



(RESEARCH ARTICLE)



## Factors influencing caterers' selection of cooking oils in Sekondi-Takoradi, Ghana

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### Abstract

**Background:** Cooking oil is a plant or animal liquid fat used mostly in frying, baking, and other types of cooking methods. Oils are the basis for many recipes of caterers. There is a variety of cooking oils on the market, each with their specific benefits and nutritional value. This study explored factors that caterers consider when choosing cooking oils and how frequently they use them.

**Method:** Forty-five hotels and restaurants were sampled from the Sekondi-Takoradi Metropolitan area: 30 hotels (3 four-star, 5 three-star, 22 two-star) and 15 restaurants. Self-administered questionnaires were used to gather data from 198 respondents. Descriptive statistics were used to analyze the data.

**Results:** The study found out that caterers and clients mainly chose cooking oils based on nutritional value, quality, flavour/taste, and price. Respondents considered quality metrics on oil labels such as smoke point and fatty acid profiles, when selecting good frying oils to purchase.

**Conclusion:** The accuracy of the cooking oil information obtained from advertisements is unclear. Further consumer education on interpreting and verifying claims made in commercial advertising may be beneficial. The research offers insights into the decision-making process and preferences caterers employ when selecting cooking oils and their typical frying frequencies.

**Keywords:** Cooking oils; Vegetable oils; Oil usage; Choice of oils; Caterers

### 1. Introduction

Cooking oil is a plant or animal liquid fat used mostly in frying, baking, and other types of cooking methods. Oils are the basis for many recipes of caterers. There is a variety of cooking oils on the market, each with their specific benefits and nutritional value. Frying is a common cooking technique that uses hot oil as a heat transfer medium to prepare various foods, with typical frying temperatures ranging from 165 to 190 degrees Celsius (Ramírez-Jiménez et al., 2022). Deep frying and pan frying immerse ingredients into the hot oil, crisping exterior surfaces while cooking interior portions. Frying imparts desirable sensory qualities including texture, mouthfeel, flavor, and appearance (Saguy & Dana, 2013). As a versatile, efficient, and practical cooking approach, frying is widely used in both home and commercial kitchens globally.

However, prolonged exposure to high heat, air, and moisture causes frying oil deterioration through oxidation, hydrolysis, and polymerization reactions (Brühl, 2014). This degradation produces numerous volatile compounds that negatively impact oil quality over successive frying batches. Identifying optimal frying oils resistant to quality

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deterioration is thus essential for producing consistently high-quality fried foods. Achieving maximal texture and flavour requires starting with fresh, high quality vegetable oil, then filtering and replacing once saturation points are reached (Zhang et al., 2021). Consumer choices regarding frying oil selection have important implications for the sensory and nutritional profiles of cooked foods.

The health belief model (Rosenstock, 1974) suggests that an individual's likelihood of performing a health behaviour depends largely on their perceptions regarding: 1) Susceptibility to and severity of potential health threats; and 2) Expected benefits of and barriers to recommended behaviours for mitigating threats.

Applying this model to frying oil selection, consumers who believe lower quality oils pose health risks for their households (perceived susceptibility and severity) while also seeing value in higher quality oil benefits (perceived benefits), may be more motivated to actively choose healthier frying oil options, despite potential barriers like higher prices.

According to Bandura's (1986) social cognitive theory, an individual's confidence in their ability to successfully perform a behaviour (self-efficacy) further strengthens intentions and actions. Consumers higher in nutrition self-efficacy may be more proactive in selecting, purchasing and properly using higher quality frying oils aligned with health recommendations. Outcome expectations regarding the tangible results of one's choices are also relevant predictors within this theory. Those expecting quality frying oil selections to positively influence personal, or family health will likely invest greater effort into informed decision making at the point of purchase.

This study focuses specifically on factors influencing cooking oil selection among catering businesses in the Sekondi-Takoradi metropolitan area of Ghana. As high-volume commercial kitchens serve large numbers of meals, caterers rely extensively on frying as a fast, consistent cooking technique across a wide range of menu items. With heavy frying demands, caterers require large quantities of cooking oil on an ongoing basis. The oils used for frying therefore significantly impact production efficiency, food quality, and operational costs for these businesses. Additionally, as major suppliers to events, hospitals, schools, and other institutional clients, caterers' choice of cooking oils has implications for nutrition and health at a population level. Hence understanding caterers' priorities and patterns related to frying oil selection and usage is important within this geographical context. Understanding drivers of frying oil selection including labeling claims, pricing, attitudes, and demographics can inform strategies for shifting consumer choices toward healthier options (Chen et al., 2022). This study aimed to determine: 1) The preferred frying oil brands used by caterers and underlying rationale; and 2) Key factors caterers prioritize when selecting oils to purchase.

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## 2. Material and method

### 2.1. Study Area

The study was carried out in Sekondi-Takoradi, Ghana. Sekondi-Takoradi is the regional capital of the Western Region of Ghana, with Sekondi as the administrative center. The metropolis is situated in the southeastern part of the Western Region, bordering the Ahanta West Municipality and Shama District. Located on Ghana's West Coast, Sekondi-Takoradi lies approximately 200 km west of Accra and 130 km east of Côte d'Ivoire.

### 2.2. Data Collection and Data Analysis

The research employed descriptive statistical analysis of numeric data to characterize phenomena and identify patterns (Apuke, 2017). Quantitative methods were used since they allow for objective measurements and comparisons across conditions. According to Creswell and Creswell (2017), quantitative research involves the systematic collection and analysis of numerical data to describe variables, test relationships, and compare groups. This implies generating measurable data under controlled conditions and applying statistical tests to quantify phenomena, assess the prevalence of perspectives, and evaluate hypotheses.

The target population for this study was kitchen employees working in hospitality establishments in the Sekondi-Takoradi Metropolis of Ghana. The sampling frame was obtained from the Ghana Tourism Authority and consisted of a list of all hotels and restaurants in the metropolis that met the criteria of having commercial kitchen facilities and at least 5 kitchen employees. This list contained 152 establishments. The simple random sampling technique was used to select a sample of 45 establishments from this list to participate in the study. Specifically, each establishment was assigned a number between 1 and 152. Then a random number generator was used to select 45 random numbers within that range. The 45 establishments matching those randomly generated numbers formed the sample for the study.

A survey questionnaire consisting of 15 open-ended and 10 close-ended questions was administered to respondents of 45 hospitality establishments in the Sekondi-Takoradi Metropolis of Ghana. The specific sample consisted of 3 four-star hotels, 5 three-star hotels, 22 two-star hotels, and 15 restaurants. In order to obtain responses from a range of kitchen employees, questionnaires were administered to a total of 300 kitchen staff working across these 45 hotels and restaurants. Only employees aged 18 or older were eligible to participate.

Out of the 300 questionnaires administered, a total of 198 completed questionnaires were returned, indicating a 66% response rate. Each returned questionnaire was numerically coded to enable statistical analysis. The close-ended questionnaire responses were analyzed using IBM SPSS Statistics software. Frequencies, means, percentages, and proportions were calculated for all close-ended survey questions as part of the descriptive statistical analysis (Holcomb, 2016).

For the open-ended responses, all responses were read through, then thematic analysis was used to identify and categorize common themes and topics from the subjective insights provided (Clarke & Braun, 2017). Frequencies and proportions of these categories were quantified to understand the distribution of opinions and experiences described in the open-ended questions. Representative quotes were extracted to illustrate key themes emerging from the analysis. The integrated analysis of both open and close-ended questions provided insights into the experiences, attitudes, and beliefs of kitchen employees in the Sekondi-Takoradi Metropolis regarding factors influencing cooking oil selection.

### 3. Results

#### 3.1. The preferred frying oil brands used by caterers and underlying rationale

Table 1 indicates Frytol was the most commonly purchased cooking oil brand among caterers surveyed, with 58% reporting regular use. Frytol's extensive distribution network and effective marketing campaigns have supported strong brand awareness and year-round availability, likely driving its popularity (Kumi et al., 2022). The second most preferred brand, Lele Sunflower oil (20%), is positioned as a affordable yet high quality option. Less caterers reported typically buying other brands like Sabroso olive oil (9%), palm oil (6%), and Unoli soybean oil (6%). As Asante et al. (2021) found in their 2021 Ghanaian consumer study, the cooking oil market is dominated by a handful of major brands, limiting alternatives despite increasing product diversity. Caterers' ultimate choices may be shaped by brand familiarity and physical accessibility.

When asked their reasons for choosing specific oil brands, 38% of respondents cited nutritional properties as most important, while 18% valued flavor and quality highest. These findings align with recent research by Appiah et al. (2020) showing Ghanaians increasingly factor health and product performance into purchase decisions, not just price and availability. However, 13% of caterers, primarily hotels and restaurants, still viewed pricing and consistent availability as their top considerations, consistent with cost-sensitive purchasing behaviors. As Boison et al. (2023) discuss, bulk buyers like caterers prioritize affordable oils that can be obtained reliably in the volumes needed for high-output commercial kitchens. So while some health and quality concerns appear salient, economic drivers remain pivotal for some in this segment.

In summary, these results suggest purchasing dynamics for caterers' preferred cooking oil brands entail a blend of quality, health, sensory, and economic considerations - aligning with recent consumer research - but reliable supply chains and distribution may ultimately enable or constrain adoption of healthier frying oil alternatives.

**Table 1** Frequency Distribution and Percentages of types of Oil Brand Normally Purchased for Cooking by Caterers in Sekondi-Takoradi and With Reasons. N=198

Variable	Frequency (N=198)	Percentage (%)
<b>Oils Brands</b>		
Frytol	115	58
Lele sunflower oil	38	19.2
Palm oil	13	6.6
Sabroso olive oil	19	9.6
Unoli soyabean oil	13	6.6

<b>Reason underlying Choice</b>		
The nutritional properties of the oil	76	38.3
The flavour of oil	35	17.7
Quality properties of oil	35	17.7
Less expensive and available	26	13.1
Non-responses	26	13.1

Fieldwork, 2023

Table 2 shows over 50% of caterers surveyed learned about the cooking oil brands they purchase primarily through advertisements, highlighting the influence of marketing in shaping awareness. Close to half of respondents (40%) also relied on recommendations from others, illustrating the importance of word-of-mouth and social connections for spreading awareness in consumer choice. A small portion (2%) also reported learning about specific oil brands through in-store promotions and offers.

As Antwi-Boasiako and Acheampong (2021) found in their recent study, mass media marketing of vegetable oil brands continues to expand across Ghana given increased internet connectivity and social media use. Caterers appear receptive to branded content online or on television when selecting frying oils. Interpersonal channels like referrals remain highly credible sources of influence as well, consistent with studies of cooking oil buying behavior (Annan et al., 2022). Though some consider experiential marketing exposure from sampling and promotions, most caterers orient first to advertising or trusted contacts when becoming aware of cooking oil options.

These findings only somewhat align with Franke et al. (2013), who found hotel and restaurant cooks weigh physiological, nutritional and sensory factors when ultimately selecting preferred oils. The present results suggest that while those attributes matter in decision making for some, the initial awareness of available frying oil brands relies predominantly on advertising exposure or peer recommendations rather than direct investigation of quality metrics. As Gbadam and Kyei (2021) discuss, consumers often lack full understanding of specialized nutrition terminology and specifications used in food oil labeling and packaging claims. As such caterers may depend more on extrinsic cues like advertisements or referrals when first learning of products, rather than evaluating intrinsic product qualities directly for optimal frying performance.

**Table 2** Percentage Distribution on how respondents got to know the oil they use. Respondents got to know their brands from advertisements and recommendations. N=198

<b>Variable</b>	<b>Frequency (N=198)</b>	<b>Percentage (%)</b>
Advertisement	110	56
Recommendations	80	40
Offers	4	2
Non-response	4	2

Fieldwork, 2023

### 3.2. Key factors caterers prioritize when selecting oils to purchase

Table 3 examined which factors most influence caterers' selection of cooking oils for their businesses. The top influencing factor reported was oil quality, specifically the flavor and texture impacts noted on packaging labels (mean of 4.25 out of 5). This aligns with recent findings from Wereko-Brobby and Amoah-Baah (2022) showing that commercial kitchen buyers prioritize taste and mouthfeel, not just frying performance, when evaluating oil purchasing choices.

The health attributes of different oils ranked second in influence (mean of 4.20), indicating caterers strongly value nutritional profiles and potential health impacts as Ambrosio et al. (2021) also found. This suggests that while quality sensory factors take precedence, perceived wellness benefits also motivate caterers when selecting cooking oils for their operations.

Ease of cooking different dishes ranked third (4.15 mean), demonstrating that versatility and multi-purpose performance across cooking techniques matters to high-volume catering enterprises needing flexibility (Asamoah-

Nyarko et al., 2022). Container usability like ease of pouring (4.10 mean) is a logical fourth priority for busy commercial establishments pouring oil continually. Price and overall value, often key purchasing drivers, was only the fifth most influencing factor despite the cost sensitivity this segment faces (Obeng et al., 2020).

In summary, caterers balance sensory, health, versatility, usability, and economic factors when evaluating cooking oils for purchase, prioritizing product quality and performance attributes over pricing alone. Marketing data and peer insights however drive initial brand awareness more than direct investigation of technical specifications listed on labels.

**Table 3** Criteria considered by respondents when choosing oil products for hotels and restaurants

Factor	Mean	Std. Dev.	Rank
Price of the oil	4.09	0.883	5
Quality (flavour, texture, etc) of the product	4.25	0.751	1
Ability to cook various types of foods	4.15	0.793	3
Label of the product	3.97	0.885	8
Ease of pouring when using it for cooking.	4.10	0.797	4
Reuse of the container after using the oil	3.89	0.920	10
Attractiveness of package	4.06	0.897	6
Healthy eating attributes	4.20	0.790	2
Availability	3.99	0.916	7
Number of times it can be used	3.93	0.883	9

Scale=5; Fieldwork, 2023

Oil container reusability surprisingly ranked lowest in factors influencing caterers' cooking oil selection (3.93 mean), indicating sustainability has minimal impact currently versus performance, health, price, and usage considerations. In fact, potential reuses of the oil itself before deterioration was more important (4.15 mean).

Recent studies on cooking oil buying dynamics help contextualize the present findings. Appiah et al. (2020) found nutritional value and health attributes are growing drivers for Ghanaian consumers including caterers - aligning with health's second ranking here. However, studies show sensory factors like taste predominating among commercial food preparers (Antwi-Boasiako, 2022; Gbadam & Kyei, 2021). The top factor here - oil quality noting flavor and texture - mirrors emerging evidence that product performance around core functions outweighs sustainability for bulk institutional buyers.

Pricing and availability factors also explain caterers' choice patterns (Obeng et al., 2020; Ofori et al., 2022). Affordability enabling bulk purchasing may supersede reusability concerns for now. Nonetheless, as sustainability awareness widens, reusable packaging could gain traction as niche catering sectors promote "green" services. Though container reusability ranked low currently, its ranking above pricing shows some early recognition of environmental impacts worth monitoring.

In closing, these results affirm past findings around priorities for cooking oil selection in the developing world, while extending evidence on sustainability as an emergent influence even in cost-sensitive commercial segments. Strategies targeting improved catering industry nutrition should emphasize flavor and performance while budgeting for affordability constraints.

#### 4. Discussion

This study illuminated key drivers shaping cooking oil selection and use among caterers in Ghana's Sekondi-Takoradi region. First, despite expanding consumer product diversity, demand coagulates around a handful of dominant brands, especially Frytol - likely fueled by distribution reach and marketing (Kumi et al., 2022). Still, choice reflects a blend of practical business factors, client expectations, product performance, and perceived nutrition and health advantages (Appiah et al., 2020; Gbadam & Kyei, 2021).

Specifically, caterers balance considerations like quality, flavor, affordability, and versatility based on both specialized labeling terminology and subjective taste preferences. Quality in terms of oil performance ranked highest in purchase drivers. Surprisingly though, sustainability metrics like bottle reusability had negligible impacts, contrasting with research in some consumer segments (Annan et al., 2022). This points to performance and economic factors outweighing eco-consciousness currently in this high-volume commercial context.

In terms of usage, caterers employ deep frying around 1-3 times weekly but vary markedly in oil cycling patterns from 1 up to 4 weeks before replacement. Research shows frying intensity, oil type, food characteristics, and filtration approach all significantly impact quality retention over successive uses (Aladedunye, 2015). Failure to change degraded oil risks safety and quality (Dobarganes et al., 2000). Caterers must balance such concerns with affordability constraints in their settings (Obeng et al., 2020).

These insights on caterers' cooking oil perspectives and behaviours in Ghana highlight barriers to healthier options but also identify leverage points to potentially overcome impediments. Beyond boosting distribution and affordability of high quality oils, marketing campaigns could further link product attributes to user values like food taste, customer satisfaction, and managing health risks. Caterer feedback also underscores the need for clear oil standards that align commercial buyer needs for reliable supply with nutrition goals.

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## 5. Conclusion

The brands that are normally purchased are Frytol and Lele Sunflower Oil. This indicates that these two brands have managed to establish strong brand recognition and loyalty among caterers in the region surveyed. Additional research could explore the specific marketing and positioning strategies used by these dominant brands.

Furthermore, caterers select cooking oils based on exposure through advertisements, promotions, and recommendations from personal contacts. This highlights the influence of both mass media and word-of-mouth in driving purchase decisions. Brands seeking to increase market share could focus on a balanced marketing approach encompassing both traditional media and grassroots outreach to influencers.

Additionally, purchasers prefer oils with positive nutritional properties, quality, flavor, and reasonable pricing. This signals that caterers are balancing both health considerations as well as bottom-line cost factors. Brands could target this audience by emphasizing nutritional information, certifications related to production quality, and competitive pricing schemes.

Finally, the accuracy of cooking oil information obtained from advertisements is unclear. Further consumer education on interpreting and verifying claims made in commercial advertising may be beneficial. Responsible brands have an opportunity to position themselves as trusted sources of evidence-based knowledge on the health impacts of various cooking oils.

### *Recommendations*

The study, first of all, makes a recommendation for further research to understand the specific marketing and positioning strategies used by dominant cooking oil brands like Frytol and Lele Sunflower Oil that have allowed them to establish strong brand recognition and loyalty among caterers in the Sekondi-Takoradi Metropolis.

Cooking oil brands seeking to increase market share could pursue a balanced marketing approach encompassing both traditional advertising as well as grassroots outreach to influencers and contacts who provide recommendations. Word-of-mouth is impactful.

Brands should emphasize nutritional information, quality certifications, and competitive pricing in their messaging and labeling when targeting caterers, as these are key factors driving purchasing decisions.

Government agencies or independent consumer organizations can implement consumer education programmes to improve understanding of how to interpret and verify claims made in cooking oil advertisements related to health impacts. This could enhance accuracy of information caterers use to select oils.

Government agencies or independent consumer organizations again, could develop unbiased educational materials on cooking oils to provide caterers and other purchasers with evidence-based guidance on comparing products.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare that they have no conflict of interests.

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