Consumer Attitudes toward Preference and Use of Wood, Woodenware, and Furniture: A Sample from Kayseri, Turkey

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Wood, as a natural and sustainable source, has many fields of utilization. It is crucial for people to use wood in housing in ways that reflect their preferences and attitudes. The focus of this study is to measure consumers' thoughts, knowledge, and awareness of wood materials. A survey was conducted about how consumers' knowledge and conscious attitudes are reflected in their purchase and use of various wooden domestic items, including wood furniture and woodenware. Survey data were analyzed using descriptive statistics and one-way ANOVA. The results indicated that individuals believe that wood is a natural and organic (45.6%) material that people enjoy and become happy (43.7%) when using it. 'Furniture' (82.5%) is the most frequent way of utilizing wood for individuals at home. However, these people tend to use wood composite furniture, which offers more functionality and design options (71.8%), as natural wood is an expensive material (57.8%).

Keywords: Wood; Wooden furniture; Customer; Preference; Use; Attitudes

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INTRODUCTION

Wood is the hard fibrous substance that composes the trunk and branches of a tree, lying between the pith and bark (Harris 2006). According to Nielson and Taylor (2011) wood is a renewable resource that can be regenerated by reforestation or by planting seedlings to replace trees that have been cut down for lumber. Wood is strong yet relatively easy to cut, carve, join, finish, and refinish. Wooden pieces are easily cared for, and if they are well constructed and carefully maintained, they may become better looking with age and last almost indefinitely. Throughout history, the unique characteristics and abundance of wood have made it a natural material for homes and other structures, furniture, tools, vehicles, and decorative objects. Today, for the same reasons, wood is prized for a multitude of uses (Forest Products Laboratory 2017). As a construction material, wood is the primary and most popular material for furniture manufacturing. To obtain the necessary semi-finished products for furniture, wood must be processed. The first step is to convert the wood into a log, and the second step is the sawing of the log into small pieces (chocks, friezes, *etc*.). In the later stages, wood is converted into the final product, furniture. Wood is an eco-friendly material, durable, safe and friendly for the health of the user (Smardzewski 2015).

Wood materials that people use at their houses as furniture, decorative objects, and various domestic appliances have benefits and detriments. According to Turkcu (2010), lightness is the leading positive feature of wood. Wood materials that can be easily jointed can be interconnected, attached, and pieced with nail, screw, *etc*. It is a heat-insulating material. It can be easily processed. Also, it is a material that does not transmit electricity (non-conducting) when dry, while its conductivity increases when wet. It is a material with high bearing capacity. Water permeability is one of the

undesired features of wood. If not protected, it absorbs water, whereas upon drying it shrinks, and it may crack when dry. Another negative feature of wood is that it tends to decay and rot. Woodworms, insects, fungi and bacteria may cause wood decay. Lack of fire resistance is its most negative characteristic. It starts to burn at 150 °C.

The use of natural wood in the production of furniture, decorative articles, and domestic appliances is less common now than in the past. According to Binggeli (2007), humans benefit from wood by-products for furniture making, interior design, or decorative aims. These by-products include various categories. For example, solid wood used for construction and framing is called lumber, while wood veneers are very thin slices of wood applied to the surface of furniture, decorative objects, and wall paneling. Plywood is a sandwich of an uneven number of layers of wood products glued together. Wood composite panels (composition boards) include plywood, particleboard, MDF, hardboards, and oriented strand board (OSB). They are made of layers or particles of wood and adhesives and provide flat surfaces that are wider than available solid wood.

The relationship of people with wood in houses is concentrated on furniture. According to TS/ 4521 (1985), wooden furniture is either a stationary or mobile good, made from wooden materials, such as solid wood, particleboard, fiberboard, and plywood, that make it easy for people to sit, dine, study, rest, and other functions. According to Smardzewski (2015) furniture is an object of applied art intended for mobile and permanent furnishing of residential interiors. It serves for storage, work, eating, and sitting, lying down, sleeping, and relaxing. Furniture can be used individually, in suites, or in sets. This study evaluated people's thoughts about wood, with regard to their attitudes and preferences of wooden articles in their houses.

The focus of this study is to measure consumers' thoughts, knowledge, and awareness of wood materials. A survey was administered to 412 individuals to analyze how their knowledge and conscious attitudes are reflected in their purchase and use of various wooden domestic items, including wood furniture and woodenware. In this context, wood knowledge and awareness of these consumers were measured and the details involved in the purchase and use process of consumers were examined.

Literature Review

Kaputa *et al.* (2018) studied the Slovakian and Croatian furniture market and compared customers' furniture demands and preferences in both countries. The preferences of the customers was found to vary with respect to properties of furniture, materials used, furniture style, when buying indoor and outdoor furniture. However, the consumers of both countries usually prefer wood as furniture material. Andac and Guzel (2017) studied the general perspectives of parents with various demographic backgrounds toward eco-friendly design; the material that parents trust most is wood (70%). Furniture that is not harmful to health and environment are preferred by well-educated and high-income parents. For other individuals, the price of eco-friendly furniture is a factor that limits such purchases (Andac and Guzel 2017).

Lihra *et al*. (2012) addressed the importance given by the customers in USA to "customization" while buying furniture. Customers are usually price-oriented (50%). Moreover, women give importance to customization (Torsten *et al.* 2012). Toivonen (2012) conducted a survey to examine how consumers perceive product quality of wooden flooring/paneling materials and wooden furniture in Finland. For consumers, the quality of the tangible product is much more important than quality of service (intangible products) in terms of wooden products (Toivonen 2012). Veisten (2002) studied the attitudes and preferences of Norwegian consumers toward wooden furniture and eco-labeled wooden furniture, showing that "pricing" is important for consumers. English (39%) and Norwegian (32%) consumers, who preferred an eco-labeled furniture to wooden furniture, pay attention to price differences. If the price difference

is less than 5%, these consumers prefer to buy the furniture with an eco-label (Veisten 2002). Pakarinen (1999) examined the perceptions of consumers toward utilization areas of wood in furniture. The survey included 115 participants in Finland, indicating that consumers perceive wood as a reliable, environmentally friendly, attractive, and valued material. The consumers were concerned about safety and the environment in preference of wood as a furniture material (Pakarinen 1999).

EXPERIMENTAL

Data Collection

This study was conducted in the province of Kayseri in Turkey. The furniture industry has a significant volume in Kayseri, a city with a highly developed industry. According to the Union of Chambers and Commodity Exchanges of Turkey (abbr. TOBB) (2017), Kayseri is an important furniture center, with the companies dealing with furniture making in every branch of the sector. According to export data of TOBB and Turkish Statistical Institute (abbr. TUIK), Kayseri is the number one region in furniture export at the national level. It has a production capacity with a volume approximately two times more than overall Turkey (the Union of Chambers and Commodity Exchanges of Turkey). Given the capacity and product range of Kayseri, consumers living in this city can easily reach various alternatives in terms of design, price, quality, and other similar criteria, and they can have a certain consumption experience. Therefore, Kayseri was chosen for this study. The studies planned for further periods will be conducted across Turkey in other cities (İstanbul, Ankara, Bursa, *etc*.) with great potential in the furniture sector.

Kayseri was preferred for this study instead of overall Turkey because of financial troubles, time limitation, safety concerns, transportation problems, and possibility of participation in the survey in addition to the reasons mentioned above. After a comprehensive literature survey, a questionnaire was created with a wide range of questions about wooden goods and furniture. The survey was conducted on consumers who came to a store selling various wooden products and furniture in Kayseri and who willingly participated in the survey.

Analysis Procedures

To obtain quality, objective, and comprehensive data in this study, a face-to-face interview survey method was chosen. The face-to face interview is the most popular and oldest form of survey data collection. It minimizes no response and maximizes the quality of data collection. This method has some advantages and disadvantages. It is advantage is that some questions and items could be clarified with the help of an interviewer. That the responders are not able to spend enough time for questions in comparison to alternative methods is its disadvantage (Lavrakas 2008).

Considering the possibility that the participants may have missing or false information or find complicated the questions about the issues such as the concept of wood, the use of wood in houses, wooden furniture that are incorporated in the questionnaires, this questionnaire application type has been preferred. It aimed to obtain maximum consistent and accurate information flow by making explanations to individuals at necessary points by trying to provide the individuals with accurate and explicit perception. The questionnaire form consisted of four chapters. The demographic characteristics of the individuals were handled in the first chapter. As part of the second chapter, the level of knowledge of individuals about the concept of wood, advantages and disadvantages of the use of wood was measured. The third chapter investigated the level of use of wood in houses. In the fourth part, the value judgments

of individuals toward use and preference of wooden goods (household items, decorative articles, etc.) and furniture, which cover the subjects of the first three chapters, was examined using the quinary Likert Scale. A Likert scale assesses attitudes towards a topic by presenting a set of statements about the topic and asking respondents to indicate or each whether they strongly agree (SA), agree (A), are undecided (U), disagree (D), and strongly disagree (SD) (Ary *et al.* 2009).

Individuals living in Kayseri were the population of the study. The population of Kayseri was recently counted as 1,389,680 (TUIK 2019). This study was conducted in a store operating in Kayseri and where various wooden products and furniture are sold. Although the questionnaire was planned to include three hundred and eighty-four (384) individuals among those who come to the store for purchasing and visiting, it was applied to four hundred and twelve (412) individuals with addition of an extra twenty-eight (28) individuals thanks to their positive approach to the study. In the research descriptive statistics tests and (according to confidence interval of 95%), a one-way ANOVA test was implemented. The following formula was used to calculate the number of samples (Lehmann 2011; Ministry of National Education 2011; Bluman 2012),

$$n = \frac{N(t_1 - \alpha)^2 (p \,.\, q)}{d^2 (N - 1) + (t_1 - \alpha)^2 (p \,.\, q)} \quad (1)$$

where n is the optimum size of sampling, N is the number of people in the Universe, $(t1\text{-}\alpha)^2$ is the value in the t-table at a defined confidence level, with infinite degree of freedom. (t-table value for 95% = 1.96), (d = Acceptable error level 0.05), p is the frequency, consistent with previous research, and q = (1-p) is the anti-occurrence of the case.

The data were analyzed in the Weka 3.9 (Waikato Environment for Knowledge Analysis) statistical software. Weka has a general public license, and was developed at the University of Waikato, New Zealand (Weka 2019). The obtained data was presented through tables (Waikato Environment for Knowledge Analysis 2019).

Hypothesis

The following hypothesis was established to learn and analyze the degree of knowledge and attitudes of individuals in relation to demographics on the concept of wood and the use of wood. The hypothesis was tested based on responses to the sentences in Table 2.

- $H_{(0)}$: Individuals with higher income levels are more concerned with aesthetic and practical qualities of wood than those with lower income levels.

RESULTS AND DISCUSSION

Demographic Findings

The demographic characteristics of the participants are shown in Table 1. The sample was comprised of more females (58.3%) than males (41.7%). A total of 58.4% of these individuals were married and 31.6% were single. The largest age group was participants between the ages of 26 and 35 years (32%). Half of the sample had a bachelor's degree (50%). Examining the income level of the participants, 28.6% earned minimum wage or less (352 USD and below) (according to the Ministry of Family, Labor, and Social Services, the monthly minimum wage in Turkey is 2.020.90 TL net) ("Turkısh Lıra" is the official currency of Turkey, and is symbolized as TL), while 30.6% earn between 3001 and 5000 TL (524–872 USD). In addition, 41.3% of respondents have children aged 0 to 12.

Table 1. Demographic Characteristics of Participants

Sex	**(%)**	**Educational Status**	**(%)**
Male	41.7	Primary school	9.2
Female	58.3	High school	16.5
Age	**(%)**	Associate degree	12.6
18–25	25.1	Bachelor degree	50
26–35	32	Master / PhD	11.7
36–45	26.2	**Income Status**	**(%)**
46–65	15.5	Minimum wage and below (352 USD and below)	28.6
66 and older	1	Minimum wage to 3000 TL (352–523 USD)	19.4
Marital status	**(%)**	3,001–5,000 TL (524–872 USD)	30.6
Married	68.4	5,001–7,000 TL (873–1,221 USD)	17.5
Single	31.6	7,001 TL and above (1,222 USD and upper)	3.9

Findings of Analysis of Wood Properties

This section asked individuals about their knowledge of various properties of wood. The survey contains a list of properties of wood. Individuals were asked to answer the questions according to this list. First, the individuals were asked to indicate what they first think of when they hear the word "wooden." Nearly the half of the individuals (45.6%) defined wood as a natural and organic material. The fact that wood is a natural and organic material as well as considered healthy (18.4%) is the first connotation of wood in the minds of most individuals. Wood is perceived as an environmentally friendly material (5.8%) according to the responses. The respondents consider wood as a durable and long-life material if it is maintained and repaired on a regular basis (17%). Furthermore, some individuals emphasized wood as an aesthetic material (9.2%). Similarly, Palus *et al.* (2012) reported that consumers prefer wood because it is an ecological, renewable, natural, healthy, and safe material besides being a traditional material.

Secondly, individuals were presented with a list of negative and positive features of wood under headings and then asked which of these features come to mind first when they think about wood. According to the individuals, wood is the most favorable material (24.8%) because it can be easily shaped and processed. Other responses were as follows; simple maintenance and repair (10.2%) if a processed wood becomes worn over time and reusability for a different purpose if it maintains the integrity of the structure (5.3%). The participants considered wood a light material (6.8%) but also durable (21.8%). Some individuals saw wood as a renewable material with continuity in nature (18.4%). A few individuals considered wood as a material that provides thermal insulation (5.8%), electrical insulation (2.4%), and acoustic properties (5.3%). Among the negative characteristics of wood is the fact that wood is not resistant to water and moisture (51%). The fact that wood is not resistant to water and moisture is a negative feature for women (63.8%) particularly. Secondly, it is vulnerable (29.6%) to damage by biological creatures, such as insects, worms, rodents, and fungi. In addition, the fact that wood is an easily flammable material (14.6%) and resistant to abrasion (4.9%) were among the answers of the individuals. In contrast to our results, Palus *et al.* (2012) found consumers prefer wood because of its fire resistance. However, similar to our results, they also indicated that consumers prefer wood for its health and safety characteristics, durability, and firmness (Palus *et al.*, 2012).

Findings of Wooden Material for Domestic Use

Concerning domestic use, participants were asked about the use of wood in their personal dwelling. According to the responses, the individuals prefer wood usually as

furniture (82.5%) and then as decorative articles (7.2%). When individuals were asked about the kind of furniture they use in their houses, it was found that they used furniture made of wood composite (71.8%) materials, such as particleboard (sometimes known as chipboard) and medium-density fiberboard (MDF). This preference reflects that wood is an expensive material, as indicated by more than half of the respondents (57.8%). This indicates that price is important when the consumer buys furniture. Similarly, Mohamed and Abdullah (2006), Lihra and Graf (2007), and Lihra *et al*. (2012), Andac and Guzel (2017), and Kaputa *et al*. (2018) reported that price was an important factor concerning consumers' intention to purchase certain furniture. In particular, 19.4% stated they preferred wood composite since they viewed the lack of resistance to water and moisture of wood as a negative characteristic.

When asked their reason for choosing wooden furniture for their houses, participants stated they might choose wood because it is a natural and organic material (27.2%) as well as a sturdy material (24.3%). Similarly, Palus *et al*. (2012) and Andac and Guzel (2017) reported that consumers prefer wood as a material because of its natural and organic structure. Concerning the types of wooden furniture, they would like in their houses, individuals stated that they would prefer wood as a storage element, such as a cupboard or bookcase (47.6%), followed by a table (24.3%). In the case the furniture to be purchased is not completely made of wood, respondents stated that they would at least prefer the tabletop (40.8%) or, as an additional preference, the feet of the furniture (26.7%) to be made of wood. Individuals stated that the furniture currently in their houses are items with wooden feet (37.4%), followed by tabletops (28.2%) and doors (21.8%). Furthermore, individuals stated that it does not matter if their wooden furniture has a seat made out of another material (22.3%). This situation is related to the fact that the seating surfaces are soft and contribute to seating comfort. The past purchasing experience of the individuals was not investigated; however, some individuals stated that they had experienced unknowingly buying wood composite furniture instead of solid wood furniture in the past (38.3%).

Findings of Consumer Attitudes Related to Wood

This section describes how consumers evaluate the properties of wood, wooden furniture, and other articles. In this evaluation, the processes such as purchasing of wooden items subsequent use have been addressed (Table 2). Participants were asked to indicate their agreement with 11 statements using a 5-point Likert scale. In addition, all of the statements in Table 2 were analyzed to a one-way ANOVA test in the next section and the result is presented in Table 3.

Respondents indicated they strongly agreed that wood as a material directly reminds them of nature (47.6%) and it is a beautiful and aesthetic material because of its naturalness (46.6%). Concerning other wood properties, respondents agreed with the following statements: the use of wood gives people pleasure and happiness (43.7%) and it promotes mental and emotional (41.7%) relaxation. Participants also agreed that the natural vascular structure of the wood makes it attractive (45.1%) and that painted wood material, as well as unpainted, has an attractive effect (32.5%). Similarly, the results of the survey showed that some individuals believe that color, texture, and patterning processes of wood with various staining and coloring techniques have an attractive effect on people on the way of selling it (35.9%), whereas others stated that it causes an opposite effect (35.4%) by concealing its naturalness. Furthermore, the results of the survey discovered that the functionality of wooden goods had an effect (48.5%) on merchantability as much as its design.

Almost half of the respondents felt "wooden goods" was interchangeable with "wooden furniture" (49.5%). They also felt that the fact that furniture and various household items are made of natural wood makes them easier to buy (55.8%). In addition, the individuals stated that the concept of "environmental sensitivity" is

essential in the design and production of wooden articles (49%), and "environmentally friendly" on the labels (44.2%) and the low rate of hazardous waste (44.7%) in the production process of these articles have a significant impact. Similarly, Palus *et al.* (2012) reported that consumers prefer wood because of their ecological characteristics. Andac and Guzel (2017) reported that consumers are more likely to buy environment-friendly furniture for their children. Roos and Hugosson (2008) reported that young individuals have a more positive approach to environmentally-friendly labeled products. Ozanne and Smith (1996) also reported that consumers are positive in buying environmentally-friendly furniture, provided that they are at a similar price to the products available on the market.

Even if they have an environmentally friendly approach, many participants (41.7%) thought that wooden furniture should still undergo processes that would strengthen them against external factors (abrasion, decay, combustion, *etc.*) and they do not have an apparent attitude whether these processes would render it unhealthy and harmful to the environment by destroying the nature of wood (34%). Finally, more than half of the respondents think that wooden furniture is now being replaced by wood composite furniture (51%). In their opinions, articles and furniture made of wood composite material are preferred by the consumers because they offer many functions and design options (51.9%). Some respondents (27.2%) indicated that consumers who purchase goods and furniture made of such materials are aware of the risks of unnatural materials. Notably, Hood *et al.* (2018) reported that wood composites are preferred as an indoor furniture material. Further, Holopainen *et al.* (2014) reported that young and middle-aged consumers attach importance to the external appearance of their products when buying wooden products.

Table 2. Expressions for Measuring Consumer Attitudes about Wood

Expression Number	Expressions
1	As a material, wood directly reflects nature.
2	The use of wood gives people pleasure and happiness.
3	The use of wood promotes mental and emotional relaxation for people.
4	Wood is a beautiful and aesthetically pleasing material due to its naturalness.
5	As well as design, the functionality of the wooden furniture is important in the purchase decision.
6	When it comes to wooden goods, wooden furniture comes to mind first.
7	Today, the concept of "environmental sensitivity" is essential in the design and production of wooden goods.
8	For consumers, the term "environmentally friendly" is an essential factor that has an impact on the purchase of wooden goods.
9	The fact that furniture and various household items are made of natural wood makes them easier to buy.
10	Furniture produced from wood composite (particleboard, MDF, etc.) has replaced wooden furniture today.
11	Articles and furniture made of wood composite material are preferred by consumers since they offer many functions and design options.

One-way ANOVA Findings

Differences in participants' concepts of wood, wooden furniture, and other goods were examined according to income factor (Table 3). A one-way ANOVA was used to determine whether the arithmetic means of all the judgments, each of which is independent variable, in Table 2 differed significantly according to income factor. A meaningful result ($p = 0.003$) was found for the statement that the use of wood promotes mental and emotional relaxation for people (Expression 3). Individuals who earn 7001 TL or more (1,222 USD and above) do not consider wood as a functional item only.

They also believe that wood as an article has the potential to create positive benefits in their personalities through its use. However, individuals who earned minimum wage and had a lower income level did not share the same idea. According to this result, $H_{(0)}$ (Individuals with higher income levels are more concerned with aesthetic and practical qualities of wood than those with lower income levels) is supported.

Table 3. One-way ANOVA Test Result of Expressions about Wood

Income Level	N	X	SD	F-value	P-value
Minimum wage or below (380 USD and below)	118	1.76	0.854	4,063	0.003
Minimum wage and above–3000 TL (352–523 USD)	80	1.98	1.018	**Meaningful Difference**	
3001–5000 TL (524–872 USD)	126	1.97	0.1929		
5001–7000 TL (873–1,221 USD)	72	2.11	0.703	7001 TL and above (1,222 USD and above)	
7001 TL and above (1,222 USD and upper)	16	2.63	1.258		
* $p > 0.05$ means there was no bond between data; $p < 0.05$ means there was a bond between data					

CONCLUSIONS

1. According to participants, wood is defined as follows: In addition to being a natural, organic, and healthy material, it is durable and easy to shape and process in contrast to its lightness; it is a material that has low resistance to water, moisture, and biological pests due to its natural structure.
2. Concerning psychological influences of the use of wood, participants indicated that wood could be defined as a material that gives people pleasure and happiness and relaxes them mentally and emotionally.
3. The results of the one-way ANOVA provide support for $H_{(0)}$ in that individuals with higher income levels think that wood promotes mental and emotional relaxation when compared with individuals with lower income levels.
4. Designing and producing wooden goods with an environmentally sensitive approach is important for consumers. In addition, it was determined that products with "environmentally friendly" captioned on their labels and those that are less harmful to the environment during the production process contribute to the consumers' purchase intention.
5. Consumers prefer wood material in their homes as furniture (*e.g.*, cabinet and bookcase). Since consumers find furniture made exclusively of wood expensive, they tend to prefer furniture only made of partly of wood (*e.g.*, tabletop and legs). It is important for companies to consider this information when creating their product range to increase their sales.
6. Consumers consider alternative materials, such as wooden composite (particleboard, MDF in particular), that are not as natural and healthy as wood in an effort to negotiate price. Participants indicated the benefits of these other materials include their low production costs and variety of colors, design, *etc.*
7. Kayseri is one of Turkey's largest manufacturing sectors of furniture and wooden products. Therefore, an understanding of consumer preferences in Kayseri by local producers and testing their benefits may be generalizable to other sectors and locations. In this situation, Turkey may lead to the emergence of new designs, production processes, and marketing strategies in the future.

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