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ABSTRACT: Present study indicates specific consumer characteristics that affect consumer preferences for virgin, refined and blend olive oils. The findings of the study suggest that socioeconomic and demographic characteristics of household and household head such as household income, household size, education, age and gender of household head, household with working wife, residential areas (rural-urban), and regional differences were statistically significant factors and play an important role on olive oil consumption choices among Turkish households. Because olive oil production and manufacturing firms are increasing very rapidly in Turkey, the results of this study provide some relatively new information about consumer olive oil consumption decisions. Moreover, this research provides a profile of households that consume and probably spend more on olive oil.

INTRODUCTION
The effect of a diet on human health has already been underlined in many studies and scientific interest has been focused on the health benefits of the Mediterranean diet. The general characteristics of the Mediterranean diet were described in detail and their health implications were discussed by several researchers (1-5).

Olive Oil (OO), the only vegetable oil that can be consumed as it is, is a prime component of the Mediterranean diet (1, 6-7). For centuries, the benefits of OO nutritionally, cosmetically, and medicinally have been recognized (4, 8). There are several evidence that the olives and their derivatives play an important role in prevention of several type of cancer (1, 6-9-15). The beneficial health effects of extra virgin or virgin OO are due to both its high content of monounsaturated fatty acids-mainly oleic acid (16-17) and its high content of antioxidative substances (18-19).

Even though consumers are increasingly interested in OO for their health, annual per capita consumption of OO among countries is quite different. Annual per capita OO consumption in 2003 was 15.6 lt in Greece, an average of 4.4 lt in European Union countries, and 0.7 lt in the United States of America (US) (20). Annual per capita consumption of OO in Turkey is relatively low compared to European countries and the US, and has declined dramatically by 83.8% (from 3.7 lt in 1960 to 0.6 lt) in 2003 (20). This decline is partly due to environmental influences that have affected availability, purchase, and consumption of OO. In response to this decline, the OO industry has adopted strategies to increase OO consumption.

OO is distinguished from other types of oils or fat by its special nutritional and sensory properties. OO is the only vegetable oil that can be consumed as it is - freshly pressed from the fruit. Different OO categories are classified on the basis of descriptions and definitions referred to in Article 4, Corrigendum to Council Regulation No 865/2004. The names of the some categories of OO correspond to physico-chemical and sensory characteristics can be defined as: Extra virgin or virgin OO is the oil obtained from the fruit of the olive tree solely by mechanical or other physical means under conditions that do not lead to alterations in the oil, which have not undergone any treatment other than washing, decantation, centrifugation or filtration, to the exclusion of oils obtained using solvents or using adjuvants having a chemical or biochemical action, or by re-esterification process and any mixture with oils of other kinds. Extra virgin or virgin OO is oil which is suitable for consumption in the natural state. So, extra virgin or virgin OO appears to represent healthy dietary oil. Therefore, policy makers should not only support the cooking oil industry to increase production of cooking oil, but also support an increase in consumption of and preference for extra virgin or virgin OO products. Refined OO is the oil obtained by refining virgin OO, the acid content and/or sensory characteristics of which comply with those laid down for this category; Blend OO is the oil composed of refined OO and virgin OO's other than lamping OO's, the acid content and/or sensory characteristics of which comply with those laid down for this category. OO comes in different varieties, depending on their geographical origin, the amount of processing involved and agricultural traditions and local extraction practices. Therefore, directly marketable extra virgin or virgin OO may be of quite different taste and quality. Consumer choice is at the centre of definition of the quality of a product. But, choice is also affected by factors such as price and presentation that are not always quality-linked. Moreover, the criteria referred to in a judgment on quality vary in importance with consumer tastes and habits in different regions.

Many studies have investigated consumer attributes in regard to aggregate cooking oil purchases and consumption (21-23). One finding is that demographic and socio-economic factors can be important in determining consumer preferences and OO consumption. Most of these studies focused on aggregate consumption of individual cooking oils such as corn oil, OO, vegetable oil (24-25), and private and national brand cooking oils (26). Investigation of characteristics of consumers who exhibit preference specifically toward OO types such as virgin and refined are not found in the literature. There is no any study that examine the effect of socioeconomic and demographic factors on OO consumption decisions in Turkey.

This present study aims to determine the effect of socioeconomic and demographic characteristics that may influence consumer OO consumption behavior.

MATERIALS AND METHODS

This study used the most recent Household Consumption Expenditure Survey data that was obtained from a survey conducted by Turkey Statistic Institution (TUIK) which is the government agency that collects information on food consumption and expenditures, and designed to be nationally representative of Turkish households. On the survey, the stratified multi-stage
systematic cluster sampling method was used because there was no register system in Turkey. TUIK has had a long history of collecting such data and has separated its data collection effort into rural and urban components. Taken from the 2003-2004 household survey data, our sample includes 25764 households in 12 regions for 12 months (27). In addition to quantities and expenditures of goods consumed per month, information on household characteristics is also available in the survey. In this study, using household survey data covering the whole of Turkey to make some reasonable inferences about the population as a whole, the chi-square analysis is used to analyze household OO consumption decision and consumer preferences toward OO types.

RESULTS AND DISCUSSION

The explanatory variables, their definitions, arithmetic means, and standard deviations are shown in Table 1. According to survey results based on the summary statistics of household demographic variables, 12% of the head of households were illiterate or literate without a diploma, 62% had elementary school education, 9% had university diplomas; 20% of wives were working, 36% of the head of households were above 50 years of age and average household size was 4.2. In geographical distribution, the households were selected from different geographical areas (Table 1). When we looked at the detailed number of choices made by sample households, among the 25764 households, 1906 (7.4%) purchased a type of OO, while 23802 (92.38 %) made non-olive oil choices. The sample indicates that the alternative chosen most by OO consuming households was extra virgin or virgin OO (33.79%), blend OO second (33.58%), and refined OO the least (32.63%). In terms of quantity, annual per capita consumption of extra virgin or virgin refined, and blend OOs were 0.37 lt, 0.60 lt and 0.24 lt, respectively (Table 2).

The household socioeconomic and demographic factors become more important in determining how much and what types of OO are consumed and are one way of capturing household choices and preferences. All household variables are based on the demographic definitions of TUIK (27) and all the variables used in the chi square analysis are discrete variables (Table 3). According to chi square results for OO consumption decision, eight out of 9 socioeconomic and demographic characteristics of household and household head were statistically significant at the 0.01 level of probability. Household size, residential areas, age, gender and education level of household head, household income, household with working wife and regional differences were statistically significant, which indicates that socio-economic and demographic characteristics of the household is important factors on household OO consumption decisions. Smaller household, urban household, higher educated household head, household with working wife, higher income households are more likely to consume OO than their counterparts. For example, while 3.0% of lower-income households consume OO, 14.3% of higher-income household consume OO. Similar results found also for educating level of household head.

According to results, smaller households are more likely to consume OO than larger households. This result is consistent with the previous study (24). Larger households are more likely to consume refined OO but less likely to consume virgin and blend OOs compared to smaller households. As household size grows, the household will tend to consume refined OO more than virgin and blend OOs. This is because the head of a large household might prefer to purchase refined OO to satisfy the household needs and to save money to buy other foods items, since the cost of refined OO is much less than virgin and blend OOs.

The influence of age of household head was examined to give some idea of tastes among the relatively young who will have a greater bearing on consumption patterns in the future. Older respondents seem to be higher share of OO consumption decision than younger consumers. Not surprisingly, older individuals may have more positive personal feelings toward consuming OOs. Similarly, Lazaridis (22) and Ward et al. (25) indicated that number of elders in the household was also significant factor in household OO choices. Households in urban areas are more likely to consume OO than households in rural areas. Moreover, compared to rural households, households in urban areas are more likely to consume all OO types versus not consuming OO.

Compared to non-olive oil consumers, OO consumers have higher household income and higher level of education. The results showed that income impacts OO consumption of households because
household income was statistically significant. This result indicated that households with higher incomes were more likely to consume OO than lower-income households. This finding is consistent with the results of previous studies which have found a positive relationship between household income and the probability of OO consumption (21-22, 24-25). As household income increases, maybe there is a greater tendency to consume extra virgin or virgin, refined and blend OO types. Also, the results implied that households in the highest-income group are more likely to consume extra virgin or virgin OO compared to lower-income households. Similar to the income effects, as education advances through university degree, the share of higher consumption has a positive relationship. Higher education levels of family members are often included in cross sectional studies, though the results often vary with the studies. Generally, higher education and economic status may be positively correlated with the healthy dietary patterns (28). Results revealed that households with better educated household heads consume more OO than less educated household heads. Moreover, education has found to be significant affects on types of OO consumptions. Increasing education level of household head increased share of virgin or extra virgin OO consumption. Since women continue to make the majority of household food purchases, they can be expected to be more aware of the quality and safety of food. However, according to results, households with male heads of household are more likely to consume virgin OO than female head of households. Marital status of household head does not statistically affect on household OO consumption decision and types of OO consumptions at the 0.01 level of probability. The results pointed out that households’ OO consumption choices are also related to the geographic region of household lived (Table 3). For instance, while 11.9% of households in Agean region, 8.7% in Central Anatolia region and 8.1% in Istanbul and Marmara region consume OO, only 3.2% of households in black sea region consume OO. Moreover, when we look at the OO consumer choices among OO types, while 48.7% of OO consumers in Istanbul and Marmara region preferred to consumed extra virgin or virgin OO, 63.2% of households in Eastern Anatolia region prefer to consume blend OO.

CONCLUSIONS

The findings of the study suggest that socio-economic and demographic characteristics of household and household head play an important role in OO consumption choices among Turkish households. Education, age and gender of household head, income, household size, household with working wife, residential areas (rural-urban), and regional differences were statistically significant factors in household OO consumption choices. Currently, OO is more widely used throughout the world than it ever has been, and it is increasingly being used as a substitute for other vegetable oils and for animal fats. On the other hand, many consumers were aware that extra virgin or virgin OO was higher in price than other types of OO but they could not understand the justification for this high price. This may point to a lack of education of consumers on the benefits of using extra virgin or virgin OO and blend OO (29). Policy makers can have an influence on education levels and incomes of households, which in turn would influence consumer OO consumption behaviour. Not only policy makers, but also government agencies, oil industries, and farm organizations should encourage all consumers, but especially lower-income and less-educated consumers, to consume more extra virgin or virgin OO because of its health benefits which appear to extend beyond heart health. Present empirical study indicates specific consumer characteristics that affect consumer preferences for extra virgin or virgin OO and other types of OO. The findings have important implications for developing marketing strategies by OO producers and companies for increased OO consumption all around the world. Moreover, this research provides a profile of households that consume and probably spend more on olive oil.
manufacturing firms are increasing very rapidly in Turkey, the results of this study will provide some relatively new information about consumer OO consumption decisions. Moreover, this research provides a profile of households that consume and probably spend more on OO. The OO industry could then target these households in their promotion and advertising campaigns to increase sales. As the future research need, it is very useful to extensively examine the effect of socio-economic and demographic factors on olive oil consumption decisions in different developed countries, all EU countries and major olive oil markets across the world.

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REFERENCES AND NOTES


For a complete list of references the reader is kindly invited to contact the author at gtiryaki@ksu.edu.tr

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