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Consumer knowledge, perception and preference of edible oil: Evidence from Ghana

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Abstract: Edible oil is one of the most important components of food and a major source of energy for human survival. It also contains saturated fats which when consumed in excess can result in developing coronary diseases. Most Ghanaian households use edible oils in preparation of their day-to-day meals. However there is a paucity of literature on the knowledge, preference and perceptions of consumers on these edible oils. Thus, the objective of the study was to ascertain consumer's knowledge, perceptions and preference of edible oil. A cross sectional approach was used for study. Pre-tested semi-structured questionnaires were administered to 206 respondents. Data were analyzed using SPSS version 20.0 and results presented using descriptive statistics (tables, charts, frequencies and percentages). The empirical evidence suggests that greater majority of consumers (95.6%) generally use refined edible oils in their daily meals. However, these consumers lack the requisite knowledge on saturated fats and unsaturated fats content of edible oils. As a result, these consumers purchased the refined edible oils because they perceived them to be healthy to consume, quality and nutritious. Moreover, unrefined edible oils were perceived to be substandard in packaging and poor in quality. Regarding the consumers preference in size, it was identified that majority of consumers (58%) prefer edible oils in medium size (1.5-5L) containers. Besides, consumers of unrefined edible oils (80.1%) purchased mostly in open markets, whiles refined edible oils (49.5%) were purchased mostly in supermarkets. Edible oils were mostly used by consumers in frying various foods and preparation of different kind of stews. The findings are very revealing to marketers as they exhibit significant characteristics of consumer behaviour as far the purchase of edible oils are concerned.

Keywords: Consumers, Knowledge, Perception, Preference, Unrefined Edible Oil, Refined Edible Oil

1. Introduction

Consumers are constantly learning about their environment and a portion of this relates to what they consume and when and how they consume it. They learn about the products and services they are exposed to and adjust their consumption patterns to those things they learn. However, they sometimes form perceptions and obtained knowledge that influences their consumption patterns. Marketing managers are therefore interested in these perceptions, knowledge and preferences as they are constantly trying to communicate products and services benefits, ideas to their target consumers.

Perceptions, preference and knowledge on food safety which is one of the areas marketers are interested has become a global concern in recent times not only to these markets but consumers in general [1]. Consumers are therefore extremely cautious about what they eat and as a result, they want to be sure of the health implication each food component or product has on their body. This however, calls for more understanding and transparency in the information given about the properties or qualities of the different food products. Edible oil is one of the important consumer items which impact the health of consumers. As a major source of energy requirements for the human body, consumers use edible oils in the preparation of everyday meals.

The Ghanaian market is flooded with various kinds of edible oils such as groundnut oil, coconut oil, sunflower oil, palm oil, palm kennel oil among others. These oils come in the form of refined or unrefined depending on the producer. In this study, the unrefined oil relates to the locally manufactured oil. They are crude in form, unrefined, unfiltered and without additives [2]. These have been traditionally produced by the small scale enterprises which come in the form of unbranded edible oils such as coconut oil, palm oil, Shea-butter oil etc. and are consumed by many Ghanaian households. They are particularly high in saturated fat which is attributed to coronary diseases when consumed in excess [3].

Large scale firms both within the country and outside on the other hand compete in the markets with various refined and branded edible oils- Frytol, Vega, Unoli, Tasty Tom, Soyrite etc. with blends of saturated and unsaturated fats. The refined edible oils are normally filtered, bleached and deodorized [4]. Consumers however have been sensitized towards the use of refined edible oils in recent time as a result of greater consumer awareness towards quality and health consciousness [3]. This means that the productions of the cooking oils in Ghana need to be improved as well as adopting effective branding strategies to face the hectic competition in the market.

The demand for edible oil is growing rapidly across the world most especially in Ghana as a result of increase in human population and improved standard of living [5, 6]. For example, in 2013, Ghana imported a little over $ 127 million worth of edible oil to supplement the locally produced ones [7]. This, however, poses a significant threat to the locally produced edible oils markets which is likely to have a profound negative effect to the economy at large. Particularly in recent times where the government seeks to promote the patronage of made-in-ghana goods against the refined edible oil brands, which impedes the realization of this national objective.

Available literature suggests that cooking oil type is composed of three (3) major fat components - saturated, mono-unsaturated and polyunsaturated fats [8]. Each type is required by the body in its right amount of percentage and as a result, consumers ought to know the information in relation to these fat contents. According to [9]., solid fats, such as animal fat, butter, and red palm oil, traditionally used for cooking in many parts of the world are high in cholesterol-elevating fatty acids that increase the risk of heart disease. [10] also reported that, the body requires fats for essential functions and therefore some fat needs to be consumed. However the different types of fats consumed may have varied health implications. Therefore, testing the knowledge level of these edible oil consumers is key in building a healthy economy.

Other attribute besides the fats content may also be a contributing factor in the decision making of consumers. As a result of consumers' level of education, urbanization, and vast development of improved communication facilities, consumers are now exposed to vast array of edible cooking oil brands. This has made it quite challenging and complex for consumers to make the right or needed choice among these numerous brands [11]. Hence, consumers' selection and preferences of edible oil brands are governed by their knowledge and information about the product especially the best combination of the product attributes that meet their needs such as price, country of origin, quality, availability, nutrition, and among others. These attributes are used to measure the consumers' perception in selecting the edible oil brand as they are believed to have influence on consumer preferences. [8] believes that the choice of edible oil depends on various factors- Flavor, taste, saturation of fatty acids and presence of double bond, melting point, smoking temperature and nutritional value - are some of the factors. Consumers' purchasing behaviour is therefore based on the relative perceived benefits which are derived from their consumption. Aside these attributes, [12], purported that factors such as income, education, price, age and perception are the major determinants of consumer preference for branded vegetable oil.

In spite of these several researches [6, 13, 14]. which have been conducted on consumers' knowledge, perception, and preference of edible oil across the world, there is paucity of relevant data on consumer knowledge, preference and perceptions in Ghana. As such, the behavioral literature in this area is not very rich. Therefore this study aims at closing this gap by studying the behavioral pattern of consumers in terms of their knowledge, perception and preference towards edible oil in Cape Coast, Ghana.

2. Methods

A cross-sectional survey was carried out on consumers' knowledge, perceptions and preferences of edible oil within the Cape Coast Metropolis, Ghana. Pre-tested semi-structured questionnaires were randomly administered to respondents in the residential areas of Cape Coast Central, Abura-Pedu, Cape Coast Polytechnic Area, and Ayifua Estate. In all two hundred and six (206) respondents were used for the study. In situations where the respondents could not independently fill the questionnaire, they were aided by the researchers in order to obtain accurate representation of their views.

Data collected were analyzed using SPSS version 20.0 and results presented in tables and figures with legends.

3. Results

3.1. Demographic Characteristics of Respondents

Two hundred and six respondents made of up 183 female and 23 males took part in the survey representing 88.8% and 11.2 % respectively. The age distribution was made up of the following 15-20 years 11(5.3%); 21-25 years 51 (24.8%); 26-30 years 44 (21.4%); 31-35 years 77(37.4%); and 23(11.2%) representing 36 years and above.

The greater majority of the respondents 196 (95.1%) had some form of formal education with a small fraction 10 (4.9%) having no formal education. The average family size was 46.1% between 4-6 people. Apart from students 10 (4.9%) and a few respondents 12 (5.8%) who were not involved in any gainful employment, majority of them 184 (89.3%) were engaged in one form of income generating activity or the other.

Table 1. *Demographic Characteristics of Respondents*

Demographic variables		No. of respondents	Percentage (%)
Age Range	15-20 years	11	5.3
	21-25 years	51	24.8
	26- 30 years	44	21.4
	31-35 years	77	37.4
	Above 36 years	23	11.2
	Total	206	100
Marital Status	Single	108	52.4
	Married	36.4	36.4
	Divorced	12	5.8
	Widowed	11	5.5
	Total	206	100
Educational Level	No formal education	10	4.9
	JHS graduate	33	16.0
	SHS graduate	31	15.0
	Tertiary	132	64.1
	Total	206	100.0
Family Size	1-3	61	29.6
	4-6	95	46.1
	7-9	36	17.5
	10 and above	14	6.8
	Total	206	100
Occupation	Unemployed	12	5.8
	Self-employment	61	29.6
	Private sector	26	12.6
	Public sector	97	47.1
	Student	10	4.9
	Total	206	100

Source: Survey Data [2014]

3.2. Consumer Familiarity, Usage and Knowledge on Edible Oil

3.2.1. Familiarity, Usage and Reasons for using Unrefined Edible Oil

Respondents were familiar with the presence of unrefined edible oils in the market. Table 2 indicates that majority of them were familiar with palm oil, palm kennel oil, coconut oil and shear butter. However majority of the respondents were not familiar with animal fat.

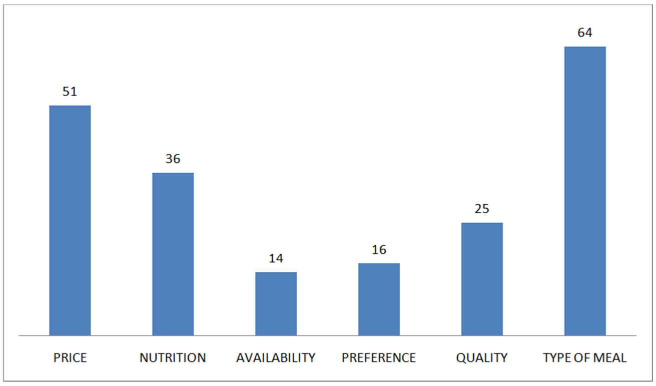
Table 2. *Familiarity and Usage of unrefined edible oil*

Familiarity with unrefined edible oil			
Unrefined oil	**Yes**	**No**	**Total**
Palm oil	206	0	206
Palm kennel oil	206	0	206
Coconut oil	192	14	206
Groundnut oil	187	19	206
Shea butter	206	0	206
Animal fat	12	194	206
Usage of unrefined edible oil			
Unrefined edible oil	Yes	No	Total
Palm oil	206	0	206
Palm kennel oil	23	183	206
Coconut oil	10	196	206
Groundnut oil	6	200	206
Shear butter	11	195	206
Animal fat	0	206	206

Source: Survey Data [2014]

On actual use of unrefined edible oil by respondents, the results (Table 2) indicates that all the respondents 206 (100%) use palm oil, whereas 206(100%), 200(97.1%), 196(95.1%), 195(95%), and 183 (89%) do not use animal fat, groundnut oil, coconut oil, shear butter and palm kennel oil respectively.

Figure 1 represents the reasons behind respondents' usage of unrefined cooking oil. It indicates that, the type of meal to be prepared was the major (31.1%) reason for usage of unrefined edible oil, whiles price (24.8%), nutrition (17.5%), quality (12.2%), preference (7.8%) and availability (6.8%) were the other reasons given.

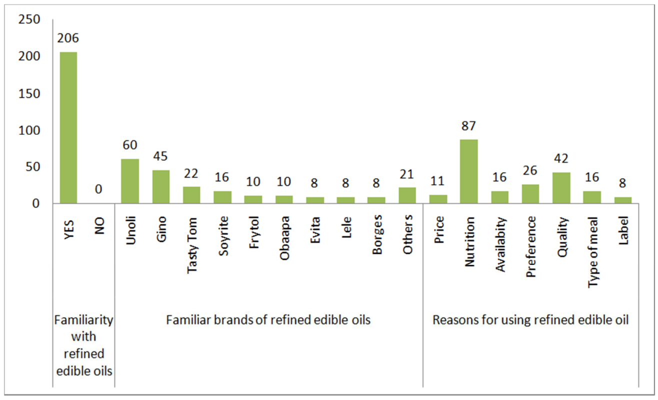


Source: Survey Data [2014]

Figure 1. *Reasons for using unrefined edible oil*

3.2.2. Familiarity, Usage and Reasons for using Refined Edible Oil

All of the respondents are familiar with refined edible oils and the brands patronized by most consumers are Unoli (60), Gino (45) and Tasty Tom (22) representing a cumulative percentage of 61.6%. These brands have the attributes that meet consumer preference. The rest are Soyrite (16), Frytol (10), Obaapa (10), Evita (8), Lele (7), Borges (7) and other brands (21) with a cumulative percentage of 38.4% as indicated in figure 2.



Source: Survey Data [2014]

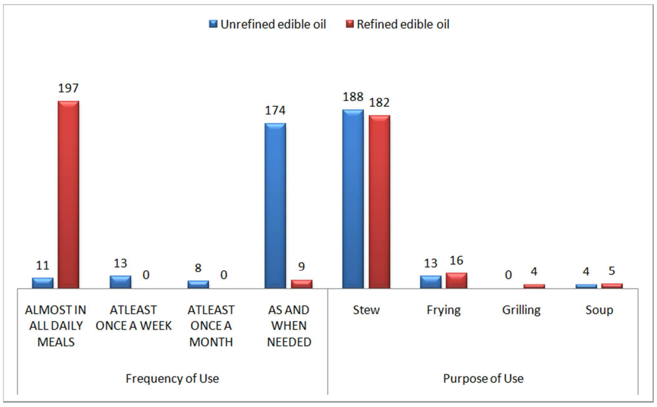
Figure 2. *Familiarity, brands of refined edible oils and reasons for using refined edible oils*

On respondents' reasons for using refined cooking oils, figure 2 indicates some of their motivating reasons; nutritional value 87(42.2%), Quality 42(20.4%), preference 26(12.6%), type of meal to be prepared 16 (7.8%), availability 16(7.8%) price 11(5.3%) and label 8(3.9%).

3.2.3. Frequency and Purpose of Using Unrefined and Refined Edible Oil

The result of the survey as shown in figure 3, indicates that most of the respondents are users of both unrefined and refined edible oils. Thus, 197 (95.6%) of them use the refined edible oil in almost all their daily meals whiles 174 (84.5%) use the unrefined edible oils as and when needed.

Consumers were asked to indicate what they use the edible oils for and the following results were obtained. Majority of the respondents 188(91.3%) and 182 (88.3%) use both the unrefined and refined edible oils respectively in preparing stews (fig 3). The other uses of cooking oils are frying, grilling and for soups representing a cumulative percentage of 8.8% and 11.6% for unrefined edible oils and refined edible oils respectively.

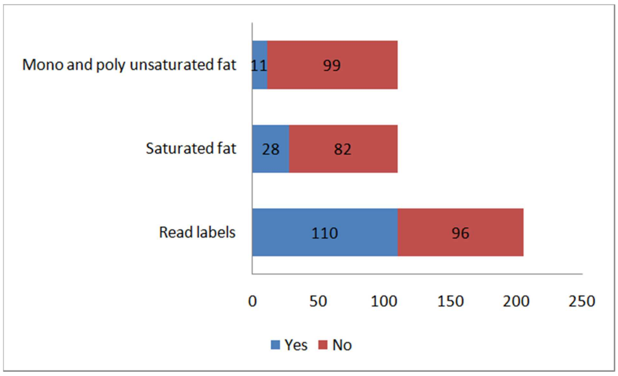


Source: Survey Data [2014]

Figure 3. *Frequency and purpose of using unrefined and refined edible oil*

3.2.4. Consumers' Knowledge on Fat Content in Edible Oils

The survey also sought to bring to light consumer's knowledge on the fat content of edible oils. To achieve this we asked if consumers read the labels on the edible oil container. In all 110 (53.4%) respondents read the labels on cooking oils. However a significant number of the respondents, 96 (46.6%) do not read the labels on the cooking oils before purchasing (Figure 4). This indicates consumers seem not to pay attention to the content of the oils they consume.



Source: Survey Data [2014]

Figure 4. *Consumer knowledge on fat content of edible oil*

With regards to saturated fat, mono and poly saturated fat, 82 respondents (74.5%) have no knowledge on this saturated content and 99 of the respondent (90%) have no knowledge on mono and poly-unsaturated fat content of cooking oils. (25.5%) and 11(10 %) of the respondents however have knowledge on the saturated, mono and poly- unsaturated fat content of cooking oils.

3.3. Consumer Perception on Edible Oil (Both Unrefined and Refined)

Table 4 presents the mean score of respondents' perception on the unrefined and refined edible oils. The result indicate that, majority of the respondents perceive unrefined edible oils as poorly packaged, high in cholesterol, unrefined, of poor quality and do not taste better. The corresponding mean scores are ($\bar{X}$=3.50, SD=1.049), ($\bar{X}$=3.45, SD= 1.066), ($\bar{X}$=3.21, SD=1.027), ($\bar{X}$= 3.06, SD=1.064) and ($\bar{X}$=2.88, SD=1.116) respectively. However the respondents perceive unrefined edible oils being inexpensive ($\bar{X}$ = 2.43, SD=1.105).

Table 3. *Consumer perception on unrefined and refined edible oil*

Statements	N	Minimum	Maximum	Mean	Std. Deviation
Unrefined oils contain high fat	206	1	5	3.45	1.066
Unrefined oils are poorly packaged	206	1	5	3.50	1.049
Unrefined oils are expensive	206	1	5	2.43	1.105
Unrefined oils taste better	206	1	5	2.88	1.116
Unrefined oils are of poor quality	206	1	5	3.06	1.064
Unrefined oils are unrefined	206	1	5	3.21	1.027
Imported oils are well branded	206	1	5	3.44	1.052
Country of origin effect (origin of imported oils)	206	1	5	2.50	1.176
Imported oils are nutritious	206	1	5	3.46	1.102

Source: Survey Data [2014]

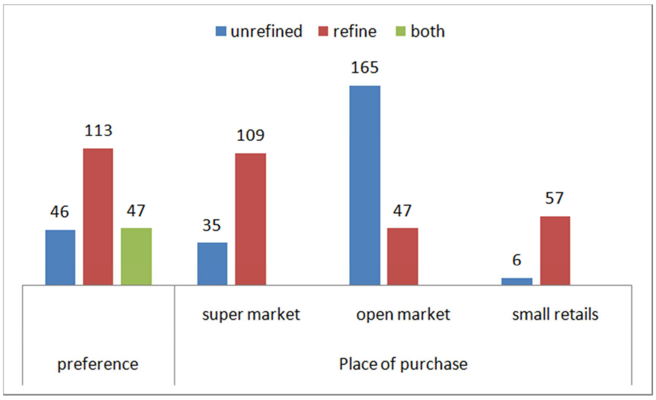
The results also indicated that, a high percentage of the respondents perceived refined edible oil brands as highly nutritious and well branded with a respective mean scores of ($\bar{X}$=3.46, SD=1.102) and ($\bar{X}$=3.44, SD=1.052). However, the respondents do not perceive the country of origin as a determinant on their purchasing with a corresponding mean score of ($\bar{X}$=2.50, SD=1.176).

3.4. Preference and Attributes That Influence Consumer Decision on Edible Oil

3.4.1. Consumer Preference for Edible Oil

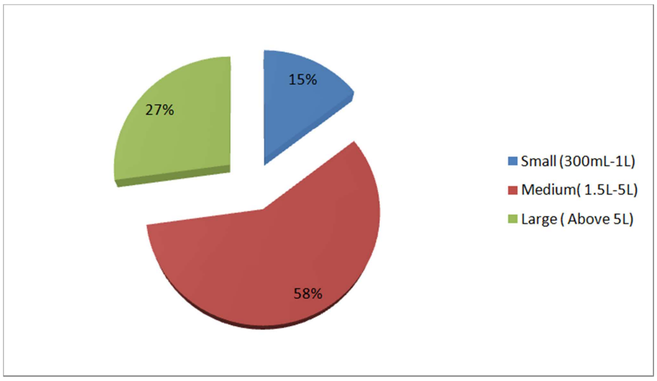
Figure 5 indicates 113 (54.9%) of the respondents preference for refined edible oil and 46(22.3%) similarly showing their preference for unrefined edible oil. However, both edible oils were preferred by 47 (22.8%) of the respondents. Respondents also indicated their preferred place of purchase; Supermarket, unrefined edible oil 35 (17%) and refined edible oil 109 (49.5%); Open market, unrefined edible oil 165(80.1%) and refined edible oil 47 (22.8%); small retails, unrefined edible oil 6 (2.9%) and refined edible oil 57(27.7%).

Figure 6 represents the size or the quantity of cooking oils usually purchased by consumers. As indicated, majority of the respondents, 102 (58%) preferred cooking oils in medium (1.5L – 5L) size containers, followed by 56(27%) of respondent preferring cooking oils in large (above 5L) containers. 30 respondents representing 15% however preferred cooking oils in small (300mL- 1L) size containers.



Source: Survey Data [2014]

Figure 5. *Preference of edible oil and preferred place of purchase*



Source: Survey Data [2014]

Figure 6*. Size preference*

3.4.2. Attributes that Influence Consumer Decision on Edible Oils

Table 5 presents the mean score of eleven attribute that contributes to consumer decision making on cooking oils. The results indicated that the eleven attributes contribute to most of the respondents' decision making on purchasing of cooking oils (all mean score are above 3.0 0n a 5-point scale). Perceived health benefits, quality and nutritional value of the edible oil ranked top among the attribute with mean scores ($\bar{X}$= 4.27, SD=0.875), ($\bar{X}$= 4.15, SD=0.785) and ($\bar{X}$=4.15, SD=1.035) respectively. Fat content, brand, aroma, availability and price were the next ranked attribute with respective mean scores of ($\bar{X}$=3.94, SD=1.100), ($\bar{X}$=3.87, SD=0.981), ($\bar{X}$=3.80, SD=1.024), ($\bar{X}$=3.77, SD=0.922) and ($\bar{X}$ =3.77, SD=1.052). The other attributes were family choice, packaging and income with mean scores of ($\bar{X}$=3.64, SD=1.086) and ($\bar{X}$=3.49, SD=1.248) respectively.

Table 4. *Attributes that contribute to consumer decision on edible oil*

Attribute	N	Minimum	Maximum	Mean	Std. Deviation
Nutrition	206	1	5	4.15	1.035
Quality	206	1	5	4.15	.785
Price	206	1	5	3.77	1.052
Brand	206	1	5	3.87	.981
Availability	206	1	5	3.77	.922
Health Benefits	206	1	5	4.27	.875
Aroma	206	1	5	3.80	1.024
Fat content	206	1	5	3.94	1.100
Packaging	206	1	5	3.64	1.086
Income	206	1	5	3.49	1.248

Source: Survey Data [2014]

4. Discussion and Conclusion

4.1. Discussion

The study explored consumer's knowledge, perceptions and preference of edible oil in the Cape Coast metropolis, Ghana. The results pointed towards the verity that consumers of edible oil are quite familiar with both refined and unrefined edible oil types in the Ghanaian market. Not only were they familiar with these oils but also they actually use them in their households albeit in varying preferences [Table 2, Figure 2, Figure 3].

Concerning the knowledge of consumers on the fat contents of edible oils, an attempt was made to ascertain respondents' habit of reading labels before purchase. Whiles most of the consumers in the study 110 (53.4%) read the labels before purchase, a significant number 96 (46.6%) do not read labels before making purchase. This finding is quite inconsistent with [15] research on consumer attitudes towards food labeling which identified 27% of consumers to have never or rarely read food labels before making a purchase.

However, the results revealed that out of the 110 (53.4%) of consumers of the study who read labels, 82 (74.5%) and 99 (90%) had no knowledge on saturated fat and unsaturated fat (mono and poly) contained in edible oils respectively. These findings are consistent with [13] who established that consumers of cooking oil in India are not aware of the saturated, mono-unsaturated and poly-unsaturated fat contents in the cooking oils they consume.

The study also established that consumers perceived unrefined edible oil as quite inexpensive, poorly packaged, high in fat, poor in quality and poor in taste. However, consumers perceived refined edible oil highly nutritious and well branded.

Consumers' place more value on product's attributes and as such use them as a basis for evaluating product benefits [16]. Products attributes are the elements or features that a product may or may not posses [17]. In this study, ten attributes were identified which were observed to influence consumers' choice of edible oils. Thus, perceived health benefits, perceived quality and nutritional values of edible oil were ranked as the top three attributes among consumer decision making of buying edible oil. These were followed by fat content, brand, aroma, availability and price (Tables 4). The findings are in contradiction to [18] research on edible oil consumption in Raipur city which puts price, nutritional value and brand as the top attributes consumers consider in purchasing edible oil.

Regarding consumers' preferences, it was established that 113 (54.9%) of consumers' preferred refined edible oil to 46(22.3%) unrefined oil and 47 (22.8%) showing their preference for both (Figure 5). The preferred place of purchasing refined edible oil 109 (49.5%) is the supermarkets whiles consumers of unrefined edible oil 165 (80.1%) prefer purchasing them from the open markets [figure 5]. It was similarly established that consumers generally prefer edible oil in medium size containers (1.5L – 5L) [figure 6].

4.2. Conclusion

As consumers are becoming more enlightened in their food intake, their quest for the right combination of food nutrients has become more eminent especially as several health-related problems are attributed to food that they consume. Therefore, it is imperative for consumers to have some level of knowledge so that the right choice will be made among the varying brands of cooking oils available in Ghanaian oil market. The study revealed some of the reasons influencing consumers' reluctance to patronize unrefined edible oils. Some of the influencing factors are poor quality, poor packaging, and low nutrients among others. On the other hand, those who consume refined edible oil do so out of perceived health benefit, quality and its nutritional values.

Refined edible oils were preferred by consumers, and were normally purchased from supermarkets for almost all their daily meals. Unrefined edible oils however were used mostly when needed and normally purchased in open markets. The most preferred unrefined edible oil of consumers was the palm oil while Unoli, Gino and Tasty Tom were the most preferred brands by consumers in Cape Coast. It was clear from the study that the totality of consumers' decisions of buying both refined and unrefined edible oils are influenced by their perceived knowledge on edible cooking oils.

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