (Maubach, 2010).

According to EUFIC (2014) in Europe, processed meat products manufacturers must display the following information (mandatory information) on the product packaging or on a label attached to the packaging: the name of the food, the Quantitative Ingredients Declaration (QUID), a list of ingredients (including allergens), list of preservatives used, the weight or volume of the food (net quantity), a ‘best before’ or ‘use by’ date, the name and address of the food business operator (FBO) responsible for the food information. In European Union countries, the format in which nutrition information is presented is a concern. The current presentation of nutrition
information has been reported as being difficult for consumers to understand and utilize effectively (Levy et al., 2014). This has been well illustrated by Levy et al. (2014) in the United Kingdom, where 80% of food packages carry nutrition labels, either because a claim has been made, or because the food manufacturer has chosen to do so.

Nutrition information on processed food products labels must be present if the manufacturer has made a nutritional or health claim on the product (e.g. ‘high in fibre’ or ‘good source of calcium’) or vitamins or minerals have been added to the food (EUFIC, 2014). Despite the global support for adequate nutrition information on processed food labels and its use by nutritionists, a report by Campos et al. (2011) and EUFIC (2014) indicated that this goal has not been achieved in developing countries. Provision of nutrition information on the label is voluntary in Kenya due to the policies in place by KEBS and EAS 38: 2000. This gives manufacturers freedom over consumer’s right to know. There is limited literature in the sub-Saharan Africa particularly Kenya on the nutrition information on processed meat products.

2.4 Status of utilization of nutrition information in purchasing decisions among processed meat consumers

The importance consumers place on certain food attributes has been widely hypothesized to affect nutrition information use in purchasing decisions, according to a study by Thayer (1997) in Chicago. In a survey carried out in Canada by Derby and Levy (2001), it was observed that 69% of consumers read nutrition information on the processed meat product labels and almost 48% of the consumers changed their purchasing decision due to the nutrition information on the labels. On the other hand,
Hawkes (2014) in France observed that nutrient information on the label does affect food choice. The most common reason cited for use of nutrition information on the label was the avoidance of negative nutrients such as cholesterol and sodium. Teisl et al. (2001) suggested that in America nutrition labeling of food products, with respect to their nutritional characteristics along with information campaign to educate consumers can significantly affect consumer use of nutrition information and consequently their purchasing decision. Guthrie et al. (1995) in London and McLean-Meyinsse (2001) in the United States discovered that nutrition label use was associated with consumption of diets that were higher in vitamin C and lower in cholesterol. Likewise, Hurley et al. (2004) in Columbus found that the total percentage of lower energy intake from fat was associated with reading nutrition labels.

On the other hand, a number of studies have investigated how reading nutrition information on processed meat products influence the quantity and frequency of consumption of processed meat products. For example, Satia et al. (2005) and Kempen et al. (2012) found that people who read nutrition labels more often improved their nutrition knowledge and were health conscious and therefore, likely to consume processed meat products less frequently. Mahgoub et al. (2010) in Lesotho reported that individuals who utilized nutritional labels more often avoided snacking and purchased smaller quantities of processed meat products.

In European Union countries, nutrition labelling regulation is in place and many food manufacturers provide nutrition information on the label on voluntary basis. It has been recognized, however, that consumers may not understand this information (Levy et al., 2014). The DACS (2014) evaluated the impact of the
utilization of nutrition labels on consumers and reported that reading nutrition label on processed meat products decreased calorie intake from total fat by 6%, saturated fat by 2.1%, cholesterol by 67.6 mg and sodium by 29.6 mg. Furthermore, a study in the United Arab Emirates by Washi (2012) indicated that nutrition information on the label has not been effectively utilized to achieve healthier consumer purchasing behaviour. Other studies by Drichouts et al. (2006); Loureiro et al. (2006), in Europe also provided evidence that consumers in many cases are unable to understand and use product information and quantify their nutrition needs due to illiteracy among other factors. However, there is limited literature in sub-Saharan Africa, Kenya and Nakuru County on the utilization of nutrition information in purchasing decisions since most of these studies were conducted in developed countries where there is a drift towards healthy eating and wellness besides the right to know.

2.5 Purchase patterns of processed meat products and purchasing decision

Global patterns of meat consumption reveal a trend towards increased meat consumption (WHO, 2015). Meat consumption in the developed world including the United States has continued to increase with red meat and processed meat accounting for 58% and 22%, respectively, of overall consumption (Daniel et al., 2011). Herbling (2015) reported that meat consumption in Kenya is still low but is expected to rise rapidly with increasing GDP and a growing middle class of increasingly conscious consumers. This is of interest in terms of cancer and other NCDs prevention, as the consumption of red and processed meat has been associated with an increased risk of Cancer and other NCDs (WHO, 2015).
Processed meat products are available in various sizes, shape and colour in meat sections of supermarkets. There are several hundred different processed meat products, each with its individual product name and taste characteristics (FAO, 2010). It turns out however, that many of the different products with different product names have great similarities according to WCRF (2007) in Washington DC. Based on the processing technologies used and taking into account the treatment of raw materials and the individual processing steps, it is possible to categorize processed meat products in six broad groups; fresh processed meat products, cured meat, raw cooked, pre-cooked, raw fermented and dried processed meat products WCRF (2007). The typical examples of processed meat products include hamburgers, sausages, kebabs, ham, bacon, frankfurter, salami, brawn, hot dogs, smokies, corned beef, among many others (WHO, 2015).

A prospective study in Japan, United States and Britain found that people consume processed meat daily (WCRF, 2007). Ham, sausage, burger, frankfurter, and bacon are the most frequently consumed processed meat products in the United States (Daniel et al., 2011). In the Sub-Saharan Africa, consumption of processed meat products is low but the frequency of consumption is expected to increase with the growing Gross Domestic Product (GDP) and per-capita income of each country (FAO, 2010). In Kenya, however there are limited studies identifying the most frequently consumed processed meat products.

The purchase is only the visible part of a more complex decision making process created by the consumer for each buying decision made. When analyzing the consumer decision, Schiffman and Kanuk (2004) in New Jersey stated that it is necessary to pay
attention to all three stages of this process. The first stage is the preparatory stage and is determined by the product, its characteristics and marketing activities on one hand and social factors (family, friends, social group, and age) on the other. The second stage is the process stage and it is influenced by psychological factors (consumer’s personality, his attitudes, perception, and motivation). The final third stage is characterized by the purchase decision and the post purchase behavior that is repeat of purchase. There is lack of sufficient literature in Kenya and specifically Nakuru County on the purchasing decisions of consumers as influenced by utilization of nutrition information since most studies on this area were conducted on an educated population and in developed countries where nutrition labeling is compulsory on all processed food products.

2.6 Factors influencing purchasing decisions among processed meat consumers

Factors such as age, sex, household size, marital status, education, income and occupation of consumers have been associated with utilization of nutrition information on the food labels. A study conducted in Italy by Loureiro et al. (2006) indicated the existence of a relationship between age and use of nutrition information on food labels. Additionally, Mannell et al. (2006) reported that in France found that middle aged or younger adults were more likely to use nutrition information than older individuals. This evidence was supported by Misra (2007) in a study in South Asia which concluded that older people perceived nutrition information as less understandable and tended to read only the ingredient list, while younger people were inclined to reading both the nutritional information and ingredient lists, or just the nutritional information. Studies by Worsley (2003) and Satia et al. (2005)
in Britain and North Carolina indicated that women in general are more likely to use nutrition information than men. This was confirmed by Loureiro et al. (2006) who reported that men attach less importance to nutrition information provided their households are in good health.

Household composition has been known to affect nutrition label usage (McArthur et al., 2001; McLean-Meynsse, 2001) in the United States. Married consumers with children are more likely to search for nutrition label information especially since the health of children is a primary concern of a household. Schupp et al. (1998) in Britain observed that nutrition label use is lower among individuals who are single or married without children, since they have responsibility only for their well-being. Household size is also known to affect nutrition label usage. McArthur et al. (2001) in the United States was supported by Wiles et al. (2009) in a study in South Africa in concluding that larger households of four or more use nutrition labels in purchasing processed meat products more compared to smaller households of one or two people.

Education is an important factor affecting use of nutrition information. Drichoutis et al. (2005) and Wiles et al. (2009) both reported that individuals with higher education are more likely to be aware and use nutrition labels than the lower educated individuals in Europe and South Africa respectively. Similarly, higher education levels may also enhance consumers’ ability to understand and interpret nutrition information (Drichoutis et al., 2005). Several studies have shown a relationship between the use of nutrition label and consumers income (Drichoutis et al., 2005; Kim et al., 2001; Mahgoub et al., 2007; McLean-Meynsse, 2001 & Wiles et al.,
Some authors have reported a positive relationship between income and nutrition label use whereas others have reported a negative relationship. For instance Nayga (1996) reported that in New York the main meal planners of higher-income households are more likely to use nutritional label information on food packages, specifically concerning calories, sodium, fibre, fat, and cholesterol content than main meal planners of lower-income households. Mahgoub et al. (2007) reported that in Lesotho nutrition label information was a major factor in respondent’s food purchasing decisions except for respondents earning a family income of less than 70.2 United State Dollars per month for whom food price was the major determining factor of the foods they buy.

Utilization of nutrition information can be determined by occupation as explained by Themba and Tanjo (2013) in Botswana. High-ranked occupation is directly related to increased levels of nutritional knowledge as indicated in a study by Al-Shookri, et al. (2011) in Asia. Further, a study by Cowburn and Stockley (2005) in Britain stated that high ranked occupation is linked to a high income, which in turn may result in more awareness of the nutrition information. Despite support for adequate nutrition information and its use, research by EUFIC (2014) indicated that this goal has not been achieved in the developing countries.

Drichouts et al. (2006) also identified several other factors which influence purchasing decision of processed meat. Some of these factors include; time, health status, price, nutrition knowledge, taste, brand and attitude towards nutrition among others. Time pressure effects on use of nutrition information was apparent in a study by Drichoutis et al. (2005) and Lin and Lee (2003) in America, where they reported that reading
nutrition information on labels takes more time than what consumers can spend, and therefore, less likely to use nutritional information on fat content specifically.

A study by Nayga (2000) demonstrated a positive effect of current health status on search for nutrition information. He added that consumers with special interest in healthy eating used nutritional information on products as a means to an end. According to Smith (2004) dietary indulgence in Ohio was often cited as evidence of consumer’s more general problem of self-control. Consumers however, may continue to choose tasteful but nutritionally poor foods despite the availability of nutrition information. Drichoutis et al. (2005) have shown that price and search for nutrition label information act competitively. These studies have reported that price-sensitive respondents care less about the nutritional quality of the food they buy than non-price-sensitive participants. Consumers placing importance on price are less likely to use nutritional label information in general (Drichoutis et al., 2005; Nayga et al. 1998). For instance Drichoutis et al. (2005) found that individuals who placed importance on price were less likely to use information on fat and cholesterol. Drichoutis et al. (2005) and Nayga et al. (1998) further reported that consumers who place high importance on the price are actively looking for price information and this may then hinder them from examining nutritional labels.

Nutrition information use is affected by the attitude consumers have toward nutrition according EUFIC (2007) report which showed that consumers with positive attitudes towards nutrition will utilize nutrition information on processed meat products more compared to those who have no interest.
Finally, Batra and Batra (2009) in New York found that nutrition information use affected brand choice. People tend to like certain brands therefore, affecting their choice and utilization of nutrition information (Batra & Batra, 2009). There is limited information on factors affecting utilization of nutrition information on the label of processed meat products by consumers because there are limited current studies on the situation in sub-Saharan Africa particularly Kenya.

2.7 Summary of literature review

Socio-economic characteristics such as age, sex, marital status, household size, education, occupation and income of consumers have been associated with the utilization of nutrition information with mixed findings of both negative and positive association. Nutrition information on the processed meat products primarily provides consumers with information on the nutritional content though consumers still have challenges utilizing the available information in their purchasing patterns. Factors such as illiteracy, time, price and attitude among others are reported to influence utilization of nutrition information as highlighted in the literature.

Global patterns of meat consumption reveal trends towards increased meat consumption in both developed and developing countries. Majority of studies on the utilization of nutrition information on processed meat product labels by consumers have been conducted in developed countries and with literate populations. There is limited literature on the utilization of nutrition information in purchasing decisions among consumers in developing nations particularly in Sub Saharan Africa. This study addressed this gap by determining the utilization of nutrition information on processed food products labels by consumers in a Kenyan town, Nakuru.
CHAPTER THREE: METHODOLOGY

3.1 Research design

This study adopted a cross-sectional analytical design as data was collected at one point in time. Mixed methods (qualitative and quantitative techniques) were used in data collection, analysis and presentation. This method was adopted because it allows the analysis of factors related to the utilization of nutrition labelling information in purchasing processed meat products and whether the use of nutrition information is related to the purchasing decisions. The qualitative data has been used to triangulate and complement the quantitative data.

3.2 Study variables

3.2.1 Dependent variables

The dependent variables were:

1. Utilization of nutrition information on the processed meat products as determined by the act of reading of nutrition information on the label by consumers.

2. Purchasing patterns of processed meat products as determined by the frequency of purchasing, type of processed meat purchased and the quantities purchased.

3.2.2 Independent variables

The independent variables were:

1. Socio-economic characteristics as determined by; age, sex, religion, marital status, household size, income, level of education and occupation of consumers.

2. Factors influencing purchasing decisions of processed meat products such as; time, brand, price, taste and health status.
3.3 Study area
The study was conducted in supermarkets in Nakuru town. Nakuru town is the headquarters of Nakuru County. The town is cosmopolitan and is characterised by economic activities such as trade, tourism and agriculture (NCDP, 2014). Nakuru town has 11 major supermarkets which include; 3 Tusky’s, 2 Stagematt, 2 Woolmat, 1 Naivas, 1 Ukwala, 1 Gilanis, and 1 Nakumatt. All these supermarkets are located within the central business district. Besides processed meat, these supermarkets offer a variety of products like flours, dairy products, fats and oils, beverages, fruits and vegetables. They also provide a range of non-food items and other household goods. Nakuru town was selected as the study area because no known similar study has been conducted within the County and in Kenya.

3.4 Target population
The target population consisted of consumers 18 years of age and above, who shop in supermarkets in Nakuru town. Nakuru town has a population of approximately 309,424 people in a coverage area of 297.2Km² (Kenya National Bureau of Statistics, 2009). Approximately 2500 consumers visit each supermarket daily (personal communication, 8th August 2015). These consumers visit the supermarkets to purchase various items besides processed meat products.

3.4.1 Inclusion criteria
1. Kenyan citizens who were 18 years of age or more shopping in supermarkets in Nakuru town.

2. Consumers who purchased processed meat on the day of data collection as determined by purchase receipts from the supermarket.
3. Residence in Nakuru County for 3 months or more, prior to the study.

3.4.2 Exclusion criteria

1. Consumers who were not able to read because they were visually impaired, and this was determined by asking the consumer.

2. Those that declined to give consent for participation in the study.

3.5 Sample size

Cochran’s (1977) formula was used to establish the appropriate sample size. This formula is used when the sample size is known and for categorical data.

\[
 n = \frac{Z^2 \cdot p \cdot q}{d^2}
\]

Where:  
\( n \) = the desired sample size  
\( Z \) = the standard normal deviate at the required confidence level  
\( P \) = proportion of shoppers who use nutrition information in their purchasing decisions (this proportion was not known from the literature review therefore, 50% (0.5) was used for this study).  
\( q \) = 1-\( p \)  
\( d \) = the level of statistical significance set (95% for this study)

\[
 = \frac{(1.96)^2 \times 0.5 \times (1-0.5)}{(0.05)^2} = 384.2
\]

To cater for non-response, 10% of 384 was added: =384+38= 422

Thus, the calculated sample size was 422 shoppers in supermarkets in Nakuru town. The study also conducted 9 Key Informant Interviews.
This formula was adopted because the sample pollution of the study was known.

### 3.6 Sampling techniques

Simple random sampling was conducted to select eight (8) supermarkets from eleven (11) supermarkets within Nakuru town. All the supermarkets were listed and numbered. The numbers were then put in a ballot box, eight (8) were chosen randomly. These included Tusky’s, Naivas, Woolmat, Ukwala, Gilanis, Nakumatt, Quickmat and Stagemat. This provided an equal opportunity for all supermarkets in the study area and eliminated bias. Fifty three (53) participants were selected from each supermarket. Consecutive consumers who purchased processed meat were selected to participate in the study until the required sample size was obtained. Each manager from the supermarkets was purposively selected as a Key Informant because they were in a position to explain the purchasing patterns of processed meat products in their supermarkets. The KEBS officer was also selected purposively as a Key Informant because his office could provide information on nutrition labelling policy and regulations in Kenya.

### 3.7 Research instruments

#### 3.7.1 Researcher-administered questionnaire

A researcher-administered questionnaire (Appendix H) was used to elicit information from the consumers. The questionnaire was divided into three sections. Section A elicited information on socio-economic characteristics such as age, sex, marital status, and household size, income, level of education and occupation of the participants. Section B was on the utilization of nutrition information on processed meat products in terms of time when read, frequency of reading, clarity of nutrition
information on the label and challenges experienced when reading nutrition information on the label of processed meat products. Section C had questions on type of processed meat products, frequency of purchasing and frequency of consumption. This section also elicited information on other factors reported by consumers to influence their purchasing decisions.

3.7.2 Key Informant Interviews (KII) guides

3.7.2.1 Key Informant Interview guide for Kenya Bureau of Standards officer (KEBS)

One KII guide (Appendix I) was used to elicit information from a Kenya Bureau of Standards officer in the food science department from Nakuru County office. The information sought was on policy and regulations regarding nutrition information on processed meat products in Kenya, guidelines on compliance and non-compliance of the manufacturers of processed meats and the challenges of implementation of the guidelines.

3.7.2.2 Key Informant Interview guide for supermarket supervisors

A second KII guide (Appendix J) was used to elicit information from eight (8) supermarket managers on the available processed meat in their supermarket shelves with and without labels, most frequently purchased processed meat, consumer use of nutrition information on the labels, consumer complaints on absence of nutrition labels, factors influencing consumer purchasing decisions and current trends on consumer utilization of nutrition information on processed meat products.
3.7.3 Observation checklist

An observation checklist (Appendix K) was used to record nutrition information on the label of processed meat products that the supermarket stocked in terms of; presence or absence of nutrition information, position of information (front, back, top, bottom or sides of the pack) and format of presentation either written or graphically presented by use of logos, pictures and/or colour coding.

3.8 Pre-testing

A pre-test was conducted on 42 participants at Tusky’s supermarket located 2km from Nakuru town. These participants had similar characteristics with those of the main study. Those who participated in the pre-test were not included in the main study. This was ensured through asking the participants. At the end of the pretest, two questions were added to the questionnaire. The pre-testing provided the opportunity to train research assistants and to identify context specific challenges that arose from using the instruments.

3.9 Validity and reliability

3.9.1 Validity

Sections of the questionnaire on socio-economic characteristics were adopted from the Kenya Demographic Health Survey (KDHS) which is already validated. The questionnaire was further validated with the help of University supervisors who are experts in nutrition. The pre-test was also conducted to ensure that the questions were clear, simple and collected information that they were intended to collect.
3.9.2 Reliability

The test re-test method was used to establish the reliability of the instruments. During pre-testing, data was collected twice from the same person at an interval of two days. The questionnaire yielded a correlation coefficient of 0.89 (0.79 – 0.98; 95% CI) between the two sets of data. This was considered adequate as it was above 0.7, as recommended by Mugenda and Mugenda, (2003).

3.10 Recruitment and training of the research team

The research team was composed of the researcher and four research assistants. The assistants were recruited competitively based on the criteria that they had a minimum of a diploma in nutrition or food science, had previous experience in data collection from other studies or surveys, and spoke both English and Swahili fluently. The selected assistants were trained for four days. The main areas of training were skills on interview techniques, research ethics, communication skills, courtesy and good public relations. The training techniques used were; lectures, role plays, demonstrations and use of charts. On the fourth day of training, the research assistants were taken for the pre-test.

3.11 Data collection procedures and techniques

Data was collected for a period of 16 days. This was from 422 consumers from the 8 selected supermarkets. Fifty three (53) consumers were interviewed from each supermarket. The data was collected on both week days and weekends during the hours that the supermarkets were open. The data collection techniques used included the following:
3.11.1 Face to face interviews

One time face to face interviews were conducted by the researcher assisted by the research assistants. The research team identified themselves using a research team name tag and the research permit. Consumers who had purchased processed meat products were greeted as they were exiting the supermarket and they were requested to participate in the study. Those who accepted were asked to sign the informed consent form. A research assistant at the exit then interviewed the consumers on utilization of nutrition information on processed meat. They were asked whether they read nutrition labels or not. The process was repeated until the data collection exercise was completed. The interview was guided by the questionnaire. The responses were recorded as they were obtained. The questionnaires were then consolidated by the researcher, on a daily basis, who kept them in a locked cupboard. All this exercise was facilitated by the researcher.

3.11.2 Observation

Research assistants were stationed at the processed meat section. One of them recorded nutrition information on the label of processed meat products, types of brands on the shelves, location of nutrition information on the pack, presentation format and any other information on the label. Consumers who visited the processed meat section and picked the processed meat product were observed and traced to the pay point.

3.11.3 Key Informant Interviews

Key informant Interviews were conducted by the researcher, with the KEBS officer in-charge of the food science department in Nakuru County, as well as supermarket supervisors, in their respective offices. Consent to record the interview was sought
from all key informants. All the interviews were guided by the Key Informant Interview guide specific for each category. The interviews were tape recorded twice using two different devices. The interviews lasted between 20-30 minutes.

3.12 Data quality control
Careful evaluation and selection of research assistants was done to ensure the quality of the data. The research assistants were given a comprehensive, standard and uniform training for four days. Pre-test data was collected twice to ensure consistency. During the main study, the data collected from each participant was cross checked before terminating the interview by the researcher to ensure that all questions were answered. Cleaning of the questionnaire was done at the end of each day and all the information was kept in a locked cupboard by the researcher. The KIIIs were recorded using two devices to ensure clarity and as a backup in case one got lost or did not record well.

3.13 Data analyses and presentation
The computer software, Statistical Package for Social Sciences (SPSS) version 22 was used for data analysis. Socio-economic characteristics of the consumers were analyzed using descriptive statistics such as; means, standard deviations, percentages and frequencies for distribution. Purchasing decisions were analyzed based on the frequency of purchasing and consumption of processed meat products. Chi-square test was used to determine relationships between utilization of nutrition information on processed meat labels and consumer purchasing patterns. Odds Ratio was used to establish significant relationships between utilization of nutrition information on processed meat products and socio-economic characteristics (age, sex, household size
and marital status, income, education level and occupation) of the consumers. Statistical significance was set at p<0.05.

Nutrition information on processed meat was analyzed based on the presence or absence of the information and the content of the nutrition information. Content analysis was conducted for key informant interviews. The verbatim recordings were transcribed to themes: policy and guidelines on nutrition labeling; current trends on utilization of nutrition information; and factors influencing use of nutrition information.

A new theme on accuracy of the nutrient content of the processed meat product in relation to the nutrition information provided on the label emerged during the data collection period, which was not initially pre-determined. Data from observations was also organized into themes such as type of processed meat products and nutrition information on the labels of processed meat products. All these themes were coded for ease in the data analysis. The analyzed data was presented by use of frequency tables for ease of interpretation.
### Table 3.1: Data analysis matrix

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Methods and instruments of data collection</th>
<th>Variable</th>
<th>Nature of the variable</th>
<th>Statistical tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>To determine the socio-economic characteristics of processed meat consumers in supermarkets in Nakuru town.</td>
<td>-Researcher-administered questionnaire</td>
<td>-Age</td>
<td>-Categorical</td>
<td>-Mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Sex</td>
<td></td>
<td>-Standard deviation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Education level</td>
<td>-Frequency tables</td>
<td>-Frequency tables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Income</td>
<td>-Percentages</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Household size</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To establish the nutrition information on processed meat products sold in supermarkets in Nakuru town.</td>
<td>-Observation checklist</td>
<td>-Nutrition information on the label; content, format and location of information</td>
<td>-Categorical</td>
<td>-Content analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Processed meat products; type and brands</td>
<td></td>
<td>-Qualitative</td>
</tr>
<tr>
<td>To determine the utilization of nutrition information on processed meat products among consumers in supermarkets in Nakuru town.</td>
<td>-Researcher-administered questionnaire</td>
<td>-Reading labels</td>
<td>-Continuous</td>
<td>-Frequency tables</td>
</tr>
<tr>
<td></td>
<td>-Key Informant Interview (KII)</td>
<td>-Time when read</td>
<td></td>
<td>-Content analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Frequency of using the nutrition label</td>
<td>-Categorical</td>
<td>-Percentages</td>
</tr>
<tr>
<td>To determine the purchase patterns of processed meat products among consumers in supermarkets in Nakuru town</td>
<td>-Researcher-administered questionnaire</td>
<td>Frequency of utilization, consumption, and quantities consumed</td>
<td>-Quantitative</td>
<td>-Frequency tables</td>
</tr>
<tr>
<td></td>
<td>-Key Informant Interview (KII)</td>
<td></td>
<td></td>
<td>-Continuous</td>
</tr>
<tr>
<td>To identify factors influencing purchasing decisions of processed meat products sold in supermarkets in Nakuru town.</td>
<td>-Researcher-administered questionnaire</td>
<td>-Demographic characteristics</td>
<td>-Categorical</td>
<td>-Chi-square tests</td>
</tr>
<tr>
<td></td>
<td>-Key Informant Interview (KII)</td>
<td>-Socio-economic characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Other factors</td>
<td>-Qualitative</td>
<td></td>
</tr>
</tbody>
</table>
3.12 Logistical and ethical considerations

Clearance and approval to conduct research was obtained from the graduate school of Kenyatta University (Appendix A). Ethical clearance was sought from Kenyatta University Ethical Review Committee (Appendix B). A research permit was obtained from National Commission for Science, Technology and Innovation (NACOSTI) (Appendix C). Voluntary informed consent from the supermarket managers was obtained to allow for the study to be conducted within their premises (Appendix D). In addition, informed voluntary consent was sought from consumers (Appendix E) and the KEBS officer (Appendix F) in form of signatures or thumbprints. Confidentiality of the information given was assured to all participating consumers, supermarkets and processed meat brands by use of codes instead names.
CHAPTER FOUR: FINDINGS

4.1 Introduction

The utilization of nutrition information on the label in making purchasing decision among consumers was evaluated in eight supermarkets in Nakuru town. A total of 422 consumers consented and participated in the study. All the 422 questionnaires were analyzed. This gave the study a 100% response rate, any response rate above 60% is considered adequate (Fincham, 2008).

4.2 Socio-economic characteristics of processed meat consumers in supermarkets in Nakuru town

In terms of the socio-economic characteristics, a larger proportion of participants were female (66.1%) compared to males (33.9%), and 48.6% were between 29-39 years of age (Table 4.1). Few (0.5%) participants were above 73 years of age. Majority of participants were married (63.7%) compared to those who were single (30.1%).

Regarding household size, about a quarter (27.7%) of the participants reported to have above 5 members. Slightly more than a third (35.5%) of the participants reported to have full time jobs with only 13.5% being self employed. Forty two percent (42.4%) had completed tertiary education, while only 0.5% reported that they had not completed primary school. Regarding monthly income of the participants, 24.6% earned between kshs 10,001-20,000 with only 4.7% reporting to have a monthly income of less than Kshs 5,000/=. 
Table 4.1: Socio-economic characteristics of the consumers

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N = 422</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in complete years</td>
<td></td>
</tr>
<tr>
<td>Mean± SD</td>
<td>34.26±2.886</td>
</tr>
<tr>
<td>18-28</td>
<td>117</td>
</tr>
<tr>
<td>29-39</td>
<td>205</td>
</tr>
<tr>
<td>40-50</td>
<td>82</td>
</tr>
<tr>
<td>51-61</td>
<td>10</td>
</tr>
<tr>
<td>62-72</td>
<td>6</td>
</tr>
<tr>
<td>≥73</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>143</td>
</tr>
<tr>
<td>Female</td>
<td>279</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
</tr>
<tr>
<td>Household size</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>45</td>
</tr>
<tr>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>3</td>
<td>92</td>
</tr>
<tr>
<td>4</td>
<td>111</td>
</tr>
<tr>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>&gt;5</td>
<td>117</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>127</td>
</tr>
<tr>
<td>Married</td>
<td>269</td>
</tr>
<tr>
<td>Separated</td>
<td>12</td>
</tr>
<tr>
<td>Divorced</td>
<td>4</td>
</tr>
<tr>
<td>Widowed</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
</tr>
<tr>
<td>Incomplete primary school</td>
<td>2</td>
</tr>
<tr>
<td>Completed primary school</td>
<td>16</td>
</tr>
<tr>
<td>Incomplete secondary school</td>
<td>13</td>
</tr>
<tr>
<td>Complete secondary school</td>
<td>51</td>
</tr>
<tr>
<td>Incomplete Diploma/ Certificate college</td>
<td>21</td>
</tr>
<tr>
<td>Complete Diploma/ Certificate college</td>
<td>179</td>
</tr>
<tr>
<td>Degree graduate</td>
<td>104</td>
</tr>
<tr>
<td>Not complete degree</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
</tr>
<tr>
<td>Monthly income (Kshs)*</td>
<td></td>
</tr>
<tr>
<td>≤5,000</td>
<td>20</td>
</tr>
<tr>
<td>5,001-10,000</td>
<td>34</td>
</tr>
<tr>
<td>10,001-20,000</td>
<td>104</td>
</tr>
<tr>
<td>20,001-30,000</td>
<td>79</td>
</tr>
<tr>
<td>30,001-40,000</td>
<td>88</td>
</tr>
<tr>
<td>40,001-50,000</td>
<td>46</td>
</tr>
<tr>
<td>≥5001</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>22</td>
</tr>
<tr>
<td>Contract employee</td>
<td>131</td>
</tr>
<tr>
<td>Permanent employee</td>
<td>150</td>
</tr>
<tr>
<td>Casual employee</td>
<td>29</td>
</tr>
<tr>
<td>Self employed</td>
<td>57</td>
</tr>
<tr>
<td>Farmer</td>
<td>29</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
</tr>
</tbody>
</table>

* Kshs 100 = 1 United State Dollar (USD)
4.3 Nutrition information on processed meat products stocked in supermarkets in Nakuru town

Nutrition information on processed meat products in the supermarkets varied by brands. The processed meat brands were coded alphabetically for the purpose of confidentiality (Table 4.2).

Table 4.2: Nutrition information on processed meat products

<table>
<thead>
<tr>
<th>Processed meat brands</th>
<th>Types of processed meat products</th>
<th>Nutrient content breakdown information</th>
<th>Nutrition or health claims present</th>
<th>Position of nutrition information on the pack</th>
<th>Format of nutrition information presentation on the pack</th>
<th>Other information on the label</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Sausages, brawn, sandwich, Ham, Beef, Vienna, smokies, hot dogs, burger, nyama bite</td>
<td>Energy, protein, total fat, cholesterol, saturated fats, carbohydrates, sugar, dietary fibre, sodium</td>
<td>Absent</td>
<td>Back of pack</td>
<td>Written</td>
<td>Expiry date, Additives, List of ingredients, Preservatives, price, brand, manufacturer, country of origin, date of manufacture</td>
</tr>
<tr>
<td>B</td>
<td>Sausages, brawn, smokies, hot dogs</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Expiry date, Additives, List of ingredients, Preservatives, price, brand, manufacturer, country of origin, date of manufacture</td>
</tr>
<tr>
<td>C</td>
<td>Sausages, brawn, smokies, hot dogs</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Expiry date, Additives, List of ingredients, Preservatives, price, brand, manufacturer, country of origin, date of manufacture</td>
</tr>
<tr>
<td>D</td>
<td>Sausages, smokies, hot dogs</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Expiry date, Additives, List of ingredients, Preservatives, price, brand, manufacturer, country of origin, date of manufacture</td>
</tr>
</tbody>
</table>

A total of five brands of processed meat products were stocked in the supermarkets.

Most of the manufacturers displayed the mandatory information as stipulated by the
East Africa Standards 38:2000 and KEBS. Additives, list of ingredients, preservatives, price, brand, manufacturer, country of origin, date of manufacture and expiry dates were found in all the processed meat product brands in the supermarkets. Only one brand had its nutrition information at the back of the pack, while the other four brands did not have nutrition information. The nutrition information in this brand was on the nutrient content breakdown for proteins, energy, fat, cholesterol, sodium, dietary fibre, and saturated fats. All the brands evaluated in this study had neither a nutrition claim nor a health claim on their products.

One KI confirmed, “One brand has nutrition information on the labels of all its products and it has the highest number of processed meat products on the shelves, unlike the other brands which have no nutrient content breakdown information on the label” (KI, 2016). One of the key informants (KI9, 2016) said, “Brand A is compliant with all the regulations and the most popular brand in the country compared to the other brands.” “Out of all processed meat producing companies, approximately 40% fully comply with the labeling requirements,” he added, “However, the information provided on the labels by the other companies selling processed meat products in the supermarkets are considered adequate by the East Africa Standards 38:2000 and KEBS regulations on processed meat products”. When asked whether nutrition information was compulsory on the label he said, “In Kenya nutrition labeling is voluntary. There is a standard guideline by East Africa Standards 38:2000 that regulates on what information should appear on the label. Processed meat products should display the net content of the meat, list of ingredients, storage instructions, expiry date, nutrient content, and genetically modified organism contained in the product, among others. East Africa Standards 38:2000 was developed in 2000 by the
East Africa countries (Kenya, Uganda, Tanzania, Rwanda and Burundi).” In cases of non-compliance, KI9, 2016 reported that the law on non-compliance is very clear and it includes first warning, second warning and if there is no improvement, the company is closed down until when they will fully comply with the East Africa Standards 38:2000 and KEBs requirements.

4.4 The utilization of nutrition information on processed meat products label among consumers in Nakuru town

Majority (66.8%) of the consumers read nutrition information with 33.2% not reading. Half (50.0%) of the participants reported that they read nutrition information every time they purchased the product while 46.8% read the first time they purchased the product. Cholesterol, sodium and fats were the nutrients of keen interest for most of the consumers at 24.8% and 19.5% and 16.0% respectively. Energy was of the least (3.2%) interest to the consumers (Table 4.3). According to KI2 and KI9, (2016), creating more awareness through health education, media and learning institutions will improve the utilization of nutrition information among consumers of processed meat products. “Our customers hardly complain about nutrition information, I think they don’t understand nutrition information on the processed meat product labels and they need to be educated through television and radios” (KI9, 2016).
Table 4.3: Utilization of nutrition information

<table>
<thead>
<tr>
<th>Aspects of utilization of nutrition information</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading nutrition information on label</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read</td>
<td>282</td>
<td>66.8</td>
</tr>
<tr>
<td>Don’t read</td>
<td>140</td>
<td>33.2</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
<td>100.0</td>
</tr>
<tr>
<td>Time when nutrition information on the label is usually read</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=282</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The first time the product was purchased</td>
<td>132</td>
<td>46.8</td>
</tr>
<tr>
<td>Every time the product was purchased</td>
<td>141</td>
<td>50.0</td>
</tr>
<tr>
<td>Some times</td>
<td>9</td>
<td>3.2</td>
</tr>
<tr>
<td>Total</td>
<td>282</td>
<td>100.0</td>
</tr>
<tr>
<td>Nutrients of interest to consumers on nutrition labels* N=282</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol</td>
<td>70</td>
<td>24.8</td>
</tr>
<tr>
<td>Sodium</td>
<td>55</td>
<td>19.5</td>
</tr>
<tr>
<td>Total fats</td>
<td>45</td>
<td>16.0</td>
</tr>
<tr>
<td>Saturated fats</td>
<td>30</td>
<td>10.6</td>
</tr>
<tr>
<td>None of the nutrients</td>
<td>21</td>
<td>7.4</td>
</tr>
<tr>
<td>Proteins</td>
<td>20</td>
<td>7.1</td>
</tr>
<tr>
<td>Dietary fibre</td>
<td>18</td>
<td>6.4</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>14</td>
<td>5.0</td>
</tr>
<tr>
<td>Energy</td>
<td>9</td>
<td>3.2</td>
</tr>
<tr>
<td>Using nutrition information to determine suitability of processed meat products for family consumption N=282</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>136</td>
<td>48.2</td>
</tr>
<tr>
<td>Sometimes</td>
<td>102</td>
<td>36.2</td>
</tr>
<tr>
<td>Never</td>
<td>44</td>
<td>15.6</td>
</tr>
<tr>
<td>Total</td>
<td>282</td>
<td>100.0</td>
</tr>
<tr>
<td>Using nutrition information on the label to compare the different types of processed meat products N=282</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>72</td>
<td>25.5</td>
</tr>
<tr>
<td>Sometimes</td>
<td>143</td>
<td>50.7</td>
</tr>
<tr>
<td>Never</td>
<td>67</td>
<td>23.8</td>
</tr>
<tr>
<td>Total</td>
<td>282</td>
<td>100.0</td>
</tr>
<tr>
<td>Using nutrition information to decide which processed meat brand to buy N=282</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>109</td>
<td>38.7</td>
</tr>
<tr>
<td>Sometimes</td>
<td>108</td>
<td>38.3</td>
</tr>
<tr>
<td>Never</td>
<td>65</td>
<td>23.0</td>
</tr>
<tr>
<td>Total</td>
<td>282</td>
<td>100.0</td>
</tr>
<tr>
<td>Consumers’ suggestions on what should be done to improve use of nutrition information on label*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enlighten people on the importance of nutrition</td>
<td>182</td>
<td>43.1</td>
</tr>
<tr>
<td>Simplify the language used</td>
<td>169</td>
<td>40.0</td>
</tr>
<tr>
<td>Use bigger print</td>
<td>69</td>
<td>16.4</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
<td>0.5</td>
</tr>
</tbody>
</table>

*multiple responses
4.4.1 Consumers’ perceptions of nutrition information on the label

Nearly half of the consumers (44.8%) who utilized nutrition information felt that the information on the label was visually clear with 9.7% reporting that the nutrition information was very clear. Eleven percent (11.6%) stated that nutrition information on the label was not clear (Table 4.4).

Table 4.4: Consumers’ perception on nutrition information on the label of processed meat products

<table>
<thead>
<tr>
<th>Aspects of nutrition information</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual clarity of nutrition information on processed meat products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very clear</td>
<td>41</td>
<td>9.7</td>
</tr>
<tr>
<td>Clear</td>
<td>189</td>
<td>44.8</td>
</tr>
<tr>
<td>Somehow clear</td>
<td>111</td>
<td>26.3</td>
</tr>
<tr>
<td>Not clear</td>
<td>49</td>
<td>11.6</td>
</tr>
<tr>
<td>Don’t know</td>
<td>32</td>
<td>7.6</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
<td>100.0</td>
</tr>
<tr>
<td>Useful information on the label of processed meat products*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expiry date</td>
<td>143</td>
<td>33.9</td>
</tr>
<tr>
<td>Nutrition information</td>
<td>87</td>
<td>20.6</td>
</tr>
<tr>
<td>List of ingredients</td>
<td>49</td>
<td>11.6</td>
</tr>
<tr>
<td>Nutrition information and expiry date</td>
<td>43</td>
<td>10.2</td>
</tr>
<tr>
<td>Health claims</td>
<td>38</td>
<td>9.0</td>
</tr>
<tr>
<td>Brand name</td>
<td>32</td>
<td>7.6</td>
</tr>
<tr>
<td>Additives</td>
<td>22</td>
<td>5.2</td>
</tr>
<tr>
<td>Country of origin</td>
<td>6</td>
<td>1.4</td>
</tr>
<tr>
<td>Preservatives</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>Informativeness of nutrition information on processed meat products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informative</td>
<td>280</td>
<td>66.3</td>
</tr>
<tr>
<td>Somehow informative</td>
<td>74</td>
<td>17.5</td>
</tr>
<tr>
<td>Not informative</td>
<td>26</td>
<td>6.2</td>
</tr>
<tr>
<td>Don’t know</td>
<td>42</td>
<td>10.0</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
<td>100.0</td>
</tr>
<tr>
<td>Adequacy of nutrition information on label of processed meat products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very adequate</td>
<td>70</td>
<td>16.6</td>
</tr>
<tr>
<td>Adequate</td>
<td>241</td>
<td>57.1</td>
</tr>
<tr>
<td>Not adequate</td>
<td>77</td>
<td>18.2</td>
</tr>
<tr>
<td>Don’t know</td>
<td>34</td>
<td>8.1</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*multiple responses
On the other hand, about a third (33.9%) reported that the most useful information on the label was the expiry date; nutrition information was second at 20.6%. Preservatives were the least (0.5%) useful information on the processed meat product label according to the consumers. Majority (66.3%) of the consumers felt that nutrition information on the label was informative with only 6.2% stating that it was not informative. Regarding adequacy, slightly more than half (57.1%) perceived that the nutrition information on the label was adequate with 16.6% reporting that it was very adequate. Eighteen percent (18.2%), however, reported that nutrition information on the processed meat products was not adequate. The KIIs revealed that most processed meat product brands have visually clear and adequate information on their labels. Consumers however, complain that they do not understand the information (KI2-KI9, 2016).

4.4.2 Reasons for reading and for not reading nutrition information on the label of processed meat products among consumers

Several reasons were given by the participants for reading nutrition information on the labels of processed meat products. Forty one percent (41.8%) reported that they read nutrition information to see what nutrients are in the food, with 0.7% reporting that it was because they were on a special diet (Table 4.5). A quarter (25.7%) of the participants reported lack of time as reason why they did not read nutrition information on the label while 2.9% stated that product price was the reason why they did not read nutrition information on the labels. They prioritized other factors besides nutrition information in their purchasing decisions of processed meat meat products.
### Table 4.5: Reasons for reading and for not reading nutrition information on the label of processed meat products among consumers

<table>
<thead>
<tr>
<th>Reasons</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasons for reading nutrition information on label* N=282</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To see what nutrients in the food</td>
<td>118</td>
<td>41.8</td>
</tr>
<tr>
<td>As part of a healthy life style</td>
<td>59</td>
<td>20.9</td>
</tr>
<tr>
<td>Concerned about children's diet</td>
<td>46</td>
<td>16.3</td>
</tr>
<tr>
<td>Gain knowledge</td>
<td>30</td>
<td>10.6</td>
</tr>
<tr>
<td>Consumer on weight loss</td>
<td>8</td>
<td>2.8</td>
</tr>
<tr>
<td>To see what nutrients are in food</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Consumer on special diet</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>No reason</td>
<td>2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reasons</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time to read</td>
<td>36</td>
<td>25.7</td>
</tr>
<tr>
<td>Technical language used</td>
<td>31</td>
<td>22.1</td>
</tr>
<tr>
<td>Consumer brand loyalty</td>
<td>20</td>
<td>15.8</td>
</tr>
<tr>
<td>No reason</td>
<td>15</td>
<td>10.7</td>
</tr>
<tr>
<td>Confusing information</td>
<td>14</td>
<td>10.0</td>
</tr>
<tr>
<td>Not sure about accuracy of the information</td>
<td>14</td>
<td>10.0</td>
</tr>
<tr>
<td>Very small print size of words</td>
<td>6</td>
<td>4.3</td>
</tr>
<tr>
<td>Product price</td>
<td>4</td>
<td>2.9</td>
</tr>
</tbody>
</table>

* Multiple responses

### 4.4.3 Influence of nutrition information on processed meat product labels on consumers’ purchasing decisions

When asked whether nutrition information on processed meat product labels influenced their purchasing decisions (whether they bought or not), 39.0% reported that nutrition information had some influence and had 37.2% stated that it had great influence in their purchasing decisions. Only (16.7%) reported that it had no influence on their purchasing decisions (Figure 4.1).
4.5 Purchase patterns of processed meat products among consumers in supermarkets in Nakuru town

Sausages were the most (41.7%) purchased processed meat product followed by smokies at 16.3%, while the least purchased processed meat products were burgers at 2.4% (Table 4.6). About half (50.9%) of the consumers purchased processed meat monthly with only 7.8% reporting that they purchased on a daily basis. Almost half (48.9%) of the consumers purchased mini packs (250g) while only 10.2% purchased large packs (1000g) of processed meat. When asked about frequency of consumption, 40.5% consumed processed meat products once a week while only 8.1% reported that they consume processed meat products daily.
Table 4.6: Purchase patterns of processed meat products

<table>
<thead>
<tr>
<th>Purchase patterns</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processed meat usually purchased*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sausages (Chiken, beef, pork)</td>
<td>176</td>
<td>41.7</td>
</tr>
<tr>
<td>Smokies</td>
<td>67</td>
<td>16.3</td>
</tr>
<tr>
<td>Nyama bites (beef, chicken)</td>
<td>57</td>
<td>13.0</td>
</tr>
<tr>
<td>Brawn (chicken, beef, pork)</td>
<td>32</td>
<td>7.6</td>
</tr>
<tr>
<td>Beef vienna</td>
<td>31</td>
<td>7.3</td>
</tr>
<tr>
<td>Hot dogs</td>
<td>20</td>
<td>4.7</td>
</tr>
<tr>
<td>Sandwich ham (pork, beef)</td>
<td>16</td>
<td>3.8</td>
</tr>
<tr>
<td>Frankfurters</td>
<td>13</td>
<td>3.1</td>
</tr>
<tr>
<td>Burger</td>
<td>10</td>
<td>2.4</td>
</tr>
<tr>
<td>Frequency of purchase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>33</td>
<td>7.8</td>
</tr>
<tr>
<td>Weekly</td>
<td>174</td>
<td>41.2</td>
</tr>
<tr>
<td>Monthly</td>
<td>215</td>
<td>50.9</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
<td>100.0</td>
</tr>
<tr>
<td>Quantities purchased in sizes during data collection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large packs (1000g)</td>
<td>43</td>
<td>10.2</td>
</tr>
<tr>
<td>Medium (500g)</td>
<td>167</td>
<td>39.6</td>
</tr>
<tr>
<td>Mini packs (250g)</td>
<td>206</td>
<td>48.9</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
<td>100.0</td>
</tr>
<tr>
<td>Frequency of consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>34</td>
<td>8.1</td>
</tr>
<tr>
<td>Three times in a week</td>
<td>80</td>
<td>19.0</td>
</tr>
<tr>
<td>Weekly</td>
<td>171</td>
<td>40.5</td>
</tr>
<tr>
<td>Monthly</td>
<td>131</td>
<td>31.0</td>
</tr>
<tr>
<td>Others</td>
<td>6</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>422</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Multiple responses

Information from the Key Informants (KI2 - KI9) interviewed agreed that sausages from one of the brands were the most frequently purchased. “We order up to three times a week for sausages from one of the brands, unlike the others, which we can take up to one week before making orders” (KI7, 2016).
4.5.1 Associations between utilization of nutrition information and consumers’ purchase patterns

Chi-square test was performed to establish the relationship between utilization of nutrition information on processed meat products and their purchase patterns (Table 4.7). An association was found to exist between utilization of nutrition information on processed meat products and the frequency of purchase (Chi-square: \( p = 0.006 \)). An association was also established between utilization of nutrition information and quantities of processed meat purchased (Chi-square: \( p = 0.005 \)), as well as type of processed meat purchased (Chi-square: \( P = 0.022 \)). Hypothesis (H\(_0\)) which stated that there is no significant relationship between utilization of nutrition information and the purchase patterns of processed meat products was therefore rejected.
Table 4.7: Associations between utilization of nutrition information and consumers purchase patterns of processed meat products

<table>
<thead>
<tr>
<th>Purchase patterns</th>
<th>N=422</th>
<th>Utilization of nutrition information</th>
<th>Chi-square</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOTAL</td>
<td>YES (%)</td>
<td>NO (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>n(%)</td>
<td></td>
</tr>
<tr>
<td>Processed meat usually purchased</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sausages (Chiken, beef, pork)</td>
<td>176(41.7)</td>
<td>113(64.2)</td>
<td>63(35.8)</td>
<td>0.014</td>
</tr>
<tr>
<td>Smokies</td>
<td>67(16.3)</td>
<td>48(71.6)</td>
<td>19(28.4)</td>
<td></td>
</tr>
<tr>
<td>Nyama bites(beef, chicken)</td>
<td>57(13.0)</td>
<td>38(66.7)</td>
<td>19(33.3)</td>
<td></td>
</tr>
<tr>
<td>Brawn (chicken, beef, pork)</td>
<td>32(7.6)</td>
<td>18(56.3)</td>
<td>14(43.7)</td>
<td></td>
</tr>
<tr>
<td>Beef vienna</td>
<td>31(7.3)</td>
<td>20(64.5)</td>
<td>11(35.5)</td>
<td></td>
</tr>
<tr>
<td>Hot dogs</td>
<td>20(4.7)</td>
<td>15(75.0)</td>
<td>5(25.0)</td>
<td></td>
</tr>
<tr>
<td>Sandwich ham (pork, beef)</td>
<td>16(3.8)</td>
<td>12(75.0)</td>
<td>4(25.0)</td>
<td></td>
</tr>
<tr>
<td>Frankfurters</td>
<td>13(3.1)</td>
<td>10(76.9)</td>
<td>3(23.1)</td>
<td></td>
</tr>
<tr>
<td>Burger</td>
<td>10(2.4)</td>
<td>8(80.0)</td>
<td>2(20.0)</td>
<td></td>
</tr>
<tr>
<td>Frequency of purchase</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>33(7.8)</td>
<td>22(66.7)</td>
<td>11(33.3)</td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>174(41.2)</td>
<td>112(64.4)</td>
<td>62(35.6)</td>
<td>0.869</td>
</tr>
<tr>
<td>Monthly</td>
<td>215(50.9)</td>
<td>148(68.8)</td>
<td>67(31.2)</td>
<td></td>
</tr>
<tr>
<td>Quantity purchased</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large packs (1000g)</td>
<td>43(8.1)</td>
<td>22(51.2)</td>
<td>21(48.8)</td>
<td>5.872</td>
</tr>
<tr>
<td>Medium packs(500g)</td>
<td>167(19.0)</td>
<td>118(70.7)</td>
<td>49(29.3)</td>
<td></td>
</tr>
<tr>
<td>Mini packs (250g)</td>
<td>206(48.9)</td>
<td>142(68.9)</td>
<td>64(31.1)</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p<0.05

4.5.2 Reasons why consumers do not purchase processed meat products frequently

A number of reasons were given as to why consumers don’t purchase processed meat frequently (Figure 4.2). The most common reasons reported were; price of product, cost of living and consumer health status at 33.4%, 24.9% and 23.5% respectively.
4.6 Factors influencing utilization of nutrition information in purchasing decision of processed meat products in supermarkets in Nakuru town

Factors influencing consumer purchasing decisions were price, time, taste, brand, health status and consumer attitude towards nutrition (Figure 4.3). Price was cited as the most influencing at 59% and influencing at 39%. Only 0.4% of the consumers stated that price was not influential in their utilization of nutrition information. Product brand was reported as the least influencing factor in purchasing decisions of processed meat products with most influential (29.1%), influential (31.3), somehow influential (20%) and not influential (15%).
4.6.1 Associations between socio-economic characteristics and utilization of nutrition information in consumer purchasing decisions of processed meat products

Regression analysis was conducted on socio-economic characteristics (age, sex, education level, income, religion, household size, and occupation) with the utilization of nutrition information on processed meat products. The findings showed that consumers aged between 29-39 years were two times more likely to utilize nutrition information on processed meat products compared to consumers aged between 18-28 years (OR: 1.95; CI: 0.83-1.51; P=0.038). There were no differences between the other age groups in the
utilization of nutrition information on processed meat products. Further, female consumers were 66.1% more likely to use nutrition information on processed meat products compared to males (OR: 6.61; CI: 1.26-5.69; P=0.010) (Table 4.8). Occupation was not associated with the utilization of nutrition information on processed meat products. Hypothesis (H02) which stated that there is no significant relationship between utilization of nutrition information on processed meat products and socio-economic characteristics of consumers purchasing processed meat in supermarkets in Nakuru town was therefore, rejected. Findings from KIIIs indicated that consumers besides nutrition information consider other factors in making their purchasing decisions of processed meat products. KII3 reported that “some shoppers are very loyal to certain brands and they believe it provides quality products, so nutrition information is not an important issue” KII6 said that “shoppers consider price of the products most when purchasing while others are always in hurry and lack time to read the nutrition information”
Table 4.8: Associations between socio-economic characteristics and utilization of nutrition information in consumer purchasing decisions of processed meat products

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Upper</td>
<td>Lower</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-28</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29-39</td>
<td>1.95</td>
<td>0.83</td>
<td>1.51</td>
</tr>
<tr>
<td>40-50</td>
<td>0.01</td>
<td>0.86</td>
<td>1.63</td>
</tr>
<tr>
<td>51-61</td>
<td>0.04</td>
<td>0.83</td>
<td>1.59</td>
</tr>
<tr>
<td>62-72</td>
<td>0.77</td>
<td>1.13</td>
<td>2.14</td>
</tr>
<tr>
<td>≥73</td>
<td>0.05</td>
<td></td>
<td>1.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>6.61</td>
<td>1.26</td>
<td>5.69</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incomplete primary school</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed primary school</td>
<td>0.22</td>
<td>0.02</td>
<td>2.15</td>
</tr>
<tr>
<td>Incomplete secondary school</td>
<td>0.59</td>
<td>0.16</td>
<td>5.45</td>
</tr>
<tr>
<td>Complete secondary school</td>
<td>1.13</td>
<td>0.01</td>
<td>1.46</td>
</tr>
<tr>
<td>Incomplete Diploma/Certificate</td>
<td>2.52</td>
<td>0.01</td>
<td>0.32</td>
</tr>
<tr>
<td>college</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Diploma/Certificate</td>
<td>3.39</td>
<td>0.32</td>
<td>6.07</td>
</tr>
<tr>
<td>college</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree graduate</td>
<td>8.10</td>
<td>2.08</td>
<td>3.62</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤5,000</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5,001-10,000</td>
<td>0.08</td>
<td>0.01</td>
<td>0.60</td>
</tr>
<tr>
<td>10,001-20,000</td>
<td>2.01</td>
<td>0.01</td>
<td>0.10</td>
</tr>
<tr>
<td>20,001-30,000</td>
<td>1.13</td>
<td>0.02</td>
<td>1.12</td>
</tr>
<tr>
<td>30,001-40,000</td>
<td>1.01</td>
<td>0.01</td>
<td>0.11</td>
</tr>
<tr>
<td>40,001-50,000</td>
<td>1.45</td>
<td>2.03</td>
<td>5.14</td>
</tr>
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<td>≥50001</td>
<td>0.92</td>
<td>0.00</td>
<td>0.13</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract employee</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>Permanent employee</td>
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<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>Casual employee</td>
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<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>Self employed</td>
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<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>Farmer</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Household size</strong></td>
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<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.65</td>
<td>0.16</td>
<td>2.61</td>
</tr>
<tr>
<td>3</td>
<td>0.79</td>
<td>0.21</td>
<td>1.73</td>
</tr>
<tr>
<td>4</td>
<td>1.38</td>
<td>0.14</td>
<td>1.05</td>
</tr>
<tr>
<td>5</td>
<td>0.89</td>
<td>0.32</td>
<td>1.84</td>
</tr>
<tr>
<td>≥5</td>
<td>6.81</td>
<td>0.50</td>
<td>3.24</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>1.00</td>
<td>(0.64)</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p<0.05
4.7 Challenges experienced by consumers when reading nutrition information on processed meat products

More than a half (58.2%) of the consumers of processed meat products who reported reading nutrition information experienced challenges when reading the nutrition information on processed meat products while 41.8% did not experience challenges (Table 4.9). The most common challenge experienced was understanding technical terms used in describing the nutrient content of the processed meat product at 72.6% and the least was consumers’ illiteracy in nutrition information at 0.6%.

Table 4.9: Challenges experienced by consumers when reading nutrition information on processed meat products

<table>
<thead>
<tr>
<th>Challenges</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you experience challenges when reading nutrition labels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>164</td>
<td>58.2</td>
</tr>
<tr>
<td>No</td>
<td>118</td>
<td>41.8</td>
</tr>
<tr>
<td>Total</td>
<td>282</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Challenges experienced when reading nutrition labels* N=164

<table>
<thead>
<tr>
<th>Challenges</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical terms</td>
<td>149</td>
<td>72.6</td>
</tr>
<tr>
<td>Small print size</td>
<td>58</td>
<td>17.1</td>
</tr>
<tr>
<td>Technical language used on the nutrition label</td>
<td>11</td>
<td>6.7</td>
</tr>
<tr>
<td>Calculating serving sizes</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>Illiteracy in nutrition information</td>
<td>2</td>
<td>0.6</td>
</tr>
</tbody>
</table>

*Multiple response
CHAPTER FIVE: DISCUSSION

5.1 Socio-economic characteristics of processed meat products consumers

Findings from this study showed that more female participants purchased processed meat products compared to males. Studies by Worsley (2003) and Satia et al. (2005) found that women in general are more likely to consume processed meat products than men. This may be because men attach less importance to processed meat products provided their households have enough food supply (Loureiro et al., 2006). Women generally are the ones who purchase and prepare food in most households (Andreas et al., 2006). In the current study, young adults between the ages 29-39 years read nutrition information and consumed processed meat products more compared to the younger and older adults. Most of the participants in this study had education above primary school and therefore could read nutrition information on processed meat labels and be able to make the decision of whether to consume or not to consume processed meat products. This study finding is in agreement with Drichoutis et al. (2005) and Wiles et al. (2009) who reported that individuals with higher education are more likely to purchase processed meat products.

Large households of more than 5 members consume less processed meat products compared to smaller households (Darkwa, 2014). This may be because smaller households of 1 or two members are more likely to have more money to spend on purchasing processed meat products (Cole, 2006). This study finding disagreed with the two authors Darkwa (2014) and Cole (2006) where larger households of above five members purchased processed meat products more than households with fewer members. The participants who earned an average income of between Kshs 10,001-20,000 per month in this study purchased more processed meat products compared to
higher income earners. Studies on income by Nayga et al. (1998) and Drichoutis et al. (2005) pointed out that low income earners may be more price-sensitive for economic reasons and therefore may be more concerned about the cost of foods they purchased than the nutritional quality. These findings however, agreed with Schupp et al. (2000) who observed that higher income earners were less likely to purchase processed meat because they are more likely to work more hours and therefore may not have enough time to spare for purchasing processed meat products. The findings of the current study on socio-economic characteristics of consumers of processed meat product imply that processed meat products is part of the processed food consumed and therefore nutrition information on the products is important for consumers to make healthful choices in their purchasing decisions.

5.2 Nutrition information on processed meat products

In this study, nutrition information was found on the processed meat products of one brand only. All the other brands however, met the minimum requirements stipulated by the EAS 30:2000 guidelines which are in agreement with the requirements of European Food Information Council [EUFIC] (2014) in Europe. The EAS 30:2000 guideline requires manufacturers to display mandatory information on the product packaging or on a label attached to the packaging. In European Union countries, nutrition labeling is mandatory and regulations are in place but many food manufacturers label nutrients on a voluntary basis (Levy, 2014). It has however, been recognized that consumers may not understand this information and they experience challenges in utilizing the nutrition information on the processed meat product label (Loureiro et al., 2006). From the current study findings, this situation is
similar in Kenya where processed meat manufacturers label their products voluntarily according to EAS 30:2000 guideline and EUFIC, (2014).

In the United States and European member countries, nutrition information on the label is mandatory, largely because of their populations’ drift towards healthy and wellness foods and also reflects a response to consumer’s right to know the content and nutrition information of a food product (Campos et al., 2011; EUFIC, 2014). This situation is contrary to the current study findings likely because nutrition labeling in Kenya is voluntary despite the fact that consumers in Kenya also have the right to know the nutrient content of processed meat products. The absence of the nutrition information on processed meat products is a disadvantage to most consumers because it denies the consumer access to health related information hence exposing them to nutrition related health risks.

Studies have shown that increasing diet related diseases are linked to high consumption of processed meat products (Washi, 2012). Most processed meat products have high cholesterol, sodium and fat whereas consumers are ill-informed on the use of nutrition labels (Darkwa, 2014; Kim et al., 2001; Washi, 2012; Young & Nestle, 2002). Nutrition labeling of processed meat products, with respect to their nutritional characteristics along with information campaign to educate consumers can significantly affect consumer use of nutrition information and consequently their purchasing decisions (Teisl et al., 2001). Loureiro et al. (2006) also provided evidence that consumers in many cases are unable to understand and use product information and quantify their nutrition needs due to illiteracy among other factors thus exposing them to risks of NCDs. The economic effects of NCDs are more severe in developing
countries including Kenya where they reduce labour force participation. Consumer utilization of nutrition information can help consumers in making healthier purchasing decisions and reduce cases of NCDs (Washi, 2012). The information on the other hand should be simplified for easy understanding and made mandatory to all processed meat products to allow for positive outcomes.

A study by Pstrup-Andersen and Watson II (2011) reported that nutrition labeling policy helps to shape the food system by setting regulations or changing incentives to improve use of nutrition information on the label of processed food products. The current study findings imply that KEBS should set clear guidelines on what nutrition information is considered minimum and that information should be useful in improving utilization of nutrition information on processed meat products by the consumers to improve their health.

Processed meat contains harmful chemical compounds that may increase the risk of chronic disease (Atli, 2016). The most widely studied compounds in processed meat products are nitrites, sodium chloride cholesterol and fats (Atli, 2016). Processed meat products are usually high in sodium chloride, excessive salt consumption may play a role in hypertension and heart disease (WHO, 2015). High cholesterol intake can create a bile imbalance, leading to gallstones besides, blocking arteries causing high blood pressure among other cardiovascular diseases. Fats used in processed meat products may go rancid hence producing bad smell and flavours. Particularly problematic are the nitrates that are added to the processed meats as a preservative, coloring and flavoring (WCRF, 2007). This nitrates found in processed meat products are frequently converted into nitrosamines, which are clearly associated with an
increased risk of certain cancers (WCRF, 2007). Increased consumption of processed meats is not safe for consumers. Consumers can therefore protect themselves from the dangers of processed meats by always reading nutrition label to understand better what they intend to consume or rather avoid consuming processed meat products completely.

5.3 Utilization of nutrition information on processed meat products in consumer purchasing decisions

Majority of the participants in this study read nutrition information the first time they purchased the product, which in turn influenced their decisions on which processed meat product to buy, and made comparisons of the different types of processed meat products they wanted to purchase. These current study findings are in agreement with a study conducted by Derby and Levy (2001) where he observed that most consumers changed their purchasing decisions because of reading nutrition information on the labels of the processed meat products. Nutrient of interest most checked by consumers in this study were cholesterol, sodium and fat in order of importance. This finding agrees with Jacob et al. (2010), who found that consumers who read nutrition label information mostly sought after fat and cholesterol information.

The notable increase of nutrition related NCDs reported, especially Cancer, among others (WHO, 2015) may explain why sodium, cholesterol and fat were the most used nutrition label information. High consumption of these nutrients (cholesterol, sodium and fat) is associated with NCDs and various types of cancers (WCRF, 2007). Findings from this study showed that most processed meat consumers reported to use nutrition information on the label to determine suitability of processed meat
consumption for their family members. The findings were in agreement with Mc Arthur et al. (2001) who reported that consumers with families are more likely to search and use nutrition information on labels since the health of their families are of their primary concern.

Utilization of nutrition information on processed meat products in comparing which processed meat product to purchase was not very frequent in the current study. This was likely because consumers of processed meat products assume that all processed meat contain the same nutrient content (Darkwa, 2014). Consumers therefore, thought that it was not necessary to compare nutrition information on processed meat products. Bartra and Batra (2009) reported that utilization of nutrition information affected brand choice among consumers; these findings were in agreement with the current study findings where most processed meat consumers used nutrition information in deciding which brand to purchase. These findings were expected because most brands in the market don’t provide nutrition information. On the contrary, Nayga (2000) reported that some consumers are more interested in a certain brands likely because of reasons like packaging and taste.

The current study findings imply that nutrition information on processed meat products is not sufficiently available for consumers to use in their purchasing decision (to buy or not to buy). It also implies that consumers are denied access to useful health information for them to make healthy food choices. This provides an opportunity for KEBS to review its policies and regulations regarding nutrition information on the label since it is viewed as important by consumers.
5.4 Processed meat products’ purchase patterns

Global patterns of meat consumption reveal trends towards increased meat consumption (WHO, 2015). Herbling (2015) reported that meat consumption in Kenya is still low but is expected to rise rapidly with increasing GDP and a growing middle class of increasingly conscious consumers. This is of interest in terms of cancer prevention, as the consumption of red and processed meat has been associated with an increased risk of Cancer and other NCDs (WHO, 2015).

In this study, sausages and smokies were the most frequently purchased processed meat products. Further, in the current study, processed meat products were purchased once a month and consumed once a week. These findings differed with a study Loureiro et al. (2006) who reported that ham, bacon, sausages and burgers were the most frequently consumed and purchased processed meat products in the United States. These findings may differ because of the different populations where the studies were conducted.

Study findings on quantities showed that most participants purchase small size (250g) pack of processed meat compared to those who purchased large packs of 1000g. These findings were associated with consumer income and household size where other food items are given priority over processed meat products (Grunert, 2006). Drichoutis et al. (2005) reported that consumers who place importance on price were less likely to purchase larger packs of processed meat products because of financial constraints. The implication of high consumption of processed meat on consumers is that they run a greater risk of premature death and developing conditions such as cancer (WCRF, 2007).
5.5 Factors influencing purchasing decisions of processed meat products

In this study, several factors were identified as influencing consumer’s purchasing decisions. Price and time were the most reported reasons while taste and brand were least reported. The findings on time spent on reading nutrition information on processed meat in this study was in agreement with studies by Drichoutis et al. (2005) and Lin and Lee (2003) who reported that reading nutrition information on labels takes more time than what consumers can spend, and therefore, less likely to use nutritional information on fat content specifically. In a number of studies by McArthur et al. (2001) and Wiles et al. (2009), it was observed that a greater part of participants who utilized nutrition information on processed meat products had a larger household size of above four members. This was in agreement with this study where majority reported to have a household size of above 5 members. The study reported that marital status of participants was associated with nutrition label use. Similar observations were made by Schupp et al. (1998) who reported that married consumers were more likely to have responsibility not only for their health but for the health of their children as well and therefore, were more likely to use nutrition information on the processed meat products in their purchasing decisions. This was supported in a study by Washi (2012) who observed that households with children used nutrition labels more often than households without children.

Study participants who had secondary education and beyond were more aware and used nutrition labels than did participants who had below secondary education. This observation agreed with Schupp et al. (1998) who observed that participants who had high school or higher education were more likely to be aware and used nutrition labels more than those who had lesser education. Likewise studies have
observed that people with graduate, postgraduate or doctorate degrees were more likely to use nutrition information and paid significantly greater attention to nutrition label while purchasing processed products as compared to respondents who had less education (Kumar & Pandit, 2008; Nayga, 2001; Wiles et al., 2009). These findings reflects the need to increase consumer awareness of the presence of nutrition labels on processed foods and the dietary benefits of using them especially among the less educated.

In this study, consumers who earned income of between Kshs 10,001-20,000 utilized more nutrition information on the labels compared to low and high income earners. These findings disagreed with studies done by Drichoutis et al. (2005); Kim et al. (2001); Mahgoub et al. (2007); McLean-Meyinsse, (2001); and Wiles et al. (2009) where participants who earned higher incomes showed a higher utilization and were more likely to read nutrition labels than did participants who had lower incomes. This observation may be because Loureiro et al. (2006) observed that higher income earners are more likely to show more responsibility for their health since they are more likely to have a higher educational background.

The study findings also indicated that price of processed meat products and time to read the nutrition information on the label was very influential on consumer purchasing decision of processed meat products. Drichoutis et al. (2005) reported that consumers who place importance on price were less likely to use nutrition information on food labels in general. This was in agreement with the findings from the current study where consumers reported that price was among the factors that influenced their purchasing decisions. On the other hand, findings from the current
study also indicated that brand was the least factor that influenced consumer purchasing decisions. These findings differed with a study by Batra and Batra (2009) who reported that brand choice affected use of nutrition information and decision to buy the processed products. These may be because of the different populations and the place where the study was conducted.

The findings of this study will contribute to knowledge on the existing gaps in utilization of nutrition information on processed meat products on purchasing decisions in Kenya. It adds up to the existing evidence that nutrition information on processed meat products in the supermarkets are inadequate and consumers experience challenges like technical terms and small print size used on processed meat products.
CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary

Majority (66.1%) of participants in this study were females and in the age category of 29-39 years. Most (63.7%) of the participants were married with more than five household members, and had full time employment, earning between Kenya shillings 10,001-20,000. Majority of consumers also had above secondary education and were Christians. Nutrition information was present on only one of the brands of processed meat products in the supermarkets under study. All the brands on the shelves however, displayed minimum information required by the EAS38:2000, out of which nutrition information is not compulsory unless a health or nutrition claim is made on the label. A larger proportion of participants (66.8%) in this study read nutrition information on the label the first time they bought the product. Cholesterol, sodium and fats were the nutrients of most interest to the consumers at (26.1%) and (17.8%) and (15.4%) respectively. Energy was the least (3.8%) nutrient of interest according to the consumers.

Lack of time to read the nutrition information was cited as the most common reason (25.7%) as to why most participants do not read nutrition information on the labels of processed meat products while seeing what nutrients are in the food and consumers being on special diet were the main reasons given for reading nutrition information. Associations were established between socio-economic characteristics and the utilization of nutrition information in purchasing decisions. Price and time were identified as the main factors influencing purchasing decisions, however, taste, time,
price, attitude towards nutrition, diet status and brand were also identified as other factors influencing purchasing decisions.

6.2 Conclusions

Based on the study findings and the objectives, consumers in the age category of between 29-39 years, earning income of Kshs 10,001–20,000 with above secondary education among others purchased processed meat products in the supermarkets and utilized nutrition information on the processed meat product labels. It was also concluded that nutrition information on processed meat products is not sufficiently available for consumers to use in their purchasing decision. This is because majority of the brands in the market don’t have nutrition information on the labels except one brand. It also implies that consumers are denied access to useful health information for them to make healthy food choices that will prevent nutrition related diseases and NCDs.

It was also established that most consumers read nutrition information on processed meat products and they used that information on their purchasing decisions. It was also noted, however, that they experienced challenges like technical terms and small size print size among other challenges in their utilization.

Sausages and smokies were the most frequently purchased processed meat products. The consumers purchased these processed meat products on a monthly basis, in small size packs of 250g and they consumed them weekly. Finally, on other factors influencing purchasing decisions, most consumers considered price to be an important factor more than nutrition information. Time to read nutrition information on the
processed meat label was also identified as a factor influencing consumer utilization of nutrition information on processed meat products and purchasing decisions. Consumers reported that they did not have time to read the nutrition label. Other factors included brand, attitude toward nutrition, taste and health status.

6.2.1 Conclusions on hypotheses

This study had two hypotheses which were all rejected

H\textsubscript{01}: There is no significant relationship between utilization of nutrition information on processed meat products and the purchasing patterns of processed meat products among consumers in supermarkets in Nakuru town (rejected).

H\textsubscript{02}: There is no significant relationship between utilization of nutrition information on processed meat products and socio-economic characteristics of consumers purchasing processed meat in supermarkets in Nakuru town (rejected).

6.3 Recommendations

6.3.1 Recommendations for policy

The study recommends that the Kenya Bureau of Standards should strengthen regulations and policies on nutrition information on processed meat products by making nutrition labelling mandatory in all processed foods. This will help the consumers access to nutrition health information which will assist them make appropriate food choices. The study also recommends that there is need to enhance utilization of nutrition information on the label of processed meat products. To do this, key stakeholders like KEBS, Ministry of Health, Nutritionists and Association of Manufacturers should educate consumers on the importance of reading nutrition
information on the labels and using the information to make healthful purchasing decisions.

6.3.2 Recommendations for practice

Processed meat manufacturers should work together with nutritionists and communication experts to simplify and make nutrition information on processed meat products easy to understand for all people with different education levels e.g by using simple language, larger visible print size and showing calculation of serving sizes.

More campaigns should also be conducted by the KEBS, MoH, Kenya Nutritionists and Dietician Institute(KNDI) and the media on the utilization of nutrition information on processed meat products through avenues such as advertisement on television and radios and nutrition education in different set ups like schools, chief barazas among others.

6.3.3 Recommendations for further research

Further research should be conducted in the following areas;

1. Most appropriate format for presentation of nutrition information on the label of processed meat products to enhance consumer utilization of nutrition information.

2. Appropriate methods of improving utilization of nutrition information on processed meat products among consumers.

3. Association between utilization of nutrition information on processed meat products with NCDs and cancers in Kenya.
REFERENCES


European Food Information Council (2014); A Global Update on Nutrition Labeling, 73-80.


APPENDICES

Appendix A: Approval of research proposal by Kenyatta University

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

Our Ref: H60/CE/24086/12
DATE: 8th April 2016

Director General,
National Commission for Science, Technology & Innovation
P.O. Box 30623-00100,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR BRENDAH NDIEMA—REG. NO. H60/CE/24086/2012

I write to introduce Ms. Brendah Ndiema who is a Postgraduate Student of this University. She is registered for M.Sc. degree programme in the Department of Foods Nutrition & Dietetics.


Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL
Appendix B: Ethical clearance

KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE

Email: chairman.erc@kun.ac.ke
secretary.erc@kun.ac.ke
Website: www.ku.ac.ke

P. O. Box 43844 - 00100 Nairobi
Tel: 8710301/12
Fax: 8711242/8711575

Date: 23rd May, 2016

Our Ref: KU/R COMM/91/673

Brendah C. Ndieri
Kenya University,
P.O. Box 43844,
Nairobi

Dear Brendah,

APPLICATION NUMBER FKU/510/16/01 - "UTILIZATION OF NUTRITION INFORMATION ON PROCESSED MEAT PRODUCTS IN MAKING PURCHASING DECISIONS AMONG CONSUMERS IN SUPERMARKETS IN NAKURU TOWN, KENYA."

1. IDENTIFICATION OF PROTOCOL

The application before the committee is with a research topic, "Utilization of nutrition information on processed meat products in making purchasing decisions among consumers in supermarkets in Nakuru town, Kenya," received on 21st April, 2016 and discussed on 17th May, 2016.

2. APPLICANT

Brendah C. Ndieri, Department of Food, Nutrition & Dietetics

3. SITE

Nakuru town, Kenya, Kenya

4. DECISION

The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines AND APPROVED that the research may proceed for a period of ONE year from 23rd May, 2016.

5. ADVICE/CONDITIONS
   i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
   ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
   iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
   iv. Submit an electronic copy of the protocol to KU-ERC.

Your authority, kindly quote the application number above.

If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

DR. JEPKAHINGA
CHAIRMAN ETHICS REVIEW COMMITTEE

Signature........................................ Dated this day of................................. 2016.

cc: Vice- Chancellor
    DVC-Research Innovation and Outreach
Appendix C: Research permit

NATIONAL COMMISSION FOR SCIENCE,
TECHNOLOGY AND INNOVATION

Telephone: +254-20-221-3471,
2241392,2210577,2219429
Fax:+254-20-318248,318249
Email: op@nacost.go.ke
Website: www.nacost.go.ke

Ref. No.

NACOSTI/P/16/43027/11802

Date: 27th June, 2016

Brendah Chepkita Ndiema
Kenyatta University
P.O. Box 43844-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Utilization of nutrition information on processed meat products in making purchasing decisions among consumers in supermarkets in Nakuru Town, Kenya,” I am pleased to inform you that you have been authorized to undertake research in Nakuru County for the period ending 27th June, 2017.

You are advised to report to the County Commissioner and the County Director of Education, Nakuru County before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

BONIFACE WANYAMALA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nakuru County.

The County Director of Education
Nakuru County.
Appendix D: Introductory and request letter to conduct research in the supermarket

Name of supermarket: - ____________________________________________

Dear Sir,

RE: PERMISSION TO CONDUCT RESEARCH IN YOUR PREMISES

My name is Brendah Ndiema; I am a graduate student at Kenyatta University doing my Masters research. I would like to collect information on the use of nutrition information on purchasing decision of processed meat products among supermarket shoppers in Nakuru town. This research has been approved by the ministry of higher education science and technology as well as the graduate school of Kenyatta University.

The study will use questionnaires, Key Informant Interview guide (KII) and observation checklist in data collection. The study will take approximately 10 minutes per participant for fourteen days. It will be done when customers are through with shopping and are exiting the supermarket. The questions that will be asked to you clients will be on demographic information, utilization of nutrition information in purchasing decisions and the frequency of purchasing processed meat products. The research finding aims to highlight the utilization of nutrition information in purchasing decisions of processed meat products and hence help consumers to improve and make healthy informed food choices.

Your consent for this study to be carried out in your premises will be highly appreciated. All information collected will be kept confidential and under no circumstance will we link the name of your business with the data during analysis and dissemination of the study findings. The research is purely meant for academic purposes only.

Thank you.

Signature ------------------------ Date -------------------------

Manager
Appendix E: Introductory and informed consent form for consumers

Information for participants:

Good day Madam/Sir,

My name is Brendah Ndiema; I am a graduate student at Kenyatta University doing my Masters research. I would like to collect information on utilization of nutrition information in purchasing decision of processed meat products among consumers in supermarkets in Nakuru town. This research has been approved by the ministry of higher education science and technology as well as the graduate school of Kenyatta University.

A. Purpose of the research study

The purpose of this study is to determine the utilization of nutrition information on processed meat products in purchasing decisions among shoppers in supermarkets in Nakuru town.

B. Procedure description

The study will use research administered questionnaires. You will only be required to give information according to your experience in utilizing nutrition information in making purchasing decisions. There are no wrong answers. Please feel free to ask for any clarifications on the questions should you need.

C. Duration

The questionnaire will take approximately 15 minutes. The questions you will be asked will be on demographic and socio-economic characteristics, use of nutrition information, factors affecting purchasing decision and frequency of purchasing.

D. Risks, Discomforts and Benefits

Your participation in this study does not involve any physical risk or emotional risk to you beyond the risks of daily life. There will be no monetary benefits to you or others in this study. The knowledge gained through this study will help you and us to improve in making healthy food choices and hence lowering the risk of predisposing ourselves to diet related diseases.
E. Confidentiality

All information you give us will be kept confidential and under no circumstance will we link your name with the data during analysis and dissemination of the study findings. All data will be destroyed responsibly after the required retention period of three years. Your privacy will be maintained in all published and written data resulting from this study.

F. Compensation/Incentive

There will be no financial remuneration for participating in this study.

G. Voluntary participation/withdrawal from the study

Your decision to take part in this study is voluntary. You may refuse to participate or you may withdraw from the study at any time. Your decision to not participate or to withdraw from the study will not affect you in any way.

H. Contact information and questions

1) If you have any questions or concerns about the research you may contact:
   
   Brendah C. Ndiema
   Kenya Industrial Training Institute
   P.o Box 280-20100
   Nakuru
   Cell No.: 0721741900
   Email: brenchep@gmail.com

2) If you have any questions, concerns or complaints about your rights as a participant in this research, you can contact the following office at Kenyatta University:

   Kenyatta University
   Centre of Research and Development
   P.o Box 43844-00100
   Nairobi
   Tel: +254208710901 Ext. 5735
   Email: director-crd@ku.ac.ke
If you have any question about the above information please ask.

Participants consent:

I have read and understood the above information and I agree to participate in the study.

Signature ------------------------ Date --------------------------
Appendix F: Introductory and informed consent form for KII (supermarket supervisors)

Information for participants:

Good day Madam/Sir,

My name is Brendah Ndiema; I am a graduate student at Kenyatta University doing my Masters research. I would like to collect information on using nutrition information in purchasing decision of processed meat products among shoppers in supermarket in Nakuru town. This research has been approved by the ministry of higher education science and technology as well as the graduate school of Kenyatta University.

D. Purpose of the research study

The purpose of this study is to establish the use of nutrition information on processed meat products in purchasing decisions among shoppers in supermarkets in Nakuru town.

E. Procedure description

The study will use key informant interview guide. You will only be required to give information as guided by the researcher. The interview may be tape recorded. We guarantee you that the information you give is confidential and for academic purposes only.

F. Duration

This study is expected to take fourteen days. This interview will take approximately 15 minutes. The questions you will be asked will be on utilization of nutrition information, factors affecting purchasing decision and frequency of purchasing and trends on consumer purchasing behaviours.

D. Risks, Discomforts and Benefits

Your participation in this study does not involve any physical risk or emotional risk to you beyond the risks of daily life. There will be no monetary benefits to you or others
in this study. The knowledge gained through this study will help you and us to improve in making healthy food choices and hence lowering the risk of predisposing ourselves to diet related diseases.

F. Confidentiality

All information you give us will be kept confidential and under no circumstance will we link your name with the data during analysis and dissemination of the study findings. All data will be destroyed responsibly after the required retention period of three years. Your privacy will be maintained in all published and written data resulting from this study.

F. Compensation/Incentive

There will be no financial remuneration for participating in this study.

G. Voluntary participation/withdrawal from the study

Your decision to take part in this study is voluntary. You may refuse to participate or you may withdraw from the study at any time. Your decision to not participate or to withdraw from the study will not affect you in any way.

H. Contact information and questions

1) If you have any questions or concerns about the research you may contact:
   Brendah C. Ndiema
   Kenya Industrial Training Institute
   P.o Box 280-20100
   Nakuru
   Cell No.: 0721741900
   Email: brenchep@gmail.com

2) If you have any questions, concerns or complaints about your rights as a participant in this research, you can contact the following office at Kenyatta University.
   Kenyatta University
   Centre of Research and Development
   P.o Box 43844-00100
Nairobi
Tel: +254208710901 Ext. 5735
Email: director-crd@ku.ac.ke

If you have any question about the above information please ask.

**Participants consent:**

I have read and understood the above information and I agree to participate in the study.

Signature ------------------------------ Date --------------------------
Appendix G: Introductory and informed consent form for KII (KEBS officer)

Information for participants:

Good day Madam/Sir,

My name is Brendah Ndiema; I am a graduate student at Kenyatta University doing my Masters research. I would like to collect information on using nutrition information in purchasing decision of processed meat products among shoppers in supermarket in Nakuru town. This research has been approved by the ministry of higher education science and technology as well as the graduate school of Kenyatta University.

G. Purpose of the research study

The purpose of this study is to establish the use of nutrition information on processed meat products in purchasing decisions among shoppers in supermarkets in Nakuru town.

H. Procedure description

The study will use key informant interview guide. You will only be required to give information as guided by the research assistant. The interview may be recorded. We guarantee you that the information you give is confidential and for academic purposes only.

I. Duration

This study is expected to take seven days. This interview will take approximately 15 minutes. The questions you will be asked will be on policy and regulations on nutrition labeling and trends in nutrition information utilization by the public.

D. Risks, Discomforts and Benefits

Your participation in this study does not involve any physical risk or emotional risk to you beyond the risks of daily life. There will be no monetary benefits to you or others in this study. The knowledge gained through this study will help you and us to improve in making healthy food choices and hence lowering the risk of predisposing ourselves to diet related diseases.
G. Confidentiality

All information you give us will be kept confidential and under no circumstance will we link your name with the data during analysis and dissemination of the study findings. All data will be destroyed responsibly after the required retention period of three years. Your privacy will be maintained in all published and written data resulting from this study.

F. Compensation/Incentive

There will be no financial remuneration for participating in this study.

G. Voluntary participation/withdrawal from the study

Your decision to take part in this study is voluntary. You may refuse to participate or you may withdraw from the study at any time. Your decision to not participate or to withdraw from the study will not affect you in any way.

H. Contact information and questions

1) If you have any questions or concerns about the research you may contact:
   Brendah C. Ndiema
   Kenya Industrial Training Institute
   P.o Box 280-20100
   Nakuru
   Cell No.: 0721741900
   Email: brenchep@gmail.com

2) If you have any questions, concerns or complaints about your rights as a participant in this research, you can contact the following office at Kenyatta University:
   Kenyatta University
   Centre of Research and Development
   P.o Box 43844-00100
   Nairobi
   Tel: +254208710901 Ext. 5735
   Email: director-crd@ku.ac.ke
If you have any question about the above information please ask.

**Participant consent:**

I have read and understood the above information and I agree to participate in the study.

Signature ------------------ Date --------------------------
Appendix H: Questionnaire for consumers of processed meat products

My name is Brendah Ndiema; I am a graduate student at Kenyatta University doing Masters in food nutrition and dietetics. I would like to collect information on utilization of nutrition information in purchasing decision of processed meat products. My research assistants will administer questionnaires to you and please feel free to seek for clarifications in areas you don’t understand. All information you will give will be treated with confidentiality

Date of interview: _______________________________

Name of supermarket: _______________________________

Questionnaire number: _______________________________

Do you agree to participate in this interview?

Yes ___ No ___

If yes, continue to the next question; if no, stop the interview.

Do you have any question before we start? (Answer questions).

May I start now?

Date of interview: _______________________________

Name of supermarket: _______________________________

Questionnaire number: _______________________________
SECTION: A Socio-economic characteristics

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>18-28</th>
<th>29-39</th>
<th>40-50</th>
<th>51-61</th>
<th>62-72</th>
<th>≥73</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Education</td>
<td>Incomplete primary school</td>
<td>Completed primary school</td>
<td>Incomplete secondary school</td>
<td>Complete secondary school</td>
<td>Incomplete diploma/certificate college</td>
<td>Complete diploma/certificate college</td>
</tr>
<tr>
<td>4</td>
<td>Monthly income</td>
<td>≤5,000</td>
<td>5,001-10,000</td>
<td>10,001-20,000</td>
<td>20,001-30,000</td>
<td>30,001-40,000</td>
<td>40,001-50,000</td>
</tr>
<tr>
<td>5</td>
<td>Occupation</td>
<td>Student</td>
<td>Permanent employee</td>
<td>Contract employee</td>
<td>Casual employee</td>
<td>Self employed</td>
<td>Farmer</td>
</tr>
<tr>
<td>6</td>
<td>Household size</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>&gt;5</td>
</tr>
<tr>
<td>7</td>
<td>Religion</td>
<td>Christians</td>
<td>Muslims</td>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Marital status</td>
<td>Single</td>
<td>Married</td>
<td>Separated</td>
<td>Divorced</td>
<td>Widowed</td>
<td></td>
</tr>
</tbody>
</table>

Tick the appropriate answer(s).
SECTION: B

Nutrition information on processed meat and utilization of information in purchasing decisions

Tick the appropriate answer(s). Additional space is provided for you to write answer(s) that is not given in the list of answers provided. Feel free to ask questions should you need any clarifications

1. Do you purchase processed meat products?
   - Yes (proceed with the next questions)
   - No (do not proceed)

2. Which processed meats do you usually purchase?
   - Sausages (chicken, beef, pork)
   - Brawn (chicken, beef, pork)
   - Sandwich ham
   - Frankfurters (pork, beef)
   - Beef Vienna
   - Smokies
   - Hot dogs
   - Burger
   - Nyama Bites (beef, chicken)

3. Do you read nutrition information on processed meat products before purchasing?
   - Yes (proceed with the next question)
   - No Give reason(s)………………………………………………………………………………

4. If yes, when do you always read nutrition information on processed meat products?
   - The first time you purchase the product
   - Every time you purchase the product
   - Other (please, specify)……………………………………………………………………
5. What nutrients do you watch out for when reading nutrition information on processed meat products

□ Energy
□ Sodium
□ Saturated fats
□ Cholesterol
□ Proteins
□ Total fat
□ Carbohydrates
□ Dietary fibre
□ Others (please specify) ...........................................................

6. How clear is the nutrition information on processed meat products?

□ Very clear
□ Clear
□ Somehow clear
□ Not clear

7. How much influence does nutrition information have on your purchasing decisions?

□ No influences
□ Some influence
□ Great influence

8. How often do you use nutrition information on processed meat to do the following?

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine suitability for family consumption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compare types of processed meat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check fat content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check calorie content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decide which brand to buy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help in meal planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Determine serving size</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. How useful do you find nutrition information on the processed meat products in your purchasing decision?

- [ ] Very useful
- [ ] Useful
- [ ] Not useful
- [ ] Other (please specify)…………………………

10. How adequate do you find nutrition information on processed meat products?

- [ ] Very adequate
- [ ] Adequate
- [ ] Not adequate

11. Do you experience any challenges when reading the nutrition information on processed meat products?

- [ ] Yes (proceed with question 12)
- [ ] No (skip question 12)

12. If yes what challenges?

- [ ] Illiteracy on nutrition information
- [ ] Small print size
- [ ] Technical language used on the nutrition label
- [ ] Calculating serving sizes
- [ ] Other (please, specify)…………………………

13. What do you think should be done to improve use of nutrition information on processed meat products for more shoppers to utilize it?

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SECTION: C Factors influencing purchasing decisions and frequency of purchasing

The table below provide factors and conditions influencing purchasing decisions of processed meat. (Tick the appropriate box as you find desirable)

14. ..........................................................

<table>
<thead>
<tr>
<th>Factors and conditions</th>
<th>Very influencing</th>
<th>Influencing</th>
<th>Not influencing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic packaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy to handle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information on the product label</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low fat content</td>
<td></td>
<td></td>
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<tr>
<td>Reputation of the producer</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Quick preparation time</td>
<td></td>
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<td></td>
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<tr>
<td>Reduced price (discounts and promotions)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Location of the supermarket</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Colour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Family pack/ single serving</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Easy clean up</td>
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</table>

15. Are you or any member of your household on any form of restrictive diet?
   □ A member in the household
   □ Myself
   □ None

16. How frequent do you purchase processed meat products?
   □ ..............................................Daily
   □ ..............................................Weekly
   □ ..............................................monthly
   □ ..............................................Other (please specify)..............................

17. With regard to purchasing processed meat, which of the following do you give importance?

<table>
<thead>
<tr>
<th></th>
<th>Very important</th>
<th>Important</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
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<tr>
<td>Taste</td>
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<td></td>
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<td>Brand</td>
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<td></td>
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<tr>
<td>nutrition</td>
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Appendix I: Key Informant Interview (KII) guide for KEBS officer

The information obtained from you will be treated with confidence and only used for the purposes of this study. Anonymity will be guaranteed. This interview may be tape recorded.

1. What are the guidelines/recommendations for putting nutrition information on processed meat products?
2. In cases of noncompliance by the manufacturers, what are your responsibilities as the regulatory body?
3. Is nutrition information on processed foods important?
4. Do consumers complain to your office on challenges they encounter in using nutrition information on processed meat?
5. Do you as individual use nutrition information when making purchasing decisions?
6. Do you think nutrition information on processed meat is adequate?
7. What changes should be done on nutrition information on processed meats to improve its usage in purchasing decisions?
8. What measures in your own opinion should be put in place to improve use of nutrition information in making purchasing decisions?
9. Are there any policies for nutrition labeling in Kenya?
Appendix J: Key Informant Interview (KII) guide for supermarket supervisor

The information obtained from you will be treated with confidence and only used for the purposes of this study. Anonymity will be guaranteed. This interview may be tape recorded.

1. How frequent do your customers purchase processed meat products in your supermarket?
2. How much time do your customers spend on processed meat products section?
3. Do you think your customers use nutrition information on processed meat in making their purchasing decisions?
4. Are there meat products in your supermarket that do not have nutrition labels?
5. Do customers complain for lack of nutrition information on processed meat products?
6. What main factors from your experience do you think influence purchasing decisions of processed meat products?
7. What are the main challenges in using nutrition information in making purchasing decisions in your experience with your customers?
8. What measures do you think should be put in place to improve utilization of nutrition information in making purchasing decisions of processed meat?
9. What are the trends on utilization of nutrition information among your customers?
Appendix K: Observation checklist for information on processed meat products

1. Processed meat brands available in the shelves
   ........................................................................
   ........................................................................
   ........................................................................

2. Brands with nutrition information on the label
   ........................................................................
   ........................................................................
   ........................................................................

3. Brands without nutrition information on the labels
   ........................................................................
   ........................................................................
   ........................................................................

4. Nutrition information present on the labels of processed meat products (Fill the table below)

5. Location of the information on the pack
   □ Front of pack
   □ Back of pack
   □ Bottom or top of pack
   □ Sides of pack

6. Presentation format and font size the nutrition information
   □ Tables
   □ Graphics
   □ Pictures or logos
   □ Others specify

7. Any other information on the label
   ........................................................................
   ........................................................................
The table below shows brand, types of processed meat, and nutrient content present on the processed meat in the shelves. Record your observation on the table. Note any other information and record.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Type of preprocessed meat</th>
<th>Energy</th>
<th>protein</th>
<th>Total fat</th>
<th>cholesterol</th>
<th>Saturated fats</th>
<th>carbohydrates</th>
<th>Sugar</th>
<th>Dietary fibre</th>
<th>Sodium</th>
<th>Extras</th>
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<tbody>
<tr>
<td>Farmers’choice</td>
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<td>Quality Meat Packers</td>
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<td>Others</td>
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Appendix L: Nakuru County Map