Factors that characterize oleotourists in the province of Córdoba

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Abstract

Oleotourism (olive oil tourism) is a new form of gastronomic tourism that satisfies increasingly challenging tourist demand, especially in the wake of the pandemic and for tourists who seek not only quality food products but also a safe environment to enjoy their chosen activity. Córdoba is a province in southern Spain where olives play a very important role, accounting for 50% of its cultivated area, and whose agricultural activity can be complemented with tourism due to its 189 oil mills that can welcome visitors for oil tasting. However, this type of tourism is not seeing an expected boom. This research analyzes, through a varimax analysis, the factors that attract and drive oleotourists as well as the components of such tourism. As a result, four principal components related to tourists and tourism offers were obtained, finding a high degree of satisfaction of oleotourist with the routes explored as well as a lack of knowledge of this type of tourism in international markets.

Introduction

The COVID-19 pandemic has been a turning point in tourism; not all tourism offers are adequate, and mass tourism is not as attractive as in previous decades. Safety has become a fundamental pillar when choosing a tourist destination, as has being in nature. In Spain, since 2020 when borders were closed, tourism activity, especially foreign tourism, was paralyzed in the months of April and May, decreasing from more than 83.5 million tourists in 2019 to 18.9 million in 2020; however, in 2021, this improved, reaching 24.8 million tourists through October 2021 [1]. Faced with this decline in foreign tourism, domestic tourism has taken up the slack but not at the same levels as two years ago.

National tourists have sought rural areas, with hotels and rural houses reaching 100% occupancy during holidays such as Constitution Day, Hispanic Heritage Day, Holy Week or Christmas, while occupancy in coastal areas barely reaches 25%.

This pattern of behavior reflects the fact that vacation habits are changing and that rural areas, if they want to take advantage of this new tourist trend, must offer unique products associated with the territory that combine nature, heritage, gastronomy and tradition, that is, an
enhanced tangible and intangible heritage of rural areas, among which quality agricultural products and customs or ways of cooking them are highlighted.

Spain is the leading olive oil-producing country in the world, generating 1.3 million tons in 2021 [2], and has 31 protected designations of origin (PDOs) located mainly in the south and east of the national territory, a designation that guarantees the quality of this product. By region, Andalusia has the most PDOs, with 14, followed by Catalonia with five and Castilla la Mancha with four. This food product, oil, is part of the Mediterranean diet included in UNESCO’s list of Intangible Cultural Heritage of Humanity in 2010.

Therefore, oil is not only a food product. Given its uniqueness, it has also become the basis of a new type of tourism called oleotourism, which can be defined as tourist and leisure activities and free time dedicated to the cultural discovery and enjoyment surrounding olive growing, the olive tree, oil and its territory that a person (the oleotourist) can engage in.

Oleotourism, according to Millán et al. [3], can be classified as a segment of gastronomic tourism, centered on a food product, while other authors classify it as an activity to be developed within rural tourism [4, 5] because it takes place mainly in a rural environment. Other researchers [6–8] classify it as special interest tourism (SIT) because it meets the needs of specific markets by focusing on multiple experiences and activities that are outside the scope of general interest tourism.

The aim of this study is to analyze the profile of olive oil tourists who visit PDOs in the province of Córdoba through a principal component exploratory factor analysis (EFA) and varimax rotation, as well as to determine the driving and attraction factors (push and pull) of oleotourism in this region.

Literature review. Oil as a tourist resource

The analysis of oleotourism has three pillars: oil, gastronomy and tourism.

Olive oil is a food product that is consumed almost everywhere in the world and constitutes an essential element in Mediterranean cuisine (it is considered one of the healthiest fats in the world; it has been shown, through scientific research, that its properties help reduce cholesterol and prevent cardiovascular diseases [9]).

However, no single type of oil exists; it can vary depending on the extraction process, acidity and other parameters determined by physical-chemical analyses in a laboratory (Commission Regulation (EEC) No 2568/91 of 11 July 1991 on the characteristics of olive oil and olive-residue oil and on the relevant methods of analysis), for example, smell and taste, and can be classified into the following types:

➢ **Extra virgin olive oil**: This type of oil is extracted exclusively by mechanical procedures and has a maximum acidity of 0.8%. The lower the acidity is, the higher the quality of the fruit and the olive oil produced. This type of oil, due to its smell and taste, is mainly used in salads.

➢ **Virgin olive oil**: This type of oil is extracted in the same way as extra virgin olive oil, with the difference that the degree of acidity is usually greater than 0.8% but does not exceed 2%. That is, virgin olive oil basically differs from extra virgin olive oil in that virgin oil has defects in taste or smell. It is suitable for consumption, and it is usually used more for cooking, especially stews and fried foods.

➢ **Lampante olive oil** is the juice from the worst quality olives, usually from the last olives of the season, collected from the ground or already in the fermentation process, resulting in an oil with an acidity greater than 2% and multiple defects, thus unfit for human consumption.
➢ Olive oil (refined + virgin): This type of oil contains a mixture of virgin olive oils and refined oils obtained from defective oils (lampantes) via chemical or thermal processes and has a maximum degree of acidity of 1.5%. This type of olive oil is usually tasteless and has lost a large portion of the organic compounds and natural antioxidants present in higher quality oils and is suitable for human consumption.

➢ Pomace oil: This type of oil contains a mixture of virgin olive oils and oils obtained by chemical processes from the solid residue of olives, called pomace, with a maximum acidity of 1.5%; this type of oil is suitable for human consumption.

The first two varieties of oils (extra virgin olive oil and virgin olive oil) are mainly used in Spanish cuisine, being highly appreciated internationally, among the 100 best chefs in the world in 2021 (Spaniards David Muñoz, ranked first, Andoni Luiz Aduriz, ranked third, and Joan Roca, ranked fourth [10]). With respect to restaurants, six Spanish restaurants are among the list of the 50 best in the world [11], two of which rank among the top 5 (Etxebarri, ranked third, and Disfrutar, ranked fifth). Therefore, Spain has good restaurants, good chefs and an excellent raw material, with the merging of these three factors being an element key to positioning Spain in the international scene as a quality gastronomic destination. In addition to Spain being part of the Mediterranean arc, where the best olive oil in the world is produced [12], and having more than 800 oil mills (where the olives are pressed to obtain the oil) that can be visited, a gastronomic and tourist product can be created that satisfies tourists’ desire for food and curiosity to learn the manufacturing process of foods.

The second pillar is gastronomy, which can be defined from two perspectives, i.e., as the set of knowledge and activities that are related to ingredients, recipes and culinary techniques and to its historical evolution and as a fondness for eating well, appreciating and enjoying good food and good restaurants. The third pillar is tourism, which comprises the travel and leisure activities carried out by a person outside their place of residence.

The intersection of these pillars, tourism, gastronomy and oil, gives rise to the concept of oleotourism. According to Henderson [13], the relationship between tourism and gastronomy can be grouped into four different lines of research: a) gastronomic tourism as a tool for the socioeconomic development of a specific destination; b) gastronomy as a tourism product; c) the relationship between gastronomy, tourism and the experience of demand; and d) the use of gastronomy as a tool for promoting and marketing a destination. The present research contributes to the line of research on the relationship between gastronomy, tourism and the experience of demand.

Apart from oleotourism, various English terms are used to link tourism to olive oil, such as agrotourism, olive oil tourism and olive-based agritourism.

Many studies focus on what motivates gastronomic tourists [14–17], as well as on gastronomy by country, e.g., France [18, 19], Italy [20], Portugal [21, 22], Croatia [23, 24] and Spain [25–27], or by products, e.g., wine [27–32], cheese [33–35], and Iberian ham [26–36]; however, there are fewer analyses of tourist offers [37–39] or demand forecasts [40–43]. In the case of oil, research on olive oil stands out. Studies that analyze the supply of olive oil include, Elias & Barbero [4], while studies that analyze the demand of olive oil include [4–65].

Tourism can be considered, in one of its many aspects, as a sociopsychological experience [66–70], although factors such as sociodemographic characteristics affect the behavior of tourists, other factors related to the subjective experience are emerging strongly to explain this complex process. In this context, motivation and satisfaction are two essential elements that determine individual behavior in the field of tourism.

A previous review of the literature on of tourists’ motivation reveals that people travel because they are “pushed” to travel for internal personal reasons or factors or because they are
“attracted” by the attributes of a destination [71–74]. Push factors are more related to internal or emotional aspects, such as, rest and relaxation, adventure, social interaction, or the desire to escape. Pull factors are linked to external, situational, or cognitive aspects, such as the attributes of the chosen destination, leisure infrastructure or cultural or natural characteristics. However, these attributes of a destination can reinforce push motivations [75].

Therefore, motivation has become a meta-concept that functions as a trigger for travel behavior and determines different aspects of tourism activity with respect to (1) the reasons for traveling or “the why,” (2) the specific destination or “the where”, and (3) the outcomes or general satisfaction with the trip [76].

The relationship between motivation and satisfaction has already been studied in tourism research from different perspectives and using different methodologies (see, for example, [77–80]), and applied studies have been carried out in different market sectors ([66, 81–86], among others).

In the research on gastronomic tourism, the most expert tourists in the subject (who chose gastronomy as the main reason for visiting a destination) are more satisfied than are tourists who chose gastronomy as a secondary reason to make the trip. Their hypothesis is that organized food tours work like a well-oiled machine. Gastronomic tourists have specific needs, and tour organizers know from experience what they expect and need. Gastronomic tourists know what to expect because their main source of information is personal, not commercial. Thus, the gap between the expectations and experiences of tourists is minimized. However, this is based more on speculation than research, and new and better data are needed to fully understand this difference in satisfaction between gastronomic tourists and general tourists.

Both the satisfaction of tourists in general and their intention to repeat a trip in the future are partially determined by their rating of the different attributes of the destination [87]. In this sense, many studies explore the performance of a destination through the analysis of tourist satisfaction in different aspects of the destination [75, 88–95]. In addition, research on loyalty to a destination indicates that one of the most decisive factors in a first-time visit by tourists to an area is their satisfaction with previous stays [75, 88, 89, 96–101].

Shuo, Yeh, Ryan, Chris, Liu, and Ge Maggie [102] use a stepwise logistic regression model with repeated visit as an endogenous variable and ratings as the explanatory variables. This stepwise regression revealed very high coefficients of determination, with an adjusted $R^2$ equal to 0.80. Conceptually, this indicates that only high satisfaction with a trip creates a strong intention to return for future visits.

**Oleotourism in the province of Córdoba**

Córdoba is a province in the Autonomous Community of Andalusia and is located in southern Spain. It is the second-highest olive-producing Spanish province, with 325,589 hectares cultivated and an oil production of 254,000 tons (Fig 1), which represents 12% of the world production, and the first in terms of organic oil production (Fig 2), with 8900 tons (2021–2022 season).

The vast expanse of olive groves and the 189 mills (factories where olives are pressed to produce oil) of the 850 that exist in Andalusia (Fig 3) have become potential tourist attractions since Paisaje Cultural del Olivar Andaluz (Cultural Landscape of the Andalusian Olive Grove) was chosen as a UNESCO World Heritage candidate, aiming for final inclusion in the General Assembly in the summer of 2023; this designation would boost gastronomic tourism; although this sector has grown [57], it has done so more slowly than expected.

The different olive grove associations as well as the Provincial Council of Córdoba have created eight olive oil routes traversing the province of Córdoba; these routes revolve around the four designations of origin for olive oil in the province (Baena Designation of Origin, the
oldest in Spain (1981), Montoro-Adamuz Designation of Origin, Priego de Córdoba Designation of Origin, and Lucena Designation of Origin) and combine the gastronomic product of oil with other destinations, such as the Torreparedones site in Baena, the Murcialagos cave, or nature tourism and sports.

However, oleotourism in Spain, despite the uniqueness and quality of the product in the Mediterranean Basin, has managed to attract only approximately 200,000 tourists, compared to the more than eight million gastronomic tourists who visit Spain mainly for gastronomy. Andalusia is visited each year by some 160,000 olive oil tourists and the province of Córdoba by some 30,000 olive oil tourists [1]. These figures indicate that in Andalusia, particularly in Córdoba, the potential of olive oil as a tourist attraction is not being sufficiently exploited.

Fig 1. Olive cultivation area and oil production in Andalusia (2021–22 season). Source: Prepared by the authors based on information from the Agricultural and Fisheries Agency (Junta de Andalucía).

Fig 2. Organic oil production in Andalusia for the 2021–22 season. Source: Prepared by the authors based on information from the Agricultural and Fisheries Agency (Junta de Andalucía).
Córdoba is a province that has four declared world heritage sites in its capital. The capital city is also one of the main destinations of cultural tourism. However, Córdoba has not yet been branded in a way that unifies the capital and province as a tourist destination, taking advantage of the synergies between the city’s cultural heritage and gastronomic products such as the oil produced in the province. As such, tourists who visit the city can be classified as excursionists, that is, they spend fewer than six hours in the city. If synergies were created between the city and the province, joint routes could be offered where oleotourism would be a tourist offering that would entice tourists to spend the night, either in the capital or in agricultural areas, and thus generate wealth since the income generated by oleotourism in the province of Córdoba does not even reach a million euros. Therefore, this work endeavors to analyze the key factors of tourism of oil in this province to improve this tourist segment.

Materials and methods

A survey was carried out with a population composed of tourist consumers who visited any of the olive oil designations of origin in Córdoba in 2019 (oil mills, ancient olive trees, olive museums, restaurants, etc.); the objective of the survey was to learn about the profile of oleotourists. For this, a questionnaire was created that consisted of 34 questions divided into four blocks (Table 1). The first block collects personal information (age, sex, education level, marital status, etc.). The second block collects information about the route taken (how they heard about it, whether it met their expectations, what they would improve, if they came specifically...
for gastronomic tourism, etc.). The third block explored the motivation to participate in oleotourism (the reason for visiting the gastronomic route and using and consuming olive oil in the home). The fourth block asks oleotourists to rate their experience (regarding the services received on the route, price of the trip, hospitality and treatment received, etc.). The access by the surveyors to the olive oil route/PDO/PGI and the conduct of interviews with tourists was authorized by the managing body and owner of the DOP’s / PGI’s. Prior to the completion of the questionnaire, tourists were informed of academic purposes and anonymity in answering. Consent to take the questionnaire was verbal. At all times, the visitor’s anonymity to the olive oil route/PDO/PGI was guaranteed.

With the information obtained in the survey, the following were performed.

The path model of the determinants of tourism destination image before actual visitation, which was developed by Baloglu & McCleary [65], and refers to two forces that influence a tourist destination’s image, i.e., push-pull factors resulting from two motivational forces, was used. Push forces explain the desire to travel; they are sociopsychological factors and function by impulse. Pull forces stem from external forces and depend on what tourists think about the attributes of the destination (tangible resources, e.g., oil mills, ancient olive trees, olive museums, and gastronomy, and/or intangible factors, e.g., environment and traditions). These are the attractions that motivate choices regarding destinations and/or tourist products. In this model, two basic perspectives of motivation analysis are proposed: motivation as an instinctive impulse, based on inherent needs such as the thirst for knowledge of oil manufacturing, and motivation as attraction, based on reason and emotion. In this research, a questionnaire composed of four blocks was used.

Block 1. The first block collects sociodemographic data:

- Gender
- Age
- Place of residence
- Education
- Marital status
- Employment situation
- Monthly income

Block 2. The second part of the questionnaire collects data on tourism behavior, including both qualitative and quantitative data:

- Mode of transportation
- How the destination was selected
- Organization of the trip
- Contracted services
- Daily cost of lodging services (quantitative)
- Composition of the travel group
- Duration
- Type of lodging
- Why not staying more days in Córdoba
Visits to other cities
Average daily expenditure per person (quantitative)
Previous visits
Main reason for traveling to Córdoba
Secondary reason for traveling to Córdoba

Block 3. In the third part of the questionnaire, an importance-evaluation approach is adopted. Specifically, visitors are asked to measure the levels of importance they attribute to certain items (including both push factors and pull factors) and then their degree of satisfaction with them. Specifically, 46 items, divided into two sub-blocks, are included. The first sub-block addresses push or attraction factors:

- Historical and monumental heritage
- Local gastronomy
- Evening entertainment
- Conservation of the city environment
- Cleanliness of the city
- Ease of access—communications, roads, etc.
- Telecommunications
- Public transportation
- Tourist information and signage
- Citizen safety
- Kindness of the people
- Quality-price ratio for lodging
- Quality-price ratio for restaurants

The second sub-block addresses pull or thrust factors:

- Visit oil mills
- Visit olive museums
- Visit ancient olive trees
- Visit cultural or historical places or events
- Enjoy nature
- Learn about a different culture

Items were included in the questionnaire based on the literature review and adapted based on elements from observations and from discussions held with different key informants to ensure a comprehensive overview of the population and the attributes of the destination.

A 10-point Likert-type scale was used to measure levels of importance and to measure levels of satisfaction; 10 represented the highest levels. In addition, following the suggestion of Ryan and Garland [103], a nonresponse option was included in the satisfaction scale because the absence of such an option can skew the results toward the midpoint of a scale.
In addition, given that satisfaction with a particular destination can be higher than a visitor’s satisfaction with the services used and the attributes of a destination [104, 105], a scale was also included to measure overall satisfaction with the visit. This measure reinforces the comprehensive (holistic) approach that is carried out in this study.

Block 4. Last, the respondents are asked to indicate if they would return to Córdoba and if they would recommend the trip to other people.

To examine the degree to which the defined indicators adequately measure the concept (construct) to be measured, an EFA was performed; this approach reduces the dimensionality of the data and is based on the analysis of the correlation between the variables. The KMO (Kaiser—Meyer—Olkin) coefficient was applied to determine that the factor analysis procedure that was performed was relevant. This statistic varies between 0 and 1. The following are commonly accepted [106, 107]:

- If KMO < 0.5, the data are not acceptable for factor analysis;
- 0.5 < KMO < 0.6 indicates a moderate degree of correlation, with moderate acceptance of the factor analysis results; and
- KMO > 0.7 indicates a high correlation, and therefore, the data are suitable for a factor analysis.

Bartlett’s sphericity test was also conducted to verify that the correlation matrix for the defined factors was not an identity matrix, which would imply a lack of correlation between the variables. If the significance level is greater than 0.05, the factorial model is not suitable for explaining the data because the null hypothesis of sphericity cannot be rejected.

The weighted correlation coefficient was applied to determine the correlation between factor loadings and the general satisfaction variable. The reliability of the instrument was determined using Cronbach’s alpha coefficient. Cronbach’s alpha is an internal consistency index that ranges between 0 and 1 and serves to verify if an instrument provides reliable measurements. The closer this statistic is to 1, the better is the reliability (≥ 0.70 indicates acceptable reliability) [108–110].

Results

Table 2 presents the KMO test and Bartlett sphericity test results. The latter is represented by the chi-square statistic, a value (2540.392) that indicated that factor analysis was appropriate and that had a perfect significance value of zero, thus rejecting the null hypothesis. The KMO value, which measures the degree of adequacy of the sample, was 0.746, indicating that factor analysis is an adequate approach.

Therefore, the questionnaire was subjected to a principal components factorial analysis, with varimax rotation, a method that minimizes the number of variables with a high load in each component, thus improving interpretability.

Component extraction: The matrix of communalities (Table 3) explains the percentage of variance in the phenomenon manifested by each variable. In this case, all the variables provide

| Kaiser–Meyer–Olkin measure of sampling adequacy | .746 |
|---|---|
| Bartlett’s sphericity test | Approx. chi-square | 2540.392 |
| | Df | 136 |
| | Sig. | .000 |

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high contributions, greater than 0.5, demonstrating the high capacity of the common factors to explain the variability in each variable. Monthly income, average daily expenditure, lodging evaluation, restaurant evaluation, heritage evaluation and use of olive oil (frequency of consumption) have the highest values in the matrix; therefore, their involvement in the analysis of the resulting components will be greater.

Fig 4 is a scree plot showing the number of factors that provide the best explanation of the object of study. The number of factors or components appears on the X axis, which coincides with the number of items, and the eigenvalues equivalent to the variance explained by each

![Scree plot](https://doi.org/10.1371/journal.pone.0276631.g004)
Factors that characterize oleotourists in the province of Córdoba

When the previous result is compared with the matrix of the total variance explained (Table 4), the first four components explain 73.209% of the total variability in the analyzed phenomenon.

After factor rotation, a factorial matrix was obtained that groups the variables with respect to a certain factor and with respect to saturation. The weights or loads of the variables that compose a factor express the importance of each variable for each component in question and can even serve to identify the factor. Table 5 summarizes the factors and the highest loading variables in each one. Variables with correlation values greater than 0.6 were retained. The following factors were identified: Factor 1, “Offer”; Factor 2, “Personal”; Factor 3, “Leisure and safety”; and Factor 4, “Relationship with oil”.

It is evident that the sets of variables that were grouped in the first presentation of the questionnaire have been modified to some extent. From the groups formed in the matrix, it is possible to identify each component according to the concept measured by these variables.

For component 1 (offer evaluation), the most important variables are those concerning the offer; therefore, this is referred to as “offer evaluation”. Degree of satisfaction has been added, a variable that previously belonged to the personal dimension, because its coefficient is higher in this factor.

As such, the dimension offer evaluation is formed by seven evaluation items: lodging, restaurants, quality of oleotourism, heritage, attention and treatment received, route information, degree of satisfaction with the oleotourism route, and the combined synthetic perception index.

For component 2 (personal), as the matrix shows, the most essential variables are those related to the personal information of the oleotourist. The variables monthly income, average daily expenditure, education level and duration of the trip scored higher than 0.5.

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**Table 4. Matrix of total variance explained.**

| Component | Initial eigenvalues | Total explained variance | Extraction sum of squared loadings | Rotation sum of squared loadings |
|-----------|---------------------|--------------------------|----------------------------------|----------------------------------|
|           | Total  | % variance | % accumulated | Total  | % variance | % accumulated | Total  | % variance | % accumulated |
| 1         | 4.980  | 29.292     | 29.292        | 4.980  | 29.292     | 29.292        | 4.766  | 28.034     | 28.034        |
| 2         | 2.891  | 17.004     | 46.296        | 2.891  | 17.004     | 46.296        | 2.870  | 16.882     | 44.916        |
| 3         | 2.611  | 15.361     | 61.657        | 2.611  | 15.361     | 61.657        | 2.437  | 14.333     | 59.249        |
| 4         | 1.964  | 11.552     | 73.209        | 1.964  | 11.552     | 73.209        | 2.373  | 13.960     | 73.209        |
| 5         | .807   | 4.748      | 77.957        | .807   | 4.748      | 77.957        |        |            |              |
| 6         | .642   | 3.775      | 81.732        | .642   | 3.775      | 81.732        |        |            |              |
| 7         | .640   | 3.765      | 85.497        | .640   | 3.765      | 85.497        |        |            |              |
| 8         | .480   | 2.821      | 88.318        | .480   | 2.821      | 88.318        |        |            |              |
| 9         | .414   | 2.433      | 90.751        | .414   | 2.433      | 90.751        |        |            |              |
| 10        | .360   | 2.117      | 92.868        | .360   | 2.117      | 92.868        |        |            |              |
| 11        | .279   | 1.638      | 94.507        | .279   | 1.638      | 94.507        |        |            |              |
| 12        | .253   | 1.490      | 95.997        | .253   | 1.490      | 95.997        |        |            |              |
| 13        | .185   | 1.090      | 97.087        | .185   | 1.090      | 97.087        |        |            |              |
| 14        | .163   | .961       | 98.048        | .163   | .961       | 98.048        |        |            |              |
| 15        | .154   | .905       | 98.952        | .154   | .905       | 98.952        |        |            |              |
| 16        | .093   | .548       | 99.500        | .093   | .548       | 99.500        |        |            |              |
| 17        | .085   | .500       | 100.000       | .085   | .500       | 100.000       |        |            |              |

Extraction method: principal component analysis. Source: SPSS version 28.0

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In this sense, this set could still be considered personal because the variables with the highest degree of contribution are those that provide details of the economic information of oleotourists and those related to the trip, such as the average daily expenditure and duration of the trip.

The results of the matrix indicate that in the third component, “leisure and safety,” the variables related to the route are how tourists regard the leisure offer, signage and safety of the route.

The fourth dimension (oil) is formed by three items related to oleotourists’ knowledge and use of oil (Fig 5). There is a strong relationship between the type of oleotourist (oil-novice, oil-interested oil lover, and connoisseur) and the type of oil used and how often the oil is used to prepare dishes; thus those interested in oil, who are the majority of the tourists, use virgin olive oil several times a week, and connoisseurs (experts), use it daily and use a better quality extra virgin olive oil.

Fig 6 shows a representation of each of the indicators of potentiality in the new factors created, such that each group of indicators of tourism potential is located around the axis that represents its typology of tourism resources. According to the results analyzed, some items that respond to specific dimensions do not have such an important load in the factor analysis, a finding that does not necessarily imply that these are not influencing factors; therefore, their relative importance should continue to be evaluated in a future sample.

Regarding the internal reliability index (Cronbach’s alpha), the value was 0.7784 (Table 6), with the first dimension being offer, for which there is greater homogeneity (0.913), followed by the personal dimension (0.845).

The relationship between customer satisfaction and place of origin was also analyzed; the \( \chi^2 \) statistic (42.775) was significant at 5%, indicating that satisfaction is related to the place of

Table 5. Rotated\(^a\) component matrix.

| Component                  | 1    | 2    | 3    | 4    |
|----------------------------|------|------|------|------|
| Opinion regarding lodging  | .909 | .086 | -.136| -.014|
| Opinion regarding restaurants | .898 | -.017| .050 | .012 |
| Opinion regarding the quality of the oleotourism offer | .887 | -.013| .006 | -.021|
| Cultural heritage of the municipality along the route | .877 | -.085| -.150| .067 |
| Attention and treatment received along the route | .775 | -.048| .301 | -.005|
| Tourist information along the route/PDO | .742 | .035 | .125 | .096 |
| Degree of satisfaction with the route taken | .604 | -.141| .545 | .196 |
| Monthly Income              | -.037| .930 | .025 | -.192|
| Average daily expenditure   | -.065| .916 | -.035| -.016|
| Education level             | -.041| .797 | -.115| .060 |
| Duration of the trip        | .086 | .646 | .029 | .258 |
| Evaluation of leisure/entertainment | .096 | .007 | .870 | .022 |
| Evaluation of tourist signs along the route/PDO | -.119 | .017 | .776 | .061 |
| Evaluation of citizen safety along the route | .096 | -.078| .773 | .064 |
| Oil use                     | -.016| .021 | .016 | .924 |
| Oil type                    | .018 | .230 | .082 | .838 |
| Oil classification          | .117 | -.127| .102 | .805 |

Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalization.\(^a\)
\(^a\) The rotation converged in four iterations.

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origin and that foreigners are more satisfied than are local tourists, in part because the latter know the product and are accustomed to using it, and foreign tourists are surprised by the quality of the product, especially during tasting; knowledge regarding the oil mills is something new to them because these types of venues do not exist in their country (Table 7).

There is also an association between motivation to take the route and age ($\chi^2 = 111.56$, significant at 5%) (Table 8). While people from 40 to 59 years of age prefer to travel to learn...
about the culinary tradition of a destination, people from 18 to 30 years of age prefer to learn about the process of making oil and to visit olive oil mills.

**Discussion**

Oleotourism is a type of gastronomic tourism that is in the take-off phase in Córdoba, as in other regions of Spain [80] in part due to the lack of knowledge that gastronomic tourists, especially foreign tourists, have regarding this product (oil) [111].

The profile of oleotourists who visit the PDOs in Córdoba is very similar to that of oleotourists in Andalusia [60, 112] and that of gastronomic tourists in Mealhada-Portugal [113], i.e., between 50 and 59 years, with medium education and an upper middle income level, but in stark contrast to the demographics of the gastronomic tourists who visit Haiti, i.e., highly educated young people with a low income [114]. The profile of oleotourists in Córdoba is also different from that of the gastronomic tourists studied by Park [115]; Robinson et al., [116]; McKercher et al., [117] and Ignatov and Smith [118], who indicate that the tourists for whom gastronomy is a relevant component in the choice of a destination are approximately 45 years old and highly educated.

The main motivation of oleotourists is to learn about the oil manufacturing process, and they usually use this product to prepare dishes. They are therefore people who are concerned about products with quality labels, who want to learn about the culture associated with olive groves, and who taste the different flavors of oils and learn about different uses; for these tourists, when they decide to take a trip, it is clear that their motivation is to learn about the local gastronomy associated with the oil, a motivation similar to that reported in a studies by Menor et al., [119] on gastronomic tourists in heritage cities. Oleotourists are concerned about sustainability and the environment; hence, they increasingly demand more organic oil and want to know about the area where it is produced.

The four components obtained in the analysis show that the supply has the greatest weight. The bivariate analysis also shows that foreign tourists are more satisfied; therefore, this work could be used by entrepreneurs to advertise oil tourism in international markets and increase the demand of oil tourists because they are the ones who most value this market niche. However, the dimensions of experience and sustainability analyzed in the work of Parrilla-González et al., [7] in the province of Jaen would have to be considered to transform Córdoba’s

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**Table 6. Reliability statistics.**

|                | Cronbach’s Alpha | No. elements |
|----------------|------------------|--------------|
| Total          | 0.778            | 17           |
| Offer          | 0.913            | 7            |
| Personal       | 0.845            | 4            |
| Oil            | 0.828            | 3            |
| Leisure and Safety | 0.706          | 3            |

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**Table 7. Pearson chi-square tests.**

| Place of origin | Chi-square | Df | Sig.     |
|-----------------|------------|----|---------|
|                 | 42.775     | 16 | < .001  |

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oleotourism into not only gastronomic tourism but also experiential tourism, given the uniqueness of the oil in the Mediterranean Basin.

Conclusions

The gastronomy of a region, as well as the different elements that make up its dishes, is gaining strength in tourism, especially after the pandemic. Gastronomy tourists look for areas far from mass tourism destinations and with a differentiating element that guarantees product quality; this is achieved in gastronomic tourism through PDOs and geographical indications.

In this research, the profile of oleotourists in the province of Córdoba was analyzed through a factorial analysis, which revealed four factors, with one related to the personal characteristics of oleotourists, e.g., age, income level, level of education, explaining 84% of the variance. The results obtained suggest that to increase the demand for oleotourism, the communication campaigns of companies and gastronomic tourism destinations should target people with a higher education level (university studies, not secondary education as obtained in the sample) and higher incomes because they are most likely to choose Córdoba for its gastronomy. The most appropriate way of advertising would be through specialized food blogs because this medium is a more appropriate communication channel than more traditional media such as television or the press.

Another fundamental component is the offer. The results reveal how highly tourists regard restaurants and the attention and treatment received, leading to very high levels of satisfaction and Córdoba being perceived as a quality gastronomic destination associated with oil. The main problem is that Córdoba is still an unknown destination in international markets, in which it needs to be recognized.

Another important factor is the relationship between the knowledge of oleotourists regarding types of oils, the use of oils, and the type of oleotourist. Oil connoisseurs use the best quality oil, extra virgin, in their daily life and are the most satisfied tourists and who can best promote gastronomic destinations if the tourist product that is offered is a quality product.

The results of this research can help both public administrations and private entities of the province of Córdoba become the first to create, improve and promote rural development plans and promote aid for the development of tourism activity that is accessible to the small farmer who is dedicated to the olive grove and to private entities for designing a tourism product based on the olive grove and tourist demand. The objective of these efforts would be to improve the tourist offers for this very unique element and transform oleotourism into a type of special interest tourism as classified by Pulido-Fernández et al., [6].

To increase the number of olive oil tourists in Cordoba, a good marketing campaign in international markets would be needed first to publicize the gastronomic product, which is unknown by many tourists because it does not exist in their country. In addition, foreign tourists have greater purchasing power than do national tourists and are able to spend more in the area, generating more income for producers. As indicated by Pulido et al., [120], oleotourists with professional purposes show a special interest in companies such as international distributors or restaurants that can supply their products at the international scale and/or continuously across time.
The results of this study indicate that a tourist brand should be created related to the oil and all the activities that can be developed in relation to olive groves, for example, visits to ancient olive trees, olive harvesting, olive pressing, workshops for the preparation of traditional dishes, and themed meals with the reference oil, etc., in short, actions that identify the product with the territory. For this, it is first necessary that all agents, e.g., agricultural entrepreneurs, the tourism sector, the local community, and public organizations, commit to this brand because if it continues as before through individual actions, it will be difficult for Córdoba to become a quality oleotourism destination.

Supporting information

S1 Data.
(SAV)

Author Contributions

Conceptualization: José Antonio Cava Jimenez, Mª Genoveva Millán Vázquez de la Torre.

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