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Understanding the Value of Health: Insights into Extra Virgin Olive Oil Consumer Behaviour in Southern Italy

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Abstract

The paper investigates the determinants of consumers' intention to pay a price premium for extra virgin olive oil with health claims on its label. Drawing on a multidimensional framework, the research explores the role of subjective and objective knowledge of the product, the importance attributed to the sensory attributes, the attention given to the health information, and the impact of socio-demographic variables on consumers' intention to pay. Data were collected via an online questionnaire administered to 405 consumers in Sicily (Italy), a region with a strong olive oil tradition. Using a logistic regression model, the results show that subjective knowledge, the importance attributed to health information, average expenditure for extra virgin olive oil, and household size significantly affect the willingness to pay. Conversely, flavour profile and objective knowledge do not have a statistically significant impact. These findings offer practical implications for extra virgin olive oil producers and marketers, highlighting the need for clear health-related labelling and targeted educational strategies to enhance consumer engagement and perceived value of the product with health claims on the label.

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Introduction

Extra virgin olive oil (EVOO) is a functional food known for its nutritional and health benefits, whose composition contributes to improving quality of life by reducing the risk of cardiovascular, neurological, and metabolic diseases (Rabail *et al.*, 2025; Serreli *et al.*, 2024). Its content of monounsaturated fatty acids, such as oleic acid, and polyunsaturated fatty acids, including omega-3 and omega-6, gives EVOO antioxidant and anti-inflammatory properties, which make it an essential food within the Mediterranean diet (Scoditti *et al.*, 2014). When these nutritional and functional properties are disclosed on packaging through “health claims”, they aim to inform consumers about the scientifically recognised health benefits of EVOO, establishing a link between olive oil consumption and its beneficial effects on health (Lombardi *et al.*, 2021). Despite the recognised importance of health claims, their diffusion in the EVOO market is still limited (Pichierri *et al.*, 2020). So far, very few empirical studies have investigated the influence of health claims on labels among EVOO consumers (Bou Fakhreddine *et al.*, 2023; Bou Fakhreddine & Sánchez, 2023; Lombardi *et al.*, 2021; Pichierri *et al.*, 2021). A study conducted in Italy showed that consumers often struggle to understand this information, with negative consequences for the perception of product quality and propensity to purchase (Lombardi *et al.*, 2021). Pichierri and co-authors (2021) investigated the influence of the clarity of health claims on the perceived healthiness of food products. They concluded that clearly presented health claims positively affect the intention to purchase olive oil, as well as influence the consumers’ propensity to share positive word-of-mouth about the product. In line with this perspective, Bou Fakhreddine and Sánchez (2023) investigated how health claims combined with the sensory attributes of extra virgin olive oil (EVOO) influence consumers’ purchase intentions. They demonstrated that perceptions of product quality and health benefits are the result of interactions between health claim text and sensory experience. This suggests that the purchase and consumption frequency of EVOO is associated with several factors, particularly subjective and objective knowledge of the product, consumer interest in health-related issues, and socio-demographic variables such as age, education level and marital status of the individual (Gámbaro *et al.*, 2013). In this regard, subjective knowledge refers to individuals’ self-perceived understanding and familiarity with EVOO, while objective knowledge indicates their actual level of accurate information about the product, typically assessed through factual questions (Flynn & Goldsmith, 1999). For example, Gámbaro and colleagues (2013) show that the consumer’s subjective knowledge about the product is the factor that most influences the frequency of olive oil consumption. Although prior research

has highlighted the role of health claims (Perito *et al.*, 2019; Pichierri *et al.*, 2021; Zanchini *et al.*, 2022), product knowledge (Donoghue *et al.*, 2021; Gámbaro *et al.*, 2013; Shaalan *et al.*, 2024), and sensory attributes in shaping consumer perceptions and intentions (Bou Fakhreddine & Sánchez, 2023; Vázquez-Araújo *et al.*, 2015), there is still a lack of comprehensive understanding of how these elements jointly affect consumers' intention and actual willingness to pay (WTP) a premium for EVOO with health claims.

With the aim of filling this gap, the research aims to understand how subjective and objective knowledge, organoleptic attributes, health information on the label, and socio-demographic characteristics influence the consumers' intention to pay a premium price for EVOO. The EVOO market is an ideal context to investigate purchasing dynamics and the role of health information in influencing consumer choice, given the growing market interest in the health benefits associated with the consumption of the product (Bou Fakhreddine & Sánchez, 2023; Lombardi *et al.*, 2021). Furthermore, the research focuses on the Italian market, where EVOO is a pillar of the agricultural economy. Italy is one of the world's leading producers of EVOO, with a production for the year 2023 exceeding 328 thousand tons and generating a turnover of more than €4 billion, with a market characterised by high quality, a strong presence of appellations of origin (PDO and PGI) and a rich varietal heritage that confers uniqueness to regional products (ISMEA, 2024). The study focuses on Sicily, a region with a long-standing olive oil tradition, where EVOO plays a central role in both the local economy and dietary culture (Hilton, 2023). In particular, Sicily was selected as the research context due to its strong olive oil heritage, the high number of PDO and PGI designations, and the presence of distinctive local cultivars that contribute to the perceived quality and cultural relevance of Sicilian EVOO in both the regional economy and dietary practices. In general, EVOO is not only important economically, but also holds a central place in Italian food culture and traditions. It is an essential element of the Mediterranean diet and is deeply rooted in Italian families' consumption habits (Lanfranchi & Giannetto, 2012).

To the best of our knowledge, this is the first study to examine in depth the factors that influence consumers' willingness to pay a premium price for EVOO with health claims. The study takes a multidimensional approach, considering cognitive factors, sensory characteristics and socio-demographic dimensions. From a managerial point of view, the findings offer practical implications for EVOO producers and retailers, supporting the development of more effective communication strategies, the design of clearer health-related labelling, and the creation of targeted promotional campaigns for specific consumer segments.

1. Background

The growing consumer focus on food products with health claims has encouraged research into the factors affecting consumers' purchasing decisions. Among these, particular attention has been paid to the role of consumer knowledge, both objective and subjective, of EVOO, as well as to the importance attributed to its sensory characteristics and the influence of health information provided on the label. Understanding how these elements interact provides key insights into what drives consumers' intention to pay a premium price for EVOO with health claims on the label.

1.1. Consumer knowledge about olive oil

One of the crucial factors influencing the choice of agri-food products is the consumer's level of knowledge about the product (Galati *et al.*, 2019; Rai *et al.*, 2024), which can be distinguished into objective and subjective knowledge (Donoghue *et al.*, 2021; Mustapa *et al.*, 2025; Pieniak *et al.*, 2010). Objective knowledge refers to accurate information stored in memory that enables consumers to recognize and evaluate product attributes (Gámbaro *et al.*, 2013), whereas subjective knowledge reflects consumers' perception of how much they believe they know about the product (Gámbaro *et al.*, 2013). Several studies have shown that when consumers know more about the product, they place a higher value on the product's characteristics, increasing their intention to buy (Donoghue *et al.*, 2021; Mustapa *et al.*, 2025). In particular, subjective knowledge appears to exert a greater effect, as it directly influences perceived product quality (Donoghue *et al.*, 2021; Mustapa *et al.*, 2025). Similarly, a recent research confirms that greater subjective knowledge improves consumers' ability to distinguish between different commercial EVOO qualities using accurate sensory descriptors (Hodos *et al.*, 2025). This knowledge thus translates into a more informed assessment of product quality (Hodos *et al.*, 2025). Consistently, Lombardi *et al.* (2021), analysing the factors affecting the understanding of health claims in EVOO among Italian consumers, argue that subjective knowledge, concerning nutritional aspects, significantly influences the understanding of health claims. This suggests that consumers who perceive themselves to have a high level of knowledge about nutrition and health issues demonstrate a better understanding of such claims (Lombardi *et al.*, 2021). Similarly, Zanchini *et al.* (2022) found that subjective knowledge is positively correlated with health awareness and WTP for polyphenol-enriched EVOO, indicating that perceived understanding of the product enhances the perceived value by consume. The role of knowledge is also investigated by Gámbaro and

co-authors (2013) in relation to olive oil consumption among consumers in Uruguay. The authors show that individuals with higher subjective knowledge about olive oil and its health benefits tend to consume it more frequently. It also demonstrates that an increase in subjective knowledge could lead to an increase in consumption frequency, both among those who already habitually consume olive oil and among less frequent or new consumers. Nevertheless, Recchia and co-authors (2012), examining the role of consumers' subjective knowledge and perception of EVOOs in Finland, show that consumers' perception and subjective knowledge do not always necessarily guarantee greater acceptance of high-quality oils, suggesting that subjective knowledge does not always translate into more sophisticated sensory evaluation.

In relation to consumers' objective knowledge of olive oil, it is frequently observed that this is lower than the level of self-reported knowledge (Shaalan *et al.*, 2024). For example, Shaalan *et al.* (2024), studying the knowledge of olive oil and its benefits among Lebanese consumers, found low knowledge of the product and the need for educational campaigns that could influence their purchasing decisions. This aligns with Guedes de Melo *et al.* (2021), who demonstrated that consumers often do not understand key technical aspects of EVOO quality, such as the definition of "extra virgin" or the meaning of acidity levels, limiting their ability to make informed decisions based on labels. Not surprisingly, Garrido-Castro *et al.* (2021), after analysing the link between objective knowledge and consumer involvement in oil purchase, find that more objective knowledge could increase interest and propensity to purchase. Polenzani *et al.* (2020) highlight that consumers' perception of EVOO sustainability is positively shaped by their objective knowledge and direct exchanges with producers, underscoring the influence of knowledge on environmentally and socially responsible purchasing behaviour. Furthermore, dos Santos *et al.* (2023) demonstrate that after brief sensory training, consumers were able to discern EVOO's sensory attributes comparably to trained panelists, indicating that objective knowledge is not only learnable but also essential for enhancing product evaluation and appreciation.

In light of the above, this study explores the following hypothesis:

- H1a. Increased subjective consumer knowledge about EVOO significantly influences the intention to pay a premium price for an EVOO with health claims.
- H1b. Increased objective consumer knowledge about EVOO significantly influences the intention to pay a premium price for an EVOO with health claims.

1.2. The role of intrinsic attributes in consumer choice

Knowledge of agri-food products and their quality attributes is a factor that influences consumers' evaluation of products, as well as their attitude, which is reflected in both purchase intentions and consumption. The olive oil consumer today manifests ever-increasing expectations and is increasingly attentive to product quality, basing his or her purchase intentions on the evaluation of product attributes (Cicerale *et al.*, 2016). In particular, this study focuses on the intrinsic attributes of EVOO that refer to the physical characteristics possessed by the product (Grunert, 2002). Some studies show that consumers attach more importance to the intrinsic attributes of EVOO (such as flavour, colour, and aroma) than to extrinsic attributes such as packaging or brand (Ben Ali *et al.*, 2022; Del Giudice *et al.*, 2015). This is particularly true in countries where EVOO is part of the food tradition, such as Italy and Tunisia, where purchase preferences are mainly driven by the sensory characteristics of the product (Pieniak *et al.*, 2010; Recchia *et al.*, 2012). Although the IOC (International Olive Council) considers the colour of olive oil as having no influence on the quality of the oil (IOC, 2005), several studies show that this attribute exerts a significant influence on consumer intention to buy EVOO. Di Vita *et al.* (2013) point out that Italian consumers attach great importance to colour, showing a preference for green over yellow shades, a tendency that is particularly marked in the South of the country. Similarly, Mtimet *et al.* (2013) and Ben Ali *et al.* (2022) note similar results among Tunisian consumers. Perito and colleagues (2019) further confirm the role of colour as a determining attribute in the qualitative assessment of oil by Italian consumers. Similarly, Ilak Peršurić (2020), analysing the consumption preferences of individuals in England and Germany, identifies colour as one of the main factors associated with perceived quality and product originality. Besides colour, flavour also plays a decisive role in the purchasing choices of EVOO consumers. In particular, it is defined as “the sum of all sensory properties (stimuli) of a food product perceived by the senses of taste and smell and by the tactile receptors in the mouth” (Carlucci, 2001). It encompasses taste, aroma, and aftertaste and it is an important determinant of EVOO consumer behaviour. Sensory attributes such as fruitiness, bitterness, and pungency directly impact consumer preferences and willingness to purchase. Studies show that consumers rate EVOO more highly and are more likely to buy it when they perceive the flavour as pleasant and harmonious (Ben-Hassine *et al.*, 2022; Bou Fakhreddine & Sánchez, 2023). Other studies have found that consumers from major producing countries, such as Spain, Italy and Tunisia, show preferences towards oils with a green fruitiness, spiciness and a more intense flavour (Di Vita *et al.*, 2013; Mtimet *et al.*, 2013; Ben Ali *et al.*, 2022), while US consumers are more likely to purchase sweeter, “rounder”

and less savoury oils (Vázquez-Araújo *et al.*, 2015). The differences noted between the several consumer categories can be partially attributed to their different degree of exposure to olive oil and its quality. The first category of consumers is characterised by a daily consumption of olive oil produced in their country of origin, while the second consumes mainly imported oils that may have a reduced quality (hence less bitterness and spiciness) due to multiple factors that would lead to a series of defects in the product to which the consumers themselves are accustomed (Cicerale *et al.*, 2016; Delgado & Guinard, 2011). Furthermore, flavour appreciation seems to strengthen the overall perception of value of the product and may contribute to amplifying the positive effect of health information on the label. When the organoleptic profile is considered satisfactory, in fact, the health message conveyed by health claims may be more credible and effective, positively influencing consumers' propensity to purchase (Bou Fakhreddine & Sánchez, 2023).

In light of the above, therefore, the following hypothesis was formulated:

- H2. Consumers who attach more importance to the aromatic profile and flavour of EVOO are more likely to pay a premium price for an EVOO with health claims.

1.3. *Impact of health information on the label*

Health claims represent key communication tools to influence the consumers' purchasing behaviour of olive oil (Pichierri *et al.*, 2020). Several studies highlight how labels with clear health claims positively affect olive oil consumers' perception and purchase intention (Perito *et al.*, 2019; Pichierri *et al.*, 2020, 2021). On the contrary, Boncinelli *et al.* (2017), in a research conducted among Italian EVOO consumers, find that respondents attribute a marginal role to the presence of health claims on the label in their purchase choices compared to attributes related to the product's origin and organic certification. Consistent with this, De Gennaro and colleagues (2021), exploring the importance of health claims in Italian consumers' choice of EVOO, found that consumer interest in health claims in EVOO plays a secondary role and this result could be related to consumers' lack of understanding and familiarity with health claims on olive oil labels (De Gennaro *et al.*, 2021). A recent study, in fact, shows that not all consumers fully understand the health claims on the label, finding that only 36% of Italian consumers are able to correctly interpret health claims on EVOO (Lombardi *et al.*, 2021). More specifically, Lombardi *et al.* (2021) point out that in Italy, consumers who are older, have children in their families and perceive themselves to have a lower health status better understand health information and health messages on labels. Similarly, Perito and co-authors (2019), addressing the issue of health claims in the context of Italian

consumer preferences for EVOO, point out that the presence of health claims on the label positively influences consumer preferences, especially for those who are more attentive to product quality. Furthermore, Bou Fakhreddine *et al.* (2023) highlight that interest and WTP for health claims in EVOO increases when there is a high perception of health risk among consumers. In addition, Bou Fakhreddine & Sánchez (2023) find that, in the presence of health claims on the label, consumers also evaluate the sensory attributes of EVOO more positively and this contributes to improving the intention to purchase the product. The effectiveness of the information on the label would also depend on how it is presented. In line with this, the study by Pichierri and colleagues (2021) analyses how clarity in the wording of health claims positively influences the perception of the healthiness of EVOO, with a positive impact on purchase intention and the propensity to share positive word-of-mouth about the product. Zanchini and co-authors (2022) show that the value assigned by consumers to health-related nutrition claims on the label positively affects the premium price of olive oil with functional properties, highlighting the potential role of health claims on the label. Furthermore, Casini *et al.* (2014), investigating the WTP for higher prices for Italian consumers sensitive to health claims in EVOO, find that respondents exhibit high WTP. More precisely, consumers would be willing to pay €6.02 more for the presence of functional product claims on the label, €4.89 for the presence of disease risk reduction claims, €2.41 for nutritional claims related to EVOO. Furthermore, the authors identify two consumer segments that are most interested in the presence of health claims on EVOO labels. The first group is made up of young, male consumers who are interested in buying affordable products that show detailed information on the positive effects of the product on the label. The second group, on the other hand, is made up of elderly people who prefer products in a high price range and who present health information on the label that emphasises the product's ability to reduce disease (Casini *et al.*, 2014).

In view of the above, this study explores the following hypothesis:

- H3. Consumers who attach more importance to the presence of health information on the label are more likely to pay a premium price for EVOO with health claims.

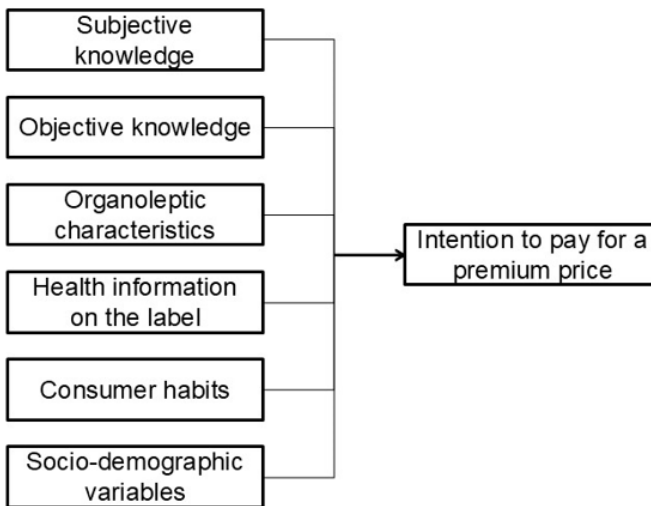
1.4. Conceptual model

The proposed conceptual model is based on the assumption that the intention to pay a premium price for EVOO bearing health claims on the label is the result of the interaction between different cognitive, sensory, informational and socio-demographic factors. Specifically, the aim of the research is to explore how subjective and objective knowledge of the product,

the perception of organoleptic characteristics such as aroma and flavour profile, the presence of health information on the label, consumption habits and some socio-demographic variables contribute to shaping the consumer's propensity to recognise an additional economic value in the product.

The model is configured as a multidimensional framework, aimed at integrating the main determinants of consumer behaviour with respect to EVOO with health claims. As depicted in Figure 1, the proposed framework allows for the empirical verification of the effect of the single independent variables on the intention to pay a premium price for health claims on EVOO's labels, thus offering a contribution to the understanding of the dynamics that drive health claim-oriented purchasing decisions in the EVOO market.

Figure 1 - Conceptual model. The model illustrates the hypothesized relationships between subjective and objective knowledge, the importance attributed to sensory attributes, health information on the label, socio-demographic characteristics, and consumers' intention to pay a premium price for EVOO with health claims



Source: Authors' elaboration.

2. Materials and methods

2.1. Data collection and questionnaire

The empirical investigation was conducted by distributing an online questionnaire to a sample of Italian consumers residing in Sicily. This is an

Italian region with a strong tradition linked to olive oil culture (Hilton, 2023). This makes it possible to obtain particularly relevant data on preferences and consumption habits in a context where olive oil plays a central role in the local diet and economy. Prior to distribution, the questionnaire was pre-tested to check the degree of comprehension of the questions and to identify any potential errors in the wording of the questions. This modification enabled the questionnaire to be revised in its initial form and subsequently finalized. The questionnaire was distributed through the main social networks (Facebook, Instagram and WhatsApp) between December 2023 and February 2024, using the snowball sampling method. This chain sampling method, in which initial participants share the questionnaire with their contacts, allows for rapid data collection but may introduce selection bias and limit sample representativeness (Atkinson & Flint, 2001; Noy, 2008). Indeed, this approach has been demonstrated to facilitate the recruitment of larger sample sizes, which has the potential to increase statistical power in specific contexts (Emerson, 2015).

The survey yielded 410 responses. After careful analysis, five questionnaires were excluded from the analysis due to incomplete or clearly illogical responses. Therefore, the analysis is based on data from 405 respondents residing in Sicily, who are aged 18 and over. The socio-demographic characteristics are presented in Table 1.

The data collected show that the study sample is not statistically representative of the target population. Respondents have a higher level of education and income, and larger household sizes compared to regional and national averages (IISicilia, 2022; Macchi, 2024, 2025). These deviations are likely influenced by the sampling method adopted, which may have attracted digitally literate, higher-income, and health-conscious individuals. While this limits the generalisability of the results, the findings offer strategic guidance for firms operating in premium markets, where consumers are typically more educated, health-conscious, and willing to pay a premium for added value products such as EVOO with health claims. Furthermore, while the sample is geographically limited to Sicily, the results may also be relevant to broader Southern Italian contexts, as Sicily shares many socio-economic indicators with other regions in the South of Italy. These include lower average income levels, higher household sizes, and a strong cultural attachment to olive oil consumption. Therefore, the insights gained from this study may support the development of targeted marketing strategies and health communication efforts in Southern Italian markets, where regional identity and product authenticity play a central role in consumer choices.

Table 1 - Socio-demographic profile of respondents

Variables	Categories	Frequency	Percent (%)
Age	18-34 years	171	42.2
	35-54 years	113	27.9
	55-74 years	118	29.1
	≥ 75 years	3	0.8
Gender	Male	191	47.2
	Female	213	52.8
	Other	1	0.3
Education	High school	7	1.7
	Secondary school	102	25.2
	University	249	61.5
	Post university	47	11.6
Average monthly income	1500 €	56	13.8
	1501-2000 €	101	24.9
	2001-3000 €	89	22.0
	3001-4000 €	68	16.8
	>4000 €	91	22.5
Number of household members	1	57	14.1
	2	80	19.8
	3	84	20.7
	4	184	45.4
Distribution of the 405 consumers surveyed in Sicily by age, gender, education, income, and household size.			

The questionnaire is structured in four sections and consists of a total of 25 questions.

The first section includes a series of questions aimed at understanding olive oil purchasing and consumption habits. Seven questions were used to investigate the importance that consumers assign to product quality attributes that influence their purchases, based on extant literature (Chrysochou *et al.*, 2022; Cicerale *et al.*, 2016). Four questions were about the aspect of the olive oil, such as its green or yellow colour, clarity, and opacity. The remaining three questions focused on its taste, specifically its fruity, bitter, and spicy qualities. These items were evaluated using a Likert scale, ranging from 1 (not at all important) to 5 (very important). Subsequently, a composite

variable was generated to represent the overall importance attributed to the three taste-related items (fruity, bitter, and spicy qualities). Internal consistency of these items was assessed through Cronbach's α reliability (Cronbach, 1951). According to literature, the scale reliability is generally considered satisfactory when Cronbach's $\alpha > 0.70$, although values between 0.60 and 0.70 may still be regarded as acceptable for exploratory research (Kline, 2023).

The second section includes questions aimed at understanding the level of objective and subjective knowledge of olive oil. Objective knowledge was measured using a scale with six items related to some beneficial properties of olive oil for human health. The proposed scale included answers of the type "True", "False", "I don't know". Furthermore, the inclusion of the response option "I don't know" for each statement was aimed to obtain greater precision regarding an individual's actual knowledge about the product, avoiding the random component associated with forcing an answer from the respondent. The number of correct answers (0-6) provided by each respondent was used as an indicator of objective knowledge (Gámbaro *et al.*, 2013). Subjective knowledge of the characteristics of olive oil was measured using a Likert scale from 1 (not at all agree) to 5 (fully agree) by administering five statements obtained from the adaptation of the work conducted by Gámbaro *et al.* (2013) and Salazar-Ordóñez *et al.* (2018). Furthermore, consumers' attentiveness to the importance of the health aspects of food products for consumption habits was analysed. For this purpose, a Likert scale from 1 (Not at all agree) to 5 (Fully agree) was used, which we adapted from the general health interest dimension from the validated scale developed by Roininen and colleagues (1999). Both objective's and subjective' knowledge items were used to generate composite variables to be assessed through Cronbach α 's reliability. In doing so, the "I don't know" option was coded as "0", equal to the incorrect answers, in order to maximize the variable reliability. While this option may be useful for providing greater detail in the sample, for the purposes of the econometric model, this difference is deemed irrelevant, because the variable is intended to capture the actual level of knowledge.

The third section of the questionnaire includes two questions. The first was aimed at assessing consumers' intention to pay a premium price for EVOO with health information on the label. The second question invited respondents to specify the exact amount they were willing to pay above the standard price, providing a quantitative measure of their valuation of these health attributes.

The fourth and final section gathers information to profile the respondent, focusing on socio-economic characteristics such as gender, age, education

level, income, and household size. These variables are essential both for describing the sample and for inclusion in the econometric analysis, allowing the study to examine how socio-demographic factors influence the purchase intentions.

2.2. Empirical approach

In order to investigate the main factors affecting the intention of consumers to pay a premium price for a bottle of EVOO bearing a label with health claims, we performed a logistic regression. Logistic regression, or the logit model, belongs to a class of statistical models used when the dependent variable is discrete and dichotomous, i.e. it can only take on values of 0 or 1. The objective of logistic regression is to determine the extent to which an independent variable, or regressor, has an effect on the probability of the dichotomous dependent variable taking on a value of 1 (Gujarati & Porter, 2009). To assess consumers' intention, the questionnaire included a question with a dichotomous answer option in which respondents were asked whether in a hypothetical purchase scenario, given the average price of € 9.00 for 0.75-litre bottle of EVOO, they would be willing to pay an additional price if health claims were present on the label. The answers were coded by assigning a value of 1 if the answer given was "Yes" and 0 in the opposite case. Subsequently, with the help of the statistical software Stata/IC 15.1, a logit model was developed using the above-mentioned intention to pay as the dependent variable.

The logit model was built using nine regressors, selected based on relevant scientific literature on consumer behaviour and WTP for EVOO with health information on the label.

All variables were subjected to data quality verification and coding consistent with the requirements of the logit model. The combination of cognitive and socio-demographic factors has allowed us to build a multidimensional interpretative framework, useful for understanding the mechanisms underlying the WTP for EVOO with health claims.

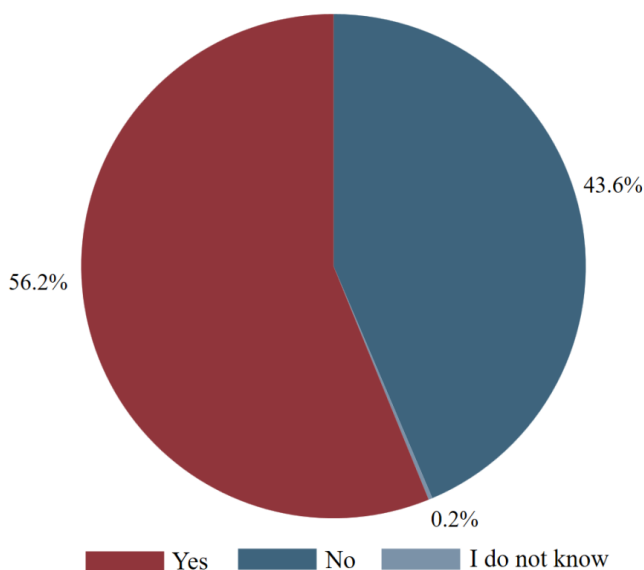
To assess potential multicollinearity among the explanatory variables, the Variance Inflation Factor (VIF) was computed. Although the VIF is formally defined within the framework of linear regression, it is commonly used in logistic models as an approximate diagnostic tool (Senaviratna & Cooray, 2019). In logistic models, values of VIF exceeding 2.5 generally indicate moderate correlation, while values above 5 or 10 are cause for concern.

3. Results and discussion

3.1. Consumers' purchase intention and WTP for EVOO with health claims

Figure 2 shows that 43.6% of the sample ruled out the intention to purchase EVOO with health-related information on the label, while 56.2% of the respondents indicated their intention to purchase in the future EVOO marketed with health claims. Only one individual was hesitant about this possibility. The results thus confirm the attention on the part of consumers towards health attributes in agri-food products, specifically in the case of EVOO (Bou Fakhreddine & Sánchez, 2023; Casini *et al.*, 2014). Furthermore, it would seem that consumers, who are increasingly informed and aware of their health, tend to prefer foods that can contribute to physical well-being. This evidence reflects an important shift in consumer behaviour, particularly among those who are increasingly health-conscious and attentive to the functional role of food in disease prevention. It supports previous findings that health-related attributes are becoming a key decision factor in the food sector (Bou Fakhreddine *et al.*, 2023; Bou Fakhreddine & Sánchez, 2023; Casini *et al.*, 2014). The fact that over half of the sample positively evaluates the inclusion of health claims on EVOO labelling reinforces the idea that

Figure 2 - Consumers' intention to pay a premium price for EVOO with health claims



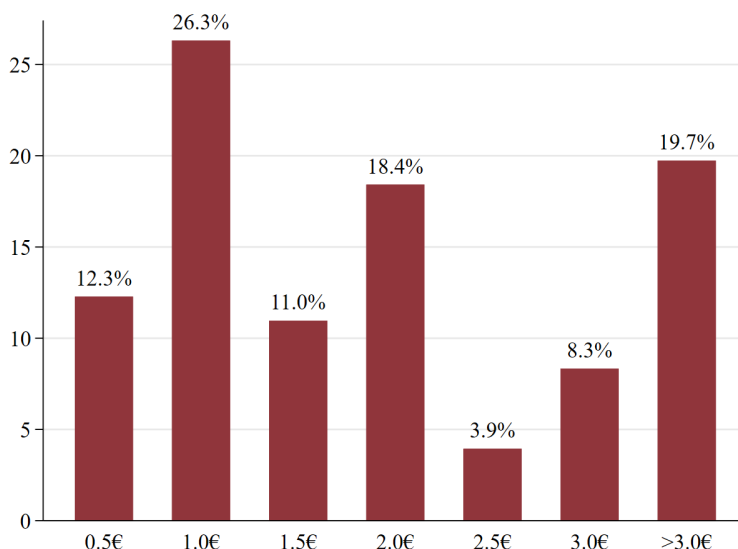
consumers are not only receptive to such information, but actively use it to guide their choices. In this respect, Casini and colleagues (2014) highlight that those who are interested in purchasing EVOO for its positive effects on health and its ability to reduce diseases show a greater propensity to purchase EVOO with health claims on the label. In this context, transparency and clarity of information on product labelling become essential to enable consumers to make informed choices, as suggested by Lombardi *et al.* (2021).

Within the framework of the intention to purchase for EVOO with health claims on the label, an attempt was made to quantify the premium price that consumers are willing to pay, assuming an average sale price, in Sicily, of €9.00 for a 0.75-litre bottle of EVOO. In particular, the WTP was determined on the basis of the answers given by the respondents who had not excluded the possibility of purchasing EVOO with health claims on the label in the future, i.e. 228 individuals, representing 56.2% of the total number of consumers interviewed. The most relevant results, presented in Figure 3, show that the largest share of the respondents, i.e. 26.3% of the respondents, declared that they would be willing to pay one euro more than the average expenditure, 19.7% of the respondents would be willing to pay more than €3, while 18.4% would pay a premium price of €2. These findings indicate a substantial segment of consumers who recognize the added value of health claims and are willing to reflect this appreciation in their purchasing behaviour. Notably, nearly one in five respondents intending to buy EVOO with health claims are willing to pay more than 30% above the market average, underscoring the strong market potential for value-based pricing strategies centered on health-related product attributes. These results align with previous studies, which have demonstrated that health claims on EVOO labels positively influence consumer preferences and WTP – especially among consumer groups that place greater emphasis on product quality (Perito *et al.*, 2019) and health considerations (Bou Fakhreddine *et al.*, 2023). In support of this, Casini *et al.* (2014) quantifies this effect, demonstrating that Italian consumers are willing to pay up to €6 more for EVOO with functional health claims. In light of this, these findings support the idea that the observed WTP in the present study is not an isolated phenomenon, but reflects a trend in health-driven purchasing behaviour for EVOO.

This WTP for a premium must be interpreted in light of the income levels reported in the sample, which, as previously observed, tend to be higher than the average of the Sicilian population. Therefore, the observed WTP values could reflect the purchasing attitudes of a segment of the Sicilian population with a higher income. Nonetheless, the results are significant if contextualized in the Southern Italian market, where EVOO is not only a fundamental element of the food tradition, but also a culturally rooted product. Despite the low income levels in Southern Italy, the strong cultural attachment to olive oil and the growing awareness of health issues could

encourage a segment of consumers, especially the more educated and economically stable ones, to purchase premium EVOO products. This implies that there are opportunities for health-oriented market segmentation even in low-income regions, provided that product positioning is aligned with both cultural expectations and perceived health benefits.

Figure 3 - Premium price to purchase EVOO with health claims



3.2. Econometric model

Findings show that Cronbach's α values indicate good reliability of the items included in the model. Indeed, the Cronbach's α for flavour importance is good, with a value of 0.792. Objective knowledge's reliability is discrete, with Cronbach α equal to 0.681. Finally, subjective knowledge's reliability is good, with Cronbach's α value of 0.924.

Table 2 shows the results of the logit model on consumers' intention to pay a premium price for an EVOO whose label carries health claims. The econometric analysis provides information on the effect of exogenous variables on consumers intention. The results show that there are four variables with a significant effect: subjective knowledge, health information, average usual expenditure and number of household members. The model's Pseudo R-squared (0.083) indicates a modest yet meaningful improvement over the null model, consistent with values typically observed in behavioural and consumer research. Table 3 shows the VIF values,

which indicate the absence of significant multicollinearity between the independent variables.

The positive and statistically significant coefficient of subjective knowledge suggests that consumers who on average feel they have more product knowledge than other individuals are more likely to pay an additional price for having health claims on the label. This confirms hypothesis H1a, according to which increased subjective knowledge about EVOO significantly increases the intention to pay a premium price for an EVOO with health claims. This result is consistent with several contributions from the literature. In particular, Lombardi *et al.* (2021) show that subjective knowledge about nutrition and health issues significantly improves consumers' understanding of health claims on EVOO labels. This implies that consumers who believe they are informed about nutrition and health are better equipped to interpret and trust the health benefits communicated on food labels, increasing in this way their purchasing choices towards such claims. Similarly, Zanchini *et al.* (2022) demonstrate that subjective knowledge is positively associated with health awareness and the purchase of polyphenol-enriched EVOO, suggesting that consumers' perceived understanding of a product enhances the value they attribute to it. In this context, subjective knowledge acts not only as a cognitive construct but also as a motivational factor that reinforces health-oriented behaviours and premium purchasing. This result coincides with the findings of Gámbaro and colleagues (2013), who found that individuals who consume more olive oil are generally those who perceive to have a high level of knowledge about the oil and its positive health effects. Consequently, such awareness would drive purchase and the intention to pay a premium price for having health claims on the label.

The coefficient associated with objective knowledge was not statistically significant, indicating that this variable does not influence the intention to buy EVOO with health claims. For this reason, hypothesis H1b is not supported by the model results. This evidence is consistent with findings that objective knowledge among consumers is generally low, limiting their ability to interpret technical or health-related information (Shaalan *et al.*, 2024; Guedes de Melo *et al.*, 2021). Nonetheless, other studies suggest that increasing objective knowledge can increase involvement, interest, and purchasing behaviours (Garrido-Castro *et al.*, 2021; Polenzani *et al.*, 2020). It is important to note that dos Santos *et al.* (2023) show that with even brief sensory training, consumers can meaningfully improve their evaluation skills, suggesting that objective knowledge can become impactful if supported by education.

Contrary to expectations, the variable related to the importance attributed to the flavour profile of EVOO was not statistically significant. Consequently, hypothesis H2, according to which consumers who attach greater importance to the flavour of EVOO show a higher intention to pay a premium price for an EVOO with health claims, was not confirmed by the results of the logit

model. This contrasts with previous empirical findings showing that flavour is an important sensory attribute influencing EVOO purchasing decisions, particularly in producing countries where consumers favour intense profiles like bitterness and pungency (Di Vita *et al.*, 2013; Ben Ali *et al.*, 2022; Vázquez-Araújo *et al.*, 2015). However, the result suggests a distinct cognitive separation between sensory appreciation and health value. More precisely, while flavour contributes to product satisfaction and preference, it may not directly affect the intention to pay for health claims. This could be due to consumers evaluating flavour and health as separate dimensions. The current findings imply that health-oriented value perception operates independently from flavour preferences.

Concerning the presence of health information on the label, the results demonstrate that the respondents who prefer the presence of health claims on the label are those who are most sensitive to the health benefits of the product and who would be willing to pay a premium price to purchase bottles of EVOO that have clear health benefit information. In this context, health claims would act as key communication tools influencing consumer choice (Pichierri *et al.*, 2020), especially when they are clearly formulated and easily understandable (Pichierri *et al.*, 2021). Zanchini and co-authors (2022) also point out that consumers who attach greater importance to health claims are precisely those who are willing to pay a premium price to buy an olive oil that has health benefits. Furthermore, Perito and colleagues (2019), addressing the issue of health claims in the context of Italian consumer preferences, show that those who are more attentive to product quality are more likely to choose olive oil characterised by the presence of health claims on the label. This result confirms hypothesis H3, according to which consumers who attach more importance to the presence of health information on the label show a more likely intention to pay a premium price for EVOO with health claims.

The coefficient of the variable “Usual expenditure” was positive and statistically significant. This suggests that consumers who spend a higher amount on average in their usual expenditure on olive oil have a more favourable intention to pay an additional price for health information on the label. This result indicates that those who already invest more in EVOO may perceive greater value in products that offer additional health benefits, likely due to a stronger orientation toward quality, well-being, and informed consumption. These consumers may also be more inclined towards premium products and therefore more responsive to added-value attributes such as health claims.

Finally, the variable associated with the number of individuals within the household was also found to be statistically significant and positive in sign. This evidence highlights that large households, in which children are likely to be present, would be the most sensitive to having health claims on the label and would therefore be willing to pay a premium price. Not surprisingly,

Lombardi and colleagues (2021) suggest that more adult consumers with children in the household and who perceive themselves to have a lower health status are those who are more attentive to health information in olive oil and are more able to understand the health messages on the label.

*Table 2 - Logit model for intention to pay a premium price for EVOO with health claims; Significance level .10, .05, .01 respectively indicated by *,**,****

Independent variable	Coef.	St.Err.	p-value
Subjective knowledge	0.270	0.118	0.022**
Objective knowledge	-0.222	0.441	0.614
Importance flavour	0.067	0.119	0.573
Health information	0.289	0.093	0.002***
Usual expenditure	0.548	0.228	0.016**
Gender	0.244	0.226	0.279
Education level	0.155	0.104	0.139
No. of household members	0.223	0.101	0.026**
Age	0.000	0.008	0.977
Constant	-3.343	0.878	0.000***
Pseudo R-squared		0.083	

Coefficients, standard errors, and significance levels of the independent variables. Significant predictors include subjective knowledge, health information, expenditure, and household size.

Table 3 - Values of Variance Inflation Factor

Independent variable	VIF
Subjective knowledge	1.93
Objective knowledge	1.42
Importance flavour	1.60
Health information	1.19
Usual expenditure	1.08
Gender	1.10
Education level	1.05
No. of household members	1.08
Age	1.26
Mean VIF	1.30

Conclusions

This study analysed consumers' intention to pay a premium price to purchase EVOO with health claims on the label. The results showed that subjective knowledge of the product, perception of health information on the label, average expenditure for the purchase of EVOO, and household size are the variables that most influence consumers' intention. That is to say that consumers who perceive more of the health value of EVOO, who search for products with health claims, who spend more on purchasing olive oil, and who have large households are more inclined to purchase EVOO with information on the label.

A number of theoretical and practical implications can be drawn from the survey findings. Theoretically, this study addresses a notable gap in the literature by exploring the combined effect of health claims, product knowledge and sensory attributes on consumers' intentions to purchase EVOO with a clearly labelled description of its health benefits. While previous research has examined these factors individually, their interaction remains underexplored, particularly in the context of EVOO. From this perspective, the study advances the theoretical understanding of the processes involved in consumers' decisions, highlighting the complexity of how health-related information interacts with product familiarity and sensory experience.

From a managerial perspective, these findings are particularly relevant for EVOO producers, processors, and marketers. First, the evidence reveals significant opportunities for market differentiation in the EVOO sector through the strategic use of health claims. Companies can leverage this insight to invest in innovation and labelling. Particular attention should be paid to the wording, to ensure it is easily understood. For instance, companies could consider adding brief health-related information to accompany the health claim (i.e. how EVOO polyphenols contribute to cardiovascular health). Second, the positive effect of subjective knowledge and label comprehension on consumers' intention suggests the need for integrated communication campaigns that go beyond branding to include nutritional education, storytelling, and digital engagement tools. Alongside health claims, this educational marketing can raise consumer awareness, reinforce brand trust. Third, the influence of household size points to a strategic opportunity to target family-oriented market segments, especially those with health-conscious consumers and children. Therefore, targeted marketing initiatives aimed at highlighting the benefits of EVOO consumption according to the Mediterranean diet for a nutrient-rich and balanced diet could significantly improve families' response to increased consumption of EVOO with health claims.

Despite the clear contributions of this research, it has some limitations inherent to its methodological design. Firstly, the study is based on a relatively small sample size which calls for caution when interpreting the results and generalizing them to the broader population. From this perspective, the results must be interpreted in light of the sample's socio-demographic profile. In particular, 61.5% of respondents hold a university degree, an unusually high proportion for Sicily, where educational attainment is among the lowest in Europe (Il Sicilia, 2022). Similarly, the average household size and the income levels exceed regional averages (Macchi, 2024, 2025). The high proportion of highly educated respondents with high incomes may have inflated the WTP measure. These data indicate a clear selection bias, likely due to the online snowball sampling method. The sampling method used and the way the questionnaire was administered led to the exclusion of older individuals who have limited access to social media, as well as those who tend to pay greater attention to the quality and origin of olive oil. Therefore, as external validation for the broader Italian population is not guaranteed, results should be interpreted as representative of a specific consumer segment: informed, educated Southern Italian consumers with above-average income and interest in food quality and health.

Given these limitations related to sample representativeness, future research should aim to broaden the geographic and socio-economic scope of data collection. A nationally representative sample of the Italian population would allow for more robust and generalizable conclusions, reducing bias from overrepresentation of educated and affluent individuals. Therefore, a stratified sampling strategy covering multiple Italian regions, including both Northern and Southern areas, would ensure that the sample is more representative and reduce the risk of bias compared to random sampling. Furthermore, this would allow a more comprehensive understanding of how regional disparities influence attitudes toward health claims and intention to pay for premium EVOO.

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