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Consumer Perception, Attitudes, Liking and Preferences for Olive Oil

Sara Cicerale, Gie Liem and Russell S.J. Keast

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Abstract

The consumption of healthful olive oil (OO) has grown considerably over the past 20 years, particularly in areas outside of Europe. To meet this demand, worldwide production of OO has doubled over this time period. Greece, Italy and Spain remain the major producers of this commodity; however, significant growth in production has also occurred in countries such as Australia and the US. OO consumption is closely associated with the traditional Mediterranean diet. It is likely that the potential health benefits of using OO as a primary dietary fat have been a driver of increased intake, but undoubtedly other factors will be involved. An understanding of the factors that influence consumers' perceptions, attitudes, liking and preferences for OO will be of benefit to the OO sector. Olive growers, OO manufacturers, packaging specialists and marketers, etc. can utilize these insights to aid in the development and delivery of OO products in line with consumer needs and wants, and help drive further growth in this sector particularly with regard to new and emerging markets. The following chapter details information on the intrinsic and extrinsic factors that have demonstrated an influence on consumer perception, attitudes, liking and preferences for OO.

Keywords: olive oil, consumer, perception, attitude, liking, preference, intrinsic factors, extrinsic factors

1. Introduction

The consumption of olive oil (OO) has grown considerably over the past 20 years. For instance, approximately 1.7 million tons of OO was consumed worldwide in 1990–1991 and this increased to approximately 3.1 million tons in 2013–2014. To meet the demand, worldwide production of OO has doubled over this time period. Greece, Italy and Spain are the major producers of OO

[1]; however, significant growth in production has also occurred in countries such as Australia and the USA [1, 2]. For instance in Australia, 500 tons of OO was produced in 1998–1999 and this increased to 13,500 tons in 2013–2014. A similar growth rate has also been noted for the USA, producing 1000 tons of OO in 1998–1999 and 12,000 tons by the years 2013–2014 [1, 2]. While dietary fats are often maligned in terms of health, OO, particularly extra virgin olive oil (EVOO) and virgin olive oil (VOO), holds a special place as consumption is closely associated with the traditional Mediterranean diet and the health benefits associated with this diet [3, 4]. It is likely that the potential health benefits of using OO as primary dietary fat have been a driver of increased intake, but undoubtedly other factors will be involved.

An understanding of the factors that influence consumers' perceptions, attitudes, liking and preferences for OO will be of benefit to the OO sector. Olive growers, OO manufacturers, packaging specialists and marketers, etc. can utilize these insights to develop and deliver OO products in line with consumer needs and wants, and help drive further growth in this sector particularly with regard to new and emerging markets.

Consumers make multiple judgments about the foods and beverages they choose to eat and drink on a daily basis and these evaluations are based on conscious reflection as well as automatic, habitual and subconscious decisions. Underlying these reflections and decisions are the quality evaluations consumers make using both intrinsic and extrinsic product cues. Intrinsic product cues relate to the physical attributes of a given product (i.e., color and flavor). Extrinsic product cues, on the other hand, are the attributes that are related but not contained within a given product such as brand and product origin [5]. The Total Food Quality Model by Grunert [5] provides a framework of how intrinsic and extrinsic product attributes influence consumer quality perception of products. This model distinguishes quality perception before and after a product's purchase and demonstrates that before purchase, consumers make a judgment of product quality using several intrinsic and extrinsic cues. These intrinsic and extrinsic quality cues are connected to consumer knowledge, expertise and beliefs about what is good quality. Furthermore, Grunert [5] proposes that for the majority of food purchases, major quality dimensions of a product (for example, taste) cannot be ascertained before the purchase, and for such purchase decisions to be made, consumers have to form quality expectations. Post-purchase, the product will lead to some type of quality experience.

It is also important to note that an OO sensory wheel has been developed, acting as a valuable tool in describing EVOO and VOO and establishing the importance of particular intrinsic product attributes for the perceived quality of the oil. The attribute profiles of EVOO and VOO can be linked to consumer preferences and can be used partly as a prediction model for certain consumer groups. Although the sensory aspects of OO have been deemed to be important, extrinsic product attributes have also been noted to be of importance [6].

The following chapter details information on the intrinsic and extrinsic factors that have demonstrated an influence on consumer perception, attitudes, liking and preferences for OO. Please note for the purpose of this chapter the term OO will be used to encompass EVOO, VOO and the more refined OO when discussing this oil more generally. When a specific type of OO has been examined in the literature reviewed, it will be specified.

2. Intrinsic product attributes

Intrinsic attributes provide a product's functionality and relate to the physical aspect of the product itself. In light of the previous research conducted, the intrinsic product cues that will be discussed in the section to follow are OO color and flavor.

2.1. Color

The coloring of OO can vary from a deep green to gold and is mostly dependent on the amount of chlorophyll and carotenoid pigments present in the oil. These pigments vary in OO as a result of a number of factors such as olive cultivar, maturation index, production zone, processing treatments and storage conditions. The color of OO can therefore stand as a quality index [7, 8].

The observation that refined OO is associated with a much lighter, paler color was highlighted in a study by McEwan [9]. The UK-based consumer cohort ($n = 9$) who participated in a focus group expressed the attitude that very pale oils signified a cheaper product with less flavor and highlighted the importance of OO color in their purchasing decision. In a face-to-face survey concerning a Tunisian cohort ($n = 296$), whereby consumers were asked questions about important criteria for choosing OO, the participants expressed a significantly higher preference for green over yellow colored OO, $p < 0.05$ [10]. In another face-to-face survey involving Italian consumers from central-north and south Italy ($n = 1000$), green EVOO was preferred over yellow EVOO to a greater degree in the southern consumer sample (71%) compared with the central-northern consumer sample (52%) [11].

Building on the aforementioned focus group and survey investigations, a consumer evaluation-based study by Vazquez-Araujo et al. [12] also demonstrated consumer preference for green EVOO. Spanish consumers ($n = 100$) were asked to evaluate five samples of EVOO and one sample of refined OO in terms of liking of the product color on a 9-point hedonic scale. Certain EVOOs with a dark green coloring were significantly favored over EVOO and refined OO possessing a light yellow coloring, $p < 0.05$. The US consumers ($n = 100$) also included in this study, however, expressed neutral opinions on the oil coloring. Lastly a study was conducted in a Finnish population ($n = 74$), whereby participants completed a survey and evaluated the color of four EVOOs, two considered excellent quality and two regular quality. Using a 9-point hedonic scale, a significantly lower liking for darker green EVOO compared to lighter colored EVOO was noted, $p < 0.001$ [13].

The color of food has been identified as an imperative intrinsic product cue with regard to consumer expectations of the likely taste and flavor and hence quality of food and beverages [14]. In general, consumers appear to associate more intensely colored foods with increased flavor [14] and the McEwan study [9] supports this. Differences in the acceptance for the darker colored OOs among the surveyed populations may in part be due to the experiences and exposure these populations have to OO in terms of volume and quality. Spain and Tunisia are major producers and consumers of EVOO; hence, EVOO is very much a staple of the Spanish

and Tunisian diet. For instance, in the 2013–2014 period, Spain produced 1,782,000 tons and consumed 525,000 tons of OO. Tunisia produced 340,000 tons and consumed 30,000 tons of OO [2]. Conversely for the British, US and Finnish populations, OO is fairly novel [1, 2]. The Spanish and Tunisian populations are more likely to consume fresher, higher quality OO compared with other populations such as the US, since they produce much of the OO they consume [1]. The USA currently imports 98% of the OO they consume [15] and majority of the vegetable oil used by US consumers has been noted to be light yellow in color (for instance, soybean, corn, canola, cottonseed) [13]. With regard to the Finnish population, consumption data demonstrates OO consumption to be low (4000 tons consumed in 2013–2014) [2]. The US and Finnish populations may therefore lack experience with fresh, higher quality OO and this may be an influencing factor in their preference for lightly colored OO. Although color was deemed important for the Brits when choosing OO, this observation was from a small ($n = 9$) study. Patterns of preference and liking appear in the literature examined and this information will be important for OO producers in terms of tailoring their OO for local and or export markets.

2.2. Flavor

The flavor profile of OO is clearly distinguishable from other vegetable oils. The components that contribute most to OO flavor have been noted as volatile and phenolic substances [16]. In particular, phenolic compounds largely contribute to the bitter, pungent and astringent qualities that are distinctive of high-quality EVOO and VOO [17]. OO's characteristic flavor has been identified as a contributing factor for its increasing popularity around the world [18]. Two survey-based studies support this notion. A study containing US participants ($n = 178$) demonstrated that flavor was a main driver for the purchase of the OO they were using at home [19]. Similarly, a study in UK consumers ($n = 151$) found that flavor was a main factor for OO purchase [20].

A handful of studies have also shown that consumers tend to appreciate fruity, floral and sweet attributes in EVOO more so than bitter and pungent attributes [11–13, 21–24]. However, the degree in liking of the EVOO attributes varies among differing populations. For instance, in a study whereby Spanish consumers ($n = 100$) tasted and rated five EVOOs and one refined OO (on a 9-point hedonic scale), EVOO that had higher flavor intensity and contained fruity, green, peppery notes was significantly preferred, $p < 0.05$. The US consumers ($n = 100$) of the same study expressed a liking for fruity, floral notes and bland-refined OO and found the EVOOs liked by the Spanish consumers to be too bitter, pungent and intense in flavor, $p < 0.05$. The frequency of OO consumption among the Spanish and US consumers was also investigated in this study and found to differ greatly. While 93% of the Spanish consumers surveyed noted a daily consumption of OO, only 8% of the US consumers also chose this option [12].

The differences noted among the Spanish and US consumers may be in part due to the differences in degree of exposure to not only OO itself but also the quality of OO. The Spanish consume much of the OO produced within Spain whereas Americans consume mostly imported OO which may have reduced quality (hence lowered bitterness and pungency) due to a variety of factors including the imported OO becoming rancid over time [15, 25]. According

to Tourila and Recchia [26], a learning process is required for an individual to develop a taste and appreciation for OO. Hence, preference for OO flavor may be dependent on the type of OO individuals have been accustomed to via exposure to them over time.

As seen with the Spanish consumers, a liking for stronger EVOO flavor and dislike for bland-flavored OOs has also been noted in a group of Tunisian consumers ($n = 300$) who participated in a face-to-face survey [10]. A similar finding has also been found for a group of Italian consumers ($n = 1000$) who participated in a face-to-face survey. In this study, the Italian consumers preferred their OO to possess a more intense flavor; however, differences in the percentage of preference were noted between the consumers from south Italy (84%) and those from central-north Italy (59%) [11]. The findings discussed may in part be explained by the fact that Tunisia and Italy are main producers of OO and Tunisian and Italian OO is well known for its high quality, therefore Tunisian and Italian consumers may be well accustomed to the flavor of such OO [10, 11].

A study by Delgado et al. [23] containing US consumers ($n = 110$) who evaluated EVOO samples ($n = 22$) via tasting found the following EVOO flavor attributes: nutty, ripe fruit, green tea, butter, green fruit and grassy to be positive drivers of liking. For a portion of the consumers surveyed, known defective flavor attributes such as rancidity, mustiness, fustiness and winery were also found to be drivers of liking. With regard to the latter finding, these consumers may have become used to such defects because they may, for example, choose to consume cheaper, imported and or mass-marketed refined OOs or retain a bottle of OO for an extended period of time which results in the OO developing defects over this period [23, 25].

Finally a study containing British ($n = 50$), Danish ($n = 90$) and French ($n = 50$) consumers evaluated a total of seven vegetable oils (including one VOO and one refined OO) by interview. Respondents were presented with the seven oils and were asked to rank them into three groups: a group consisting of the most preferred oils, a group of the least preferred oils and a group of oils the respondent would consider if they could not get any of the most preferred oils. Respondents were then asked to give reasons for the grouping made. Finally, the respondents were asked to rank the products within each group according to preference and to state reasons why. The seven oils were in this way ranked from 1, the most preferred oil, to 7, the least preferred oil. This study found that a portion of the British cohort did not express favorable views on the flavor of VOO. However, for the majority of Danish and French respondents, an attitude of VOO being a 'tasty product' and one that 'tastes good' was expressed [27]. Despite the UK's consumption of OO being 61,000 tons in 2013–2014, OO still remains a relatively new food product for this population with exposure being on the lower side. France's consumption of OO in 2013–2014 was 110,000 tons, almost double for that of the British. However, despite the Danish providing favorable opinions on VOO, they have quite a low consumption of OO at 7000 tons in 2013–2014 [2]. The Danish may have a lowered exposure to OO overall but what is available may be of higher quality.

A pattern appears to be emerging in terms of differing population perceptions, attitudes, liking and preferences for OO flavor. Consumers who are more likely to be exposed to high-quality OO appear more likely to appreciate flavor attributes typically associated with such oil. Consumers who have become accustomed to bland-flavored OO due to a variety of reasons

seem to prefer this OO and dislike more intensely flavored OO. As with any food, much variation in liking exists for OO and it is imperative that OO producers understand their target consumer and tailor their OO products to such demand.

3. Extrinsic product attributes

Unlike intrinsic product cues, extrinsic product attributes are not part of the physical product but are related to the aspects and information surrounding a product. Drawing on previous research, the extrinsic product attributes to be discussed in terms of OO include: label information, packaging, perceived health benefits and price.

3.1. Label information

Food labeling information with regard to product origin, nutritional qualities of a product, ingredients used and manufacturing process has been noted as an influential factor on hedonic expectations and food acceptability [28]. A small number of studies have examined the influence of labeling information on the perceptions, attitudes, liking and preferences for OO and the outcomes from such studies demonstrate that OO food labeling appears to influence quality and taste perception, and intention to purchase.

In a meta-analysis of 20 studies concerning consumer preferences for EVOO, origin labeling/certification was found to positively influence consumers' willingness to pay [29]. A study concerning French ($n = 123$) and Tunisian ($n = 128$) consumers, involved the tasting of four EVOOs (in a blinded fashion) and rating them on a 10-point hedonic scale as to how much they liked particular attributes such as taste, color and appearance. The test group was then supplied with origin information, including an image, and was asked to rate the perceived quality of the oils using a 10-point expected quality scale. After this, the test group was given the oils to taste again once knowing the origin information and rated liking as well as perceived quality. The test group was also asked what they were willing to pay for each of the oils under the differing conditions. Product origin information was found to influence perceived quality of the EVOOs included in the study, particularly in terms of expected prices more so than hedonic expectations. For example, there was a significant increase ($p = 0.005-0.04$) in the expected price for four out of five EVOO products under the test versus control condition. For hedonic score, only one out of the five EVOO products was rated significantly higher ($p = 0.02$) under the test versus control condition. Hence, consumers were willing to pay more for the oils upon being provided origin information [30].

A second experiment was conducted with the same cohort that further investigated which attributes related to regional image (olive variety—single or blend; natural conditions—soil or climate; human factors—modern or traditional mill) influenced perceived quality to the greatest degree. Price was also added to the investigation, where variations included: low, medium, high and very high. The consumers undertook 10 choice tasks whereby each task consisted of three alternatives for region of origin, olive variety, natural conditions, human factor and price level, plus a no option choice. The consumers were asked to imagine themselves in a supermarket faced with a number of OOs to choose from. Looking at the percentage

importance, region of origin and human factors were found to be more important to the French consumers (28% and 24% respectively) compared to the Tunisian consumers (4% and 3%). Olive variety was more important to the Tunisian consumers (17%) compared to their French counterparts (2%). Price labeling was deemed as the most important attribute for both the French (44%) and Tunisian (76%) consumers. Natural conditions were found to have little importance for both groups (below 2%). The results suggest that origin information is multi-dimensional and that perceptions may reflect differences in local experience and culture. The French are known to favor “terroir” and distrust industrially made foods. Tunisians purchase much of their OO at local mills, therefore may be a factor in their consideration of olive variety being important. Price was more important for the Tunisian consumers and this is not surprising given that although the researchers tried to choose consumers with equal income, there were less Tunisian consumers in the high income category and more in the low-medium income category compared to the French cohort [30].

In another study containing French ($n = 123$) and Tunisian ($n = 122$) consumers, the influence of product origin labeling (including country and region information) was examined using the “best-worst (B-W)” scale, whereby subjects choose the attributes they considered most and least important in their choice of OO and the B-W value is calculated by subtracting those that choose an attribute as least important from most important. The consumers ($n = 245$) who took part in the study attended multiple study sessions (13 in Tunisia and 10 in France) and in those sessions completed a series of questionnaires. The origin attributes investigated were found to be important determinants in consumer choice among the Tunisian and French consumers. However, there were slight differences in the origin information that was most important for these two population groups. Country of origin appeared to be more important to the French consumers (B-W 84 compared with B-W 38 for the Tunisian consumers) and this may be in part due to OOs from different countries being readily available in France. On the contrary, in Tunisia whereby OO is locally made and sold (for instance there are no imports), region of origin was deemed as more important (B-W 102 compared with B-W 14 for the French consumers) [31].

Additionally, a face-to-face survey investigating country of origin and region of origin labeling on Canadian consumer ($n = 207$) attitudes found that 81–86% of the Canadian consumers surveyed preferred Italian EVOO over Spanish EVOO. When comparing EVOOs with country of origin (Italy) information displayed versus region of origin information displayed, a greater percentage of Canadian consumers had a preference for the Italian origin EVOOs over the Italian region origin EVOOs (86% versus 70%) [32]. In a US-based study whereby consumers ($n = 102$) visually assessed EVOO labels as well as tasted the oils blinded ($n = 18$) and then indicated their liking and purchase intent for these oils, the results demonstrated that there was an increased liking for the oils when the labels were shown (without tasting) compared with when the oils were tasted blind ($p < 0.05$). Consumers were also prepared to pay more (up to \$30) when they were presented with the EVOO labels compared with tasting the oils blind. Furthermore, there was an increased preference for EVOOs labeled as originating from California as opposed to those labeled as imports ($p < 0.05$) [33]. A study in Japanese consumers ($n = 456$) who completed a survey found that country or region of origin information was

the second most considered attribute (with 37% of respondents noting this) when buying OO. Furthermore, the evaluation of OOs differed according to the country of origin information supplied on the label. For instance, these consumers rated their preference for Italian originating oils higher than Spanish and Tunisian olive oils [34]. Finally, similar findings were noted for a study conducted in Italian consumers ($n = 1000$) who completed a face-to-face survey. Geographic origin was the second most important attribute, with an average importance of 25%. Following geographic origin, protected designation of origin (PDO) was found to be an important attribute among those surveyed (19–24%) [12].

With respect to other aspects of labeling, Delgado and colleagues [33] noted that in their study containing US consumers ($n = 212$), whereby the consumers either visually assessed 18 EVOO labels or tasted the EVOO blind, EVOO labeling was significantly correlated with the expected intensity of the EVOO flavor. The authors hypothesized that olive cultivar labeling could partly explain this finding [33]. For example, EVOOs made with the Californian olive cultivars: Arbequina, Frantoio and Picual were expected to possess a stronger flavor whereas EVOOs made with the Californian Horiblanca and Mission olive cultivars together with EVOOs made with olive cultivar blends from various countries were expected to possess a milder flavor. In the same study, nutritional expectations based on labeling were also investigated. Imported EVOO blends and a Spanish EVOO were expected to be less nutritious compared with those from California, Italy and Chile ($p < 0.05$). A potential reason for this finding is that the imported OO blends were a generic brand, providing the perception that they were of lower quality [35], hence less nutritious. Moreover, the EVOO rated to contain the highest nutritional profile by 77% of the consumers included in the study was a Californian EVOO that contained organic certification on its labeling. The reason for this finding may be due to certain consumers having expectations of organic products containing higher nutritional value compared with their conventional counterparts [33]. In a meta-analysis of 20 studies by Del Giudice et al. [29], organic certification of EVOOs was found to positively influence consumers' willingness to pay.

Conversely in another study containing Italian consumers ($n = 60$) who evaluated eight EVOOs by tasting and other parameters, organic farming information did not influence liking of the OOs tested [22]. A similar finding was noted in a face-to-face survey study where the Italian respondents ($n = 1000$) noted that the method of production (organic versus traditional) was lower in importance (17–19%) than for other product attributes [11]. Thøgersen [36] has noted that the gap between intention and behavior is larger in Southern European countries with regard to organic foods. This may in part be explained by a higher degree of uncertainty and the lower availability of organic food in these countries. Finally, Delgado and colleagues [23] found that the awards an oil had and certification of quality were important factors influencing OO purchasing decisions for a portion of the US-based consumers ($n = 110$) who took part in this survey and tasting-based study.

In summary, origin information appears to exert a positive influence on OO liking and preference; however, the degree of influence appears to depend very much on the cohort of consumers investigated. As Grunert [35] explains, consumers may use region of origin knowledge to form a quality evaluation. In the case of repeat purchases of a product, region

of origin information may help to re-identify a product, the quality of which they found satisfactory—a process that may be most relevant when the product does not carry a strong brand. Origin information will have no effect on quality evaluations when consumers have no knowledge about the region of origin, when the quality of the product is not in fact experienced as desirable by the consumer and/or when we are dealing with trial (as opposed to repeat) purchases. Other types of labeling information also appear to have an influence on the consumer perceptions of OO to a varying degree across populations due to a variety of potential factors such as local experience, culture, monetary considerations, etc. It is vital for OO producers and marketers to understand their target consumer and tailor their OO labeling to contain information the consumer considers most important and responds most to.

3.2. Packaging

The appearance of a product has been noted to play an integral role in shaping consumer expectations and packaging specifically, has been identified as a key element of the marketing mix, adding interest to a product [33]. Packaging has become an important extrinsic quality cue which provides information not only about the food but also about brand image or lifestyle. Packaging also aids in product differentiation, helping consumers to choose the product from a wide range of similar products. A small number of studies have examined the influence of packaging on the perceptions, attitudes, liking and preferences for OO and these are discussed below.

Delgado and colleagues [33] found among the participating US consumers ($n = 212$) who either rated 18 EVOOs based on packaging alone or tasted the same oils in a blind manner, that hedonic ratings of the EVOOs were higher when assessed solely on the package compared to a blind tasting of the oils ($p < 0.05$). Furthermore, Californian EVOOs in clear or black bottles or those inside a box increased purchase intentions and the consumers also expected to pay more for the EVOO based on packaging alone. Previous research has noted that clear packaging is preferred by consumers [37] and in the US, darker colored packaging is associated with high quality, elegance and richness [38].

In a focus group study investigating UK consumers' ($n = 130$) attitudes towards key product attributes of OO, packaging was noted as an important determinant of OO purchase. The study's findings revealed a linear relationship between packaging and price, in that as the price increased, a higher quality packaging was expected. These consumers also highlighted that EVOO was expected to possess a superior bottle presentation, however interestingly this did not apply to more refined OOs. The use of plastic packaging was generally associated with cheaper cooking oils. Regarding the size of the packaging, participants preferred to purchase OO in smaller sized bottles (500 ml being the most popular) in comparison to other cooking oils [39]. Additionally, Delgado et al. [23] noted a preference for glass versus plastic bottle packaging among a portion of the US consumers ($n = 110$) they investigated. In this study, the consumers evaluated 22 EVOOs based on a number of parameters including packaging. Interestingly, previous research has demonstrated that glass packaging is perceived to hold high-quality products [39]. In an Italian study that involved the interviewing of 1000 consumers, those from central-north Italy preferred to purchase their EVOO in packaging of 500 ml

and 750 ml. However, consumers based in South Italy preferred to purchase EVOO in 1 l bottles and larger. This finding may be partly explained by the additional finding that Northern Italians preferred to buy bottled EVOO (70.4%) over bulk EVOO (20.4%). Whereas Southern Italians preferred to buy bottled EVOO to a lesser extent (59%) and bulk EVOO (35.3%) to a greater degree [11].

Conversely, a face-to-face survey study concerning a Tunisian cohort ($n = 300$) found that packaging had no influence on consumer choice of OO. This finding may be related to the fact that the majority of Tunisian OO consumers buy the product in bulk with very few purchasing bottled OO from supermarkets [10].

Although packaging presents as a quality cue and appears to be an influential factor with regard to OO expectations and preferences, the degree of influence appears to differ among varying populations due to factors such as country and cultural expectations. Creating packaging that meets the expectations of consumers is therefore important and may increase the likelihood of OO purchase. OO packaging specialists and marketers should pay special attention to the findings thus far and for the populations where research has not been conducted, collection of such data may be necessary prior to the creation of packaging for OO in differing markets.

3.3. Perceived health benefits

Non-sensory product factors such as the perceived health benefits of a food have been noted as an important driver of food choice [40]. The handful of studies investigating the influence of this extrinsic cue with regard to OO further supports this.

Santosa and colleagues [19] noted that awareness of OO's health benefits prompted most of the US consumers who participated in this study (either via a focus group ($n = 35$) or survey ($n = 178$)) to begin consuming this oil. Delgado et al. [23] found that of the US consumers ($n = 110$) who were included in their study which involved a tasting of EVOOs and completion of a survey, 74% of them noted that a main motivator for their consumption of EVOO was health benefits. In a focus group study containing UK-based consumers ($n = 9$), OO was noted as possessing a healthful image with a number of these consumers also noting its low saturated fat profile (even though only a few knew what this meant) [9]. Furthermore, another study investigating UK consumers ($n = 151$) via a questionnaire found that OO health considerations were found to be strongly correlated with the intention to use OO ($r = 0.5$) [20]. Finally, a study by Nielsen et al. [27] noted a common attitude of VOO being a 'healthy oil' among the British, Danish and French consumers ($n = 190$) who participated in the evaluation of seven OOs by interview.

From the findings of these aforementioned studies, it appears that a great proportion of consumers are aware of OO's health associations and it clearly presents as a cue of quality and driver for its use. This is not surprising given OO consumption is closely associated with the traditional Mediterranean diet that has a reputation of being health benefiting [3]. OO marketers can utilize this consumer awareness to further market the health-promoting properties of OO.

3.4. Price

Individual dietary choices can be partly influenced by the price of food [41, 42]. The handful of studies investigating the influence of price on OO perceptions, attitudes, liking and preferences supports such a finding.

Santosa et al. [19] noted among the US-based consumers who took part in a focus group ($n = 35$) or completed a survey ($n = 178$), price or cost of OO was one of the main factors affecting their OO purchases. Participants expressed the fact that they were satisfied with a higher price for an OO providing the oil was deemed of good quality. Furthermore, consumers expressed that if the oil was intended for personal use, how the OO was going to be used and consumed affected the price these consumers were willing to pay for the oil. For example, consumers wanted to purchase less expensive OO to be used in cooking, but were willing to pay more for OO to be used to dress salads and for dipping purposes.

In a study by McEwan [9], whereby UK consumers ($n = 9$) took part in a focus group, price was also found to be a primary factor for OO purchase. The consumers in this study tended to purchase smaller volumes of OO as they were lower in price compared with larger volumes, but they also generally felt that cheaper oils were more likely to be inferior in quality compared with more expensive OOs. Similarly, a study investigating Japanese consumers ($n = 456$) who completed a survey found that a significant portion of those surveyed (77%) cited price as being the most important attribute when buying OO [34]. A study in an Albanian cohort ($n = 204$) who participated in a face-to-face survey also noted price to be among the most important attributes in terms of OO choice [43]. In a focus group-based study containing UK users of OO ($n = 130$), price was determined to be an important factor for choice and purchase of the more refined OO but the same was not found for the higher quality EVOO. The consumers in this study felt that although EVOO was the most expensive oil, it presented as better value for money [39]. An Italian face-to-face survey study ($n = 1000$) also found price to be a leading factor for EVOO choice, with 31–39% of the surveyed population choosing this factor as the most important attribute when choosing EVOO [11].

Moreover, in a study investigating French and Tunisian consumers ($n = 251$) who completed a survey, although price was identified as an important attribute for both populations, it was particularly important for the Tunisian consumers. As financial constraints are more prevalent among the Tunisian population compared with the French population, this may partly explain the difference observed [30]. These findings were also mirrored in another study investigating Tunisian consumers ($n = 296$) who undertook a face-to-face survey, whereby the authors noted a decrease in the likelihood of OO purchase as price increased [10]. Finally, a similar finding was highlighted in research conducted by Delgado and Guinard [23] where US consumers ($n = 110$) tasted and evaluated 22 EVOOs. Those with the lowest levels of income and education, made OO purchasing decisions based mainly on price.

Considering the evidence presented, price of OO appears to indeed be a quality cue. However, despite price appearing to be an influential factor with regard to OO purchase, financial constraints appear to impact the degree of influence. Price should therefore be a consideration for OO producers and marketers when tailoring OO products to differing markets.

4. Conclusion

Considering the worldwide growth of OO consumption over the past 20 years, an investigation into the intrinsic and extrinsic factors that influence OO perceptions, attitudes, liking and preferences is timely. The research conducted thus far demonstrates that there are clear population differences with regard to the degree of influence of the discussed intrinsic and extrinsic OO product attributes due to various factors including cultural and situational factors. An understanding of the factors that influence consumers' perceptions, attitudes, liking and preferences for OO will be of benefit to the OO sector. Olive growers, OO manufacturers, packaging specialists and marketers, etc. can utilize these insights to provide OO and information that meets and supports consumer needs and wants, thus helping to drive further growth in this sector particularly with regard to emerging markets.

Author details

Sara Cicerale*, Gie Liem and Russell S.J. Keast

*Address all correspondence to: sara.cicerale@deakin.edu.au

Centre for Advanced Sensory Science (CASS), Deakin University, Melbourne, Australia

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