Eurasian Journal of Food Science and Technology 2024; Vol: 8, Issue: 1, pp: 33-42

Determination of Perceptions and Purchasing Factors of Turkish Consumers on Essential Oils

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Abstract

The aim of the present study is to determine the factors affecting the purchasing perceptions and motivations of consumers living in different regions of Türkiye on essential oils. A questionnaire including 16 questions applied to 603 volunteer participants to understand which factors affecting purchasing decisions of consumers. While 66% of the participants stated that they had purchased essential oils at least once, 44% stated that they had never purchased them. It was determined that the participants mostly used black cumin oil for medical purposes in asthma and respiratory disorders, and coconut and argan oil were mostly used for cosmetic purposes in hair and skin care. Age and monthly income level of the participants are effective on both reasons for use and purchasing motivations of essential oils. Remarkably, it was determined that participants with high levels of education mostly received advice on the uses of essential oils from various sources such as the internet and television. In conclusion, the findings of this study provide clear explanations regarding the perception and purchasing motivations of consumers with different demographic characteristics regarding essential oils.

Keywords: Essential oils, Consumption, Purchasing decision, Consumers, Survey

Research article
Received Date: 1 December 2023
Accepted Date: 2 April 2024

INTRODUCTION

Determination of consumer perceptions and preferences are the key factors to understanding buying behaviors and motivations hence; these factors determine to success of marketing. Generally, socio-demographic factors play an important role on consumers purchasing behaviors. In addition, product features such as brand, packaging, label, certifications, price and quality are effective on consumers' purchasing decisions. Increasing the world population, technological developments and rapid living conditions increased healthy-life concerns and changed consumers purchasing motivations and preferences (Aday and Yener, 2014; Goh and Ng, 2021; Samiee et al., 2005). Nowadays, about healthy life, balanced nutrition and protection against disease people are easy and quick access to information. In this context, consumers are increasingly interested in complementary and/or traditional medicine. This interest also increases consumers' interest in natural/green and organic/ecologic products day by day, and this is defined as "return to natural"(Goh and Ng, 2021; Samiee et al., 2005).

Türkiye consists of seven regions that different socio-cultural structure in terms of lifestyle, eating habits, purchasing motivations and preferences. Türkiye linked the European and Asian continents, so it is interacted with both continental culture. These cultural interactions are effective on the lifestyle of Turkish people. Like many countries in the world, Türkiye has a historical knowledge about complementary medicine that has been passed down from generation to generation. The critical questions are "where consumers get this information" and "whether the information is reliable." Essential oils (EOs) have an important place in complementary/traditional medicine in many countries due to its phytochemical, aromatic and bioactive compounds. Therefore, EOs is used aromatherapy and phytotherapy for cosmetics, food supplement and nutraceutical purposes (Aburjai and Natsheh, 2003; Bivins, 2010; Ribeiro et al., 2015).

Paracelsus von Hohenheim used the term of essential oils for the first time in the 16th century (Dhifi et al., 2016; Edris, 2007). In addition, there are approximately 3000 kinds of essential oils obtained from 2000 aromatic plants in the world and 300 of them have commercial importance. EO production in the world ranges between 40,000 and 60,000 tons per year and the market value is about 700 million U.S. (Raut and Karuppayil, 2014). On the other hand, total EO production of the world is approximately 100,000-150,000 tonnes according to a projection (Chakravarty et al., 2021). In literature there is very limited study about consumers' behaviors on essential oil consumption, though EO production and consumption is increasing all over the world. Therefore, understanding of the consumers' perceptions and purchasing motivations on the essential oils play a key role for marketing strategies of the essential oils and related industries.

The main aim of present study is to determine and evaluate perceptions, purchasing factors and motivations of Turkish consumers on essential oils consumption with regard to diseases and socio-demographic data.

MATERIAL and METHOD

Questionnaire and participants

In this study, a 16-questionnaire was applied to 603 volunteer participants who were living different parts of Türkiye. The questions were selected sensitively for the purpose and the questionnaire was kept short so that the participants were not bored. Questions 1 to 5 are related to the demographic characteristics of the participants, while question 6 is related to "purchase or not." Therefore, participants who bought essential oil at least once in their lives answered all of the questions in the survey.

Consequently, 304 participants were completely answered all questions and completed the survey. The other questions were prepared as multiple choice, which was related understanding consumer purchasing motivations, preferences and perceptions on the essential oils. Survey prepared Turkish then translated to English and it was applied with online form due to the Covid-19 outbreak. In the questionnaire, there were absolutely no questions regarding the identity information of the consumers and the participants informed that there were no "right and wrong answer" in the questions. The questionnaire and frequencies are given in Table 1.

Statistical Evaluation

The data obtained from the survey was evaluated descriptive statistics, cross tabs and correspondence analysis by using SPSS (SPSS Inc., Chicago, IL, USA). Correspondence analysis was used to explain the relationship between demographic data and multiple-choice questions and understanding consumers' purchasing motivation and, preferences. The categorical results were expressed graphically on multidimensional plot. In these plots, closely related categories were closer to each other.

RESULTS and DISCUSSION

Türkiye has 83 million total population in 2019 and 26.29% people were under 18, 12.76% - 18-25, 15.26% - 26-35, 14.99% - 36-45, 12.06% - 46-55 and 18.63% were over 55 age. Proportion of females in the population is 50.17% while males are 49.83%. The percentage of married and single peoples are 62.85 and 37.15%, respectively (TSI, 2019).

The demographic features of the respondents are presented in Table 1. 44.20% of respondents were 18-25, 29.20% of 26-35, 18.5% of 36-45, 5.5% of 46-55 and 2.5% of 55 and over ages. 40.60% of respondents were married and 59.4% were single while 40.60% were male and 59.4% were female. The majority of the participants were university graduates (65.1%) while high school, MSc, primary and PhD graduates were 18.8%, 8.2%, 4.1% and 3.8%, respectively. Additionally, the rate of respondents was 0-1500 ₺ - 31.8%, 1501-2500 ₺ – 13.4%, 2501-3500 ₺ – 19.4%, 3501-5000 ₺ – 16.6%, 5001 ₺ and over -18.8% according to monthly income level.

The data mentioned above almost reflects Türkiye’s demographic data. In addition, a similar data distribution was observed in the study reported by Cadar et al. (2021). 19.5% of the participants were under 25 years old, 26% between 25 and 34 years old, 26.5% between 35 and 44 years old, 15.3% between 45 and 54 years old and 12.7% of 55 and over years old according to study. Researchers reported that ratio of the high school graduate and university graduate respondents were 40.2 and 32.9%, respectively. Additionally, in the same study reported that low income participants (1000-4000 lei) were predominant. Another study performed by Korkmaz et al. (2011) reported that gender distribution of the participants were 53.9% of men and 46.1% women. The distribution of the demographic data reported by previous research is aligned with our data.

66% of participants purchased essential oils “at least once” according to Table 1 while 44% of participants “never purchased.” The participants expressed the reasons for not purchasing as "I have no information about it" (22.8%), "I don't think it's useful" (8.2%), "I think it's expensive" (2.0%) and "I don't believe they are pure and original" (1.0%). The respondents purchasing essential oil only from herbalists, markets, internet, and pharmacies were 54.2%, 10.3%, 11.1% and 3.7%, respectively. In addition, considering multiple responses, herbalists, markets, and internet were 63.9%, 21.1% and 22.3%, respectively.

These results proved that consumers firstly preferred herbalists when they purchased essential oils. A previous study reported that 288 of 400 participants purchased aromatic plants from herbalists while the others purchased from supermarkets (Güney, 2019). Literature data are close similar to our findings. Nevertheless, only 26.2% of respondents believed that their purchases were safe and pure while 30.7% did not believe, and 43.1% were in doubt. One of the remarkable results was the consumers bought the essential oils (67.8%) although the vast majority (58.6%) did not believe it pure and reliable.

The main factors affecting purchasing motivations of consumers on essential oils were priced, packs, trademark and certificates. Considering the multiple answers of the respondents, price, pack, trademark and certificate were 32.5, 14.2, 44, and 57.2%, respectively. These results clearly demonstrated that consumers primarily considering to product certification and secondary product brands when making decisions to purchase EOs. Many research on many products was shown that consumers purchasing decision was mostly depending on their monthly income level (Cadar et al., 2021; Güney, 2019; Nandi et al., 2017; Singh and Verma, 2017). Moreover, product price was third important buying factors.

Similar results reported by Shamri et al. (2021) for local brand of food product. Researchers indicated that halal logo was the first choice and product price was the second choice considered by consumers when buying food products. Frequency of use of EOs of the respondents were 5.3% every day, 27.3% several times a week, 30.2% several times a month and 37.3% several times a year. These results showed that EOs was used when needed rather than daily usage. Participants indicated that they used EOs as 30.2% cosmetics/beauty, 38.2% medicinal/health purposes and 4% food supplements. According to the multiple-choice data obtained from the participants, their intended use was determined as 51.5% cosmetic / beauty, 61.6% medical / health and 15.5% food supplements.

It is seen that the vast majority of the participants get information about the use of essential oils from the internet. Other sources of information are TV, medical advice, magazines and newspapers, respectively. In a study reported that 44% of participants used internet gain health information in European countries (Andreassen et al., 2007).

Considering the single choice data obtained from respondents, the mostly preferred EOs were black cumin, sweet almond, St. John’s Wort, thyme, lavender, coconut and argan oils, respectively. According to multiple choices data, 53%- black cumin, 38%- argan, 34.5%- sweet almond, 33.7%- St. John’s Wort, 32%- coconut, 26.7%- lavender, 19.7%- thyme, 19.5%- turpentine, 17.7%- mint, 17%- tea tree, 16.5%- castor, 12.8%- rose and 11.3%- rosemary oil were preferred by respondents. Following these oils mentioned above, jojoba, citrus, apricot kernels, laurel, basil, clove, eucalyptus and grape seed oils were preferred less than 10%.

When asked about the reasons for using the oils listed above, the most common answers were skin and hair care, stress and anxiety, rheumatic disease, diet, respiratory disorders, anti-aging, varicosis and migraine, respectively. For these disorders and/or diseases, respondents indicated that used EOs as a cream/lotion (60%), food supplements (8.7%) and aromatherapy (4.7%). The remarkable result is 84.7% of respondents believe that herbal solutions or alternative/complementary medicine is useful.

Relationship between demographic data and uses essential oils

Figure 1a, b and c showed relations between respondents' age and purchasing motivations of essential oils. As seen from Figure 1a, participants with 18-25 age specified that they purchased sweet almond, mint and thyme oils, while 26-35 group of age turpentine and St. John's Wort oils and 36-45 group of age castor, lavender and black cumin oils. Additionally, participants aged with 18-25 stated that they mostly used EO for hair and skin care purposes while 26-35 age against the stress and anxiety and 36-45 age anti-aging agent and weight loss (Figure 1b).

It was determined that participants with 18-35 age retrieval information about essential oils and their medicinal activities from internet while participants aged 36-55 were getting information on television. Contrary to the participants with 18-35 and 36-55 age, participants with 55 and over age stated that they were received medical advice from professionals (Figure 1c). Wald et al. (2007) reported internet use for health information is rapidly increasing. In the same study researchers indicated that the number of internet users for getting knowledge about health was 54 million in 1998 while 117 million in 2005 in the U.S. The 80% of adult internet users were used web for their health concerns and getting information about it in the U.S. (Wald et al., 2007).

Education was one of the most important and effective factors on information resources about essential oils and their medical effects. Similarly, education has a key role in influencing consumer attitude and behavior was reported by Mancini et al., (2017). There were remarkable results between education level and information resources. Results showed that primary school graduate using medical advice for getting information about EO while higher graduates using TV and internet (Figure 1d). In addition, PhD graduates were used essential oils as food supplements, high school graduates for medicinal purposes and, university and master degree for cosmetic purposes (Figure 1e).

One of the previous studies reported that relationship among the internet use for health and being youth, being female, higher education, white collar, no paid job long-term illness and disabilities (Andreassen et al., 2007). In another study reported that relationship between those who did not use the internet for health purposes and participants who had lower education levels, had more children, were male, and visited less frequently a general practitioner (Wangberg et al., 2008).

The effect of the income levels on purchasing factors, using purposes and disorders are shown in Figure 1f, g and h, respectively. The most important purchasing factor for the participants with 0-1500, 2501-5000 and over 5000₺ monthly income groups were "price," "trademark" and certificates, respectively (Figure 1f). On the other hand, participant with 0-1500₺ monthly income was used EO as cosmetic purposes while 3501-5000₺ and over 5000₺ monthly income levels used EO as medicinal purposes (Figure 1g). Participants with the lowest and highest income levels stated that they preferred to use EO for asthma and respiratory disorders and hair care, respectively (Figure 1h).

The relation between disorders and essential oils are given in Figure 1i. According to Figure 1i, participants with stress and anxiety were used thyme and St John Wort oils. For the skin care and diseases, participants mostly preferred sweet almond and turpentine oils. The participants specified that they purchased mint, flaxseed and black cumin oils for the losing weight and cancer prevention. In addition, participants with rheumatic disorders stated that they preferred purchasing St. John Wort and castor oils (Figure 1i).

One of the previous studies reported that participants with medium- and low-income levels (n=288) stated that purchasing factors of the aromatic and medicinal plants were odor, color and expiry date (Güney, 2019). In the same study reported that participants with high-income levels (n=112) indicated that purchasing factors of the aromatic and medicinal plants were odor, color, expiry date, price, brand (Güney, 2019).

Furthermore, Güney (2019) reported that using purposes of EOs by participants with low education level and medium income level were relaxation, flavor enhancers and habits while participants with high education and income levels were treatment, treatment support, disease prevention and to increase nutritional value. Again, in the same study, it was reported that using purposes of EOs of participants with middle-educated and low-income were treatment, treatment support and disease prevention. Additionally, researchers indicated that participants mostly used linden, black cumin and rose-ship for the medicinal concerns while participants mostly used as mint, black pepper, thyme, cinnamon, garlic and cumin for aromatherapy (Güney, 2019). In the same study, factors affecting consumption of participants with low education level were news, customs and traditions while participants with medium-education levels were pieces of advice from doctors and herbalists, news, customs and traditions, religious beliefs. At the same time, researchers indicated that factors affecting consumption of participants with high-education levels were pieces of advice from friends, herbalists, and doctors, advertisements, news, customs and traditions (Güney, 2019).

In a similar study conducted by Cadar et al. (2021) reported that consumers of the medicinal and aromatic plants (including essential oils) (MAPs) clustered three different groups according to frequency of the purchasing. Researchers indicated that cluster 1, 2 and 3 were formed" most often users," "rarely users" and "occasional users," respectively. In the same study, reported that the users of the cluster 1 includes women with a high level of education and higher incomes while products used as both phytotherapeutic and cosmetic purposes. For cluster 2 researchers reported that users who generally men, with lower education and incomes. Additionally, researchers reported that cluster 3 mostly including products for personal care and cosmetic purposes and users are both sexes, with medium education and incomes (Cadar et al., 2021). Literature results align with our findings.

Table 1. Questionnaire and frequencies of the respondents.

***Q1- Age?**
☐18-25 (44.2%)
☐26-35 (28.9%)
☐36-45 (18.7%)
☐46-55 (5.3%)
☐55+ (3.0)

***Q2- Gender?**
☐Female (58.3%)
☐ Male (41.7%)

***Q3- Marital status?**
☐ Married (40.7%)
☐ Single (59.3%)

***Q4- Education level?**
☐ Primary (4.3%)
☐ Senior (18.9%)
☐ University (65%)
☐ Master (8.4%)
☐ Ph.D .(3.4%)

***Q5- Monthly income level?**
☐0-1500 (31.7%)
☐1501-2500 (14.8%)
☐2501-3500 (18.2%)
☐3501-5000 (16.9%)
☐5000+ (18.4%)

****Q6. Have you purchased any aromatic oils before?**
☐ Yes (66%)
☐ "No" because "I have no information" (22.8%)
☐ "No" because "I don't think it's useful." (8.2%)
☐ "No" because "I think it's expensive." (2.0%)
☐ "No" because "I don't believe they are pure and original." (1.0%)

*****Q7- Where do you get the aromatic oil you bought?**
☐ Herbalist (54.2%)
☐ Market (10.3%)
☐ internet (11.1%)
☐ Pharmacy (3.7%)

***Q8- Are you sure that the aromatic oil you supply is pure and safe?**
☐ Yes, I am sure. (26.2%)
☐ No, I am not sure. (30.7%)
☐ I have doubts. (43.1%)

*****Q9- Which factors mainly affecting your purchasing decision when buying aromatic oil?**
☐ Price (10.9%)
☐ Packs (5.1%)
☐ Trademark (19.5%)
☐ Certificate (30.2%)

***Q10. How often did you use / use this oil (s)?**
☐ Everyday (4.5%)
☐ Several times a week (30.5%)
☐ Several times a month (34.7%)
☐ Several times a year (30.3%)

*****Q11.For what purpose do you buy this oil (s)?**
☐ Cosmetics/Beauty (30.2%)
☐ Medicinal/Health (38.2%)
☐ Food supplement (4.0%)

*****Q12- Which resources do you get information about relationship between food and health?**
☐Television (2.3%)
☐internet (60.8%)
☐ Newspaper (0.3%)
☐ Journal (0.8%)
☐ Medical advice (4.5%)
☐ Others (2.5%)

*****Q13. Which of the oils listed below have you bought at least once?**

☐Sweet almond oil (2.7%)	☐Thyme oil (1.2%)
☐Turpentine oil	☐Rosemary oil
☐Castor oil (0.7%)	☐Apricot kernel oil
☐St. John's Wort oil (2.0)	☐Tea tree oil (0.7%)
☐Black cumin oil (4.2%)	☐Coconut oil (1.2%)
☐Lavender oil (1.2%)	☐Laurel oil
☐Flaxseed oil (0.2%)	☐Basil oil
☐Rose oil	☐Clove oil
☐Jojoba oil	☐Eucalyptus oil (0.2%)
☐Argan oil (1.0%)	☐Grape seed oil (0.5%)
☐Citrus oils (0.2%)	☐Pomegranate seed oil
☐Mint oil (0.2%)	☐Others

*****Q14. Which are the reasons for use?**
☐Stress and anxiety (1.5%)
☐Weight loss / diet (1.7%)
☐Rheumatic disorders (3.0%)
☐Protection against cancer (0.7%)
☐Anti-aging
☐Skin care and diseases (13.4%)
☐Hair care (9.7%)
☐Varicosis
☐Asthma and respiratory disorders (3.0)
☐Others (4.5%)

*****Q15. How and what did you use / use this oil (s) for?**
☐Food or food supplements (8.7%)
☐Cream or Lotion (60%)
☐Aromatherapy (4.7%)

*****Q16. Do you think herbal solutions or alternative / complementary medicine are useful?**
☐ Yes, I am sure. (84.7%)
☐ No, I am not sure. (1.0%)
☐ I have doubts. (14.3%)

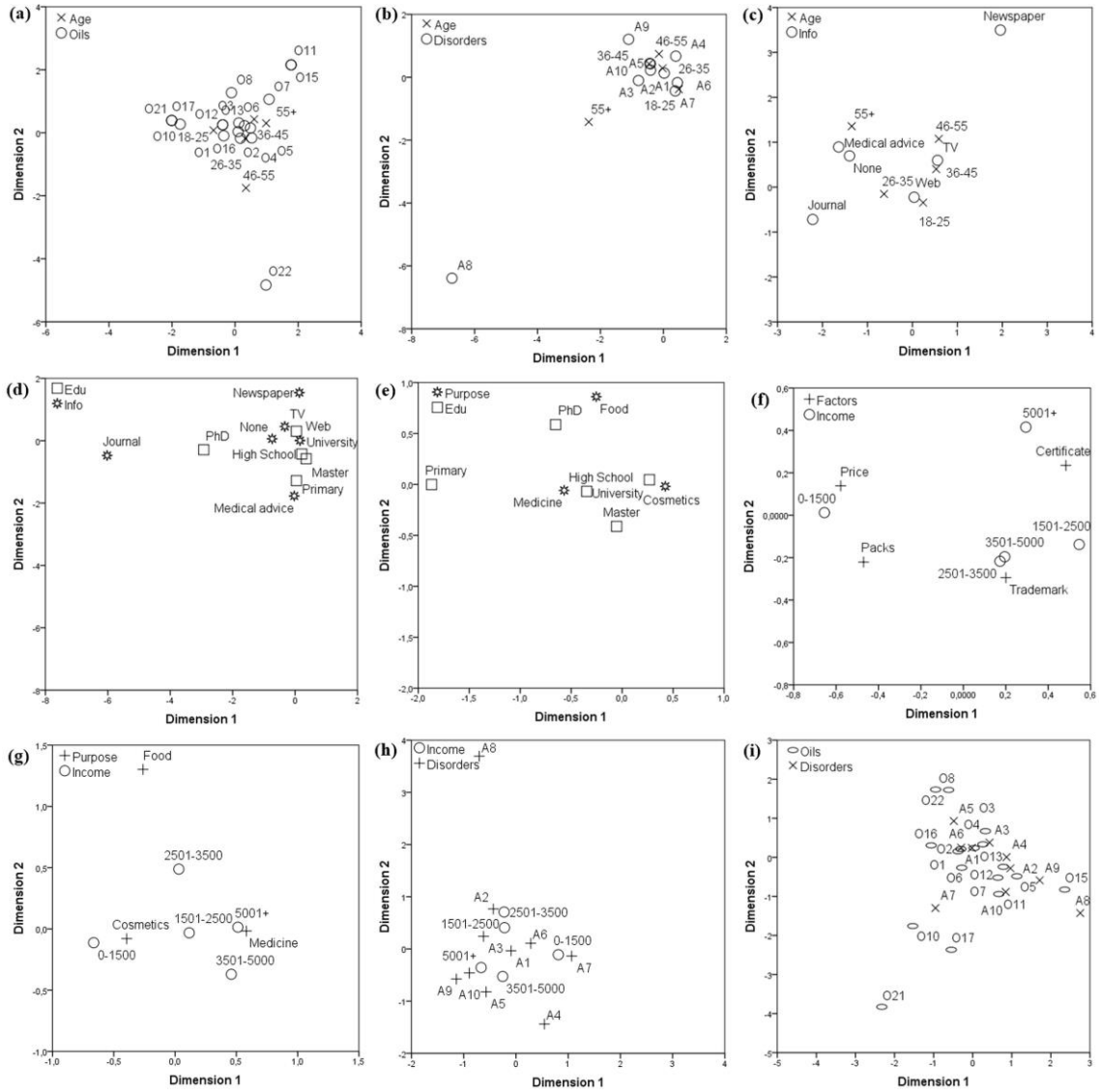

Figure 1. The correspondence analysis results on demographic data and essential oils consumed. *(a) relationships between consumer ages and consumed oils, (b) consumer ages and disorders, (c) consumer ages and received information about essential oils, (d) consumer education levels and received information about essential oils, (e) used purposes and education levels, (f) factors affecting purchasing motivations and monthly income, (g) used purposes and monthly income, (h) monthly income and disorders and (i) purchased oils and disorders.*

CONCLUSION

In this study, perceptions and purchasing motivations of the consumers on the essential oils successfully explained with 603 volunteer participants' different parts of Türkiye. It was observed that participants from different age groups mostly preferred the same essential oils, except 46-55 years. It was determined that only participants in the 55+ age group received medical advice regarding the essential oils they used. Additionally, it was determined that education levels of the respondents effective on the sources of information about EOs and usage purposes.

The perceptions and purchasing decision of the consumers on EOs were affected by both income level and disease history of the participants. In conclusion, participants with higher income level purchased black cumin oil against the asthma and respiratory disorders for medicinal expectations while participants with the lowest income levels purchased argan and coconut oils for cosmetic purposes, especially for hair care.

ETHICS COMMITTEE APPROVAL

Ethics approval was obtained with the meeting of Çanakkale Onsekiz Mart University Clinical Research Ethics Committee dated 14.04.2020 and numbered 2020-06.

CONFLICT OF INTEREST

The author declares that for this article, they have no actual, potential, or perceived conflict of interest.

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