

# The perception of COVID-19 and avoidance behavior in Turkey: the role of income level, gender and education

COVID-19 and  
avoidance  
behavior in  
Turkey

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## Abstract

**Purpose** – This study aims to reveal both the effect of the perception of COVID-19 on avoidance behaviors and the mediating role of the perception of personal control in this relationship. COVID-19 emerged in December 2019 and since then, it has spread globally in a short period and has affected people socially, economically and culturally.

**Design/methodology/approach** – The data for the research was collected from 418 participants during COVID-19, through online questionnaires. The obtained data were analyzed through AMOS and SPSS software using structural equation modeling.

**Findings** – The research results show that some perceptions of COVID-19 affect avoidance behavior and that personal control has a mediating role. It has also been found that gender plays a moderating role in the relationship between COVID-19 and avoidance behavior. It has been found that women are especially more sensitive compared to men in perceiving COVID-19. This study also found that perception of COVID-19 changes depending on income.

**Practical implications** – After the pandemic is over, people will get in contact with each other less than before, and trade will change accordingly. People will avoid shopping in crowded places, and consumer behaviors will undergo different changes. All of these results considered, it is expected that avoidance behavior will cause some permanent behavioral changes in consumers.

**Originality/value** – The study answers the critical question about the effect of the perception of COVID-19 on avoidance behavior. Furthermore, the role of income level, gender and education in this relationship will be highlighted.

**Keywords** COVID-19, Lay theory, Avoidance behavior, Consumer behavior, Turkey, Emerging markets

**Paper type** Research paper

## 1. Introduction

Throughout history, humankind has fought many epidemics. Some of these epidemics are bacteria-rooted, and some of them are virus-rooted. Some of the epidemics that affected the society both psychologically and sociologically are as followed. Humanity fought smallpox that caused the deaths of many children in the 12th century, Leptra that caused deformations



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and exclusion from the society in the 13th century, Plague that caused mass deaths in the 14th century, Syphilis in 15th century, Dysentery in 16th century, Tuberculosis in 17th century, Cholera in 19th century, AIDS in 20th century and fought Ebola, Bird flu, Swine flu, Mad Calf disease, CCHF, SARS and MERS in the 21st century. The fight with COVID-19 started at the end of 2019. COVID-19, which infected people from 6 continents and 216 countries, has infected 23 million people and caused the deaths of 700,000 people in the first year of its spread (WHO, 2020). COVID-19 is in the same virus family with some forms of the common cold, and it is a form of coronavirus (Alpago and Alpago, 2020, p. 103). Even though it is in the same category as MERS and SARS, it spreads a lot faster, and it causes more damage. Therefore, psychological, sociological and economic repercussions of COVID-19 are too many to compare it with other viruses (Ahmed *et al.*, 2020; Baker *et al.*, 2020).

Many strict measures are taken to decrease the possibility of getting infected. However, these measures cause significant changes in the behaviors of people (Afacan and Avci, 2020). For this reason, epidemics affect human behaviors in many ways (Bavel *et al.*, 2020). People have started to avoid many behaviors that they exhibited before in order not to get infected. For example, many people tend to avoid watching news related to the pandemic, talking about the pandemic, coming into contact with others, participating in social events, going to shopping malls and using public transport (Çırakoğlu, 2011). Even though Çırakoğlu (2011) suggests that people have a tendency to switch the channel when pandemic-related news are shown, Dönmez and Gürbüz (2020) found that university students mostly follow television news and social media to get informed about COVID-19. However, it is not certain which behaviors people will avoid because of their perception of COVID-19, and what kind of behavioral changes this will cause in consumers.

The studies in the literature show that epidemics trigger anxiety, and this situation increases the avoidance behavior in individuals who are under threat (Goodwin *et al.*, 2011; Leppin and Aro, 2009; Taylor *et al.*, 2008; Roy *et al.*, 2020). In order to understand how people interpret their social circles, the first thing to know is how they experience the world where they live. Lay theory is used to understand the characteristics of humans, the actions of humans and their outcomes, and to shape the way people react to these actions (Dweck *et al.*, 1995). Lay theory, which affects the perceptions of individuals, was put forward to understand how people interpret the environment where they live, the objects in this environment, other people, the events and the processes taking place in the world (Furnham, 1988). This study will analyze the effect of the perception of COVID-19 on avoidance behavior from the perspective of lay theory.

The study will first question the effect of the perception of COVID-19 on avoidance behavior. Furthermore, the study will analyze the moderating role of gender and education level in the relationship between the perception of COVID-19 and avoidance behavior. It will also examine the mediating role of personal control between the perception of COVID-19 and avoidance behavior. Lastly we will analyze whether the perception of COVID-19 differs depending on education, income, and professional status in addition to the effect of the perception of COVID-19 and avoidance behaviors on consumer behaviors. Therefore, the aim is to determine the possible behavioral changes of the consumers through the results of this study.

The study will first explain important terms regarding this topic and will address the previous studies in the literature that were conducted on this subject. Afterwards, we will present the research model, hypotheses and supporting arguments. The methodology part will include information on data collection and the analysis. The last part will consist of the results, theoretical and practical contributions.

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## 2. Literature review and hypotheses

### 2.1 Literature review

Coronaviruses are enveloped, positive-sense single-stranded RNA viruses that infect humans and animals. Coronaviruses were first discovered in 1966 in patients with the common cold (Tyrell and Bynoe, 1966). People who get infected with COVID-19 suffer from symptoms like fever, cough and shortness of breath, which are similar to the symptoms of the common cold. However, in severe cases, it can cause pneumonia, multiple organ failure, severe acute respiratory syndrome and death. Death is more common, especially in the elderly and people who have chronic health problems (Statista, 2020). A disease is called an “epidemic” when it causes many cases in a certain amount of time, and it is called a “pandemic” when it affects a whole continent or continents (Arik, 1991, p. 27). After the World Health Organization declared COVID-19 a pandemic, many changes happened in both social and economic life.

*2.1.1 Perception of conspiracy.* Coronavirus pandemic showed how defenseless and helpless the current world order is in the face of an outbreak. The virus spread very quickly to every part of the world; however, the only thing that spreads faster than the virus itself is the misinformation and scary stories circulating through social media. Some governments realized that they do not even have a mechanism that can decide on how to react in a situation like this (Varnali, 2020). From a social point of view, the possibility of people believing in conspiracy theories about significant incidents with big consequences is relatively high (McCauley and Jacques, 1979; Van Prooijen and Douglas, 2017). People tend to base unexpected significant incidents on conspiracy theories (Leman and Cimirella, 2007). Furthermore, anti-science statements, conspiracy theories and anti-vaxxer activists stand out during this period (Depoux *et al.*, 2020; Garfin *et al.*, 2020; Llewellyn, 2020). For this reason, this perception should be evaluated in the right manner. “Perception of Conspiracy” factor that is used in this study covers the conspiracy beliefs about the causes of the disease that are frequently on the media.

When people suffer from significant psychological problems, they tend to lean more on conspiracy theories (Douglas *et al.*, 2017). Moreover, conspiracy theories are likely to develop more in low safety places. Some parts of the society believe these theories because there is not a scientific consensus on long-term social and economic outcomes of this situation. Some theories, in particular, circulate through social media which are, COVID-19 being developed by the Chinese people on purpose, 5G network activating the virus, this is a hoax that was made up by a global group for economic benefits and COVID-19 being a biological weapon (Shahsavari *et al.*, 2020, p. 2). Especially the link between the spread of COVID-19 and 5G has caused these discussions to increase (Ahmed *et al.*, 2020). Some previous conspiracy theories on certain diseases include them being purposely developed to sell vaccines (Jolley and Douglas, 2014).

*2.1.2 Macro control.* Preventive measures for the pandemic include social distancing and wearing masks. The damages caused by the outcomes of quarantine like the decrease in the labor force, closing down the workplaces, import and export limitations, decrease in consumption are tried to be prevented, and the adverse effects of these measures are tried to be decreased (Moral and Partners, 2020). Governments have tried to decrease the possibility of infections, limit getting in close contact with people with high infection risk and inhibit the spread of COVID-19 as much as possible by practicing physical distancing. “Perception of Macro Control” is about the beliefs of participants regarding the measures taken on a corporate, national or global level.

Different measures have been taken to cope with the virus all around the world. For example, China practiced official quarantine and imprisoned people who do not abide by the rules of quarantine (Moral and Partners, 2020). Furthermore, it also took measures like locking down a city to lessen the effects of the pandemic. Moreover, it imposed travel

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restrictions to decrease inter-city travel and quickly built new hospitals for the pandemic (Lin *et al.*, 2020).

On the other hand, some scientists, in the search for controlling COVID-19, analyzed some measures, taken to prevent HIV and used in the research for treatment. They made data-oriented and well-coordinated plans for this search (Eaton and Kalichman, 2020, p. 344). The rapid, global spread of COVID-19 forced governments to take a wide range of measures. Some of the widely taken measures are closing down schools, travel restrictions and banning meetings. Also, the contact between people has been observed, and health systems have been strengthened. Right after these measures, economic outcomes have begun to emerge. However, how quickly people interiorized these measures and to what degree they practiced in them are determiners in the spread of the disease (Hale *et al.*, 2020). Stricter government policies and protective procedures slowed down the spread of the virus in infected populations (Fang *et al.*, 2020).

*2.1.3 Personal control.* A person can get infected from an infected person through relatively big respiratory particles that move as drops within a 1-meter radius. For this reason, personal protection has become an urgent matter during this outbreak. The usage of equipment for personal protection has increased as they decrease the possibility of infection and increase protection (Cook, 2020, p. 920). As COVID-19 spreads through close contact, air and drops, the people who are under the risk of infection the most, are people who are in close contact with a patient or taking care of the patients. "Perception of Personal Control," used in this research, is about the effectiveness of the measures taken.

Specific personal measures are crucial for not catching the disease. The first measure that should be taken not to catch COVID-19 is related to hand hygiene. If your hands are not visibly dirty, they should be frequently cleaned with alcohol-based products; however, if they are dirty, they should frequently be washed with soap and water. One should refrain from touching their eye, nose and mouth. One should cough and sneeze on the inside of their elbow. Moreover, wearing medical masks and cleansing your hands after wearing them is also vital. Also, one should maintain a meter of social distance (WHO, 2020). For personal protection, the products that have been bought the most include cologne, disinfectant, and vitamins to strengthen the immune system. Medical masks and gloves are also among the products whose purchasing rate increased after COVID-19 (Ipsos, 2020).

*2.1.4 Avoidance behavior.* Anxiety, worry, paranoia and sleeping disorders have been observed in people during COVID-19 (Roy *et al.*, 2020). The anxiety levels of people have increased because of this extraordinary situation, and people have made many Internet searches regarding psychological disorders. In parallel with this, the number of worrisome news about COVID-19 on social media has considerably increased (Li *et al.*, 2020).

People with different anxiety levels have perceived the outbreak differently. The first question that comes to mind is why this pandemic emerged. While some people regard the pandemic as conspiracy, some think that it developed on its own. Some people stopped questioning the underlying reason for the pandemic all together and started questioning how to control it. Naturally, controlling a big scale outbreak like this is not easy. Control can be established both through the power of the government and through personal means.

Avoidance behavior is something that emerges at times of anxiety, inhibits facing the cause of the anxiety and is generally regarded as an unwanted behavior. "Cognitive Avoidance" includes behaviors made to avoid thinking and talking about COVID-19. "Avoiding public places" includes avoiding shared places used by the general public. "Avoiding close contact" measures how frequently individuals avoid physical contact with risky surfaces and other people (Çırakoğlu, 2011).

*2.1.5 Consumer behavior during COVID-19.* During this pandemic, people have started to prioritize their basic needs and spend less money on other categories (McKinsey, 2020). The limbic system, which is responsible for vital functions and emotions, is in a survival mood

during the pandemic, and for this reason, consumers started panic buying. Emptying the shelves, overbuying products like toilet paper, bread and pasta are the reflections of our brain activating its survival mood.

On the other hand, at the beginning of the pandemic, there was not much awareness in the countries with no coronavirus cases. This is a cognitive tendency called “Neglect of probability.” People neglected the pandemic until it started affecting their close environment and did not presume that it would spread to their country. However, after the emergence of the first cases in their country, people started panic buying in fear and worry. Furthermore, this period also witnesses “Fear of missing out (FoMO)” and “Bandwagon Effect.” For example, the consumer who would usually go shopping if necessary, started panic buying, fearing that they are missing out on something after seeing the majority of people buying too many things in supermarkets (Genç, 2020). As an evolutionary impulse, the “limited access” principle suggests that people feel a robust behavioral impulse on opportunities that are decreasing rapidly and whose purchasing framework is increasingly closing. Missing an opportunity and hence that opportunity being inaccessible in the future when demanded, causes stress in the brain and unbalanced emotions to arise. This unbalanced situation causes people to act fast by sabotaging analytical thinking (Varnali, 2020).

## 2.2 Research hypotheses

In their research paper on “A Comparison of the Health Anxiety Levels of Individuals and Perceived Control of COVID-19” Ekiz *et al.* (2020) found that when it comes to perceived control during COVID-19, the highest score average of the participants was personal control. The emphasis of media and social networks on personal hygiene, social distancing and washing hands may have caused this awareness in the individuals (Ekiz *et al.*, 2020, p. 152). People tend to take different personal measures during the pandemic (Kristiansen *et al.*, 2007). Results of a study made in five European and three Asian countries show that people care about personal hygiene and social contact during the pandemic (Sadique *et al.*, 2007). People are attentive to social distancing and wearing masks during the coronavirus (Roy *et al.*, 2020). Furthermore, another study conducted in England shows that personal hygiene increased, and personal contact decreased during the pandemic (Jarvis *et al.*, 2020). Ceyhan and Uzuntarla (2020) argued that staying at home is a good way to prevent and control COVID-19. The first hypothesis that will test the effect of perceptions about COVID-19 on personal control is as follows.

### H1. COVID-19 affects personal control.

There are a lot of studies that were made during different outbreaks and show that they trigger anxiety and increase avoidance behaviors because people feel threatened (Goodwin *et al.*, 2011; Leppin and Aro, 2009). During the SARS outbreak, the majority of Europeans refrained from going to entertainment centers, and many Asians refrained from going to the doctors (Sadique *et al.*, 2007). The study by Ekiz *et al.* (2020) provided us with the information that that COVID-19 affects perceived control. In their study made on COVID-19 in Srیشان *et al.* (2020) found that 73.4% of the participants have insufficient knowledge, 28.5% have insufficient attitude and 13.6% have sufficient attitude. They also found that 92.7% of the participants practice self-isolation/ social distancing, 96.4% care about their personal hygiene and 82.3% use masks. Another study that was conducted in India made by Vijai and Joyce (2020) show that 89.9% of the participants have high knowledge on COVID-19 and that newspapers and television are the information sources that are used the most. Additionally, 87.7% of the participants place importance on washing their hands, 79.3% put emphasis on using antibacterial gels and 82.6% use masks. The second research hypothesis that will test the effect of personal control on avoidance behavior is as follows:

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## H2. Personal control affects avoidance behavior.

While individuals who believe that they can easily affect the people around them have high levels of perceived control, people who think they cannot affect others have low levels of perceived control (Bullers and Prescott, 2011). Perceived control has an important role in protecting one's physical health (Smith, 1989). During outbreaks the anxiety levels of people increase, and they start to avoid different behaviors (Jones and Salathe, 2009). A study made in Hong Kong during the SARS outbreak shows that psychological discomforts like despair, trauma and stress were prevalent among people (Lau *et al.*, 2004). A comparative study made in Malaysia and European countries during the Swine Flu outbreak shows that people avoided using public transport and international travels (Goodwin *et al.*, 2011). Another study conducted in France shows that people who perceive the outbreak as dangerous, avoid crowded places not to get infected (Raude and Setbon, 2009). The third hypothesis, which will test the effect of COVID-19 on avoidance behavior is as follows.

## H3. The perception of COVID-19 affects avoidance behavior.

Ekiz *et al.* (2020) found that health anxiety level negatively affects the perceived control of COVID-19. As the health anxiety levels of the individuals increase, their perceived control of the pandemic decreases. In their research made in Hong Kong, Kwok *et al.* (2020) found that almost all participants are concerned about COVID-19 and that their daily routines are distorted. Similarly, another study made on social network users in China, found that while the perception of post-COVID-19 social risk increases, satisfaction that people have with their lives decreases (Li *et al.*, 2020). Through isolation and social distancing during COVID-19, people have tried to control the spread of the pandemic (Hellewell *et al.*, 2020). A research made by Leung *et al.* (2005) shows that senior citizens are less likely to behave in a way that would protect themselves. The fourth research hypothesis that will test the mediating role of personal control in the relationship between the perception of COVID-19 and avoidance behavior is as follows.

## H4. Personal control has a mediating role in the relationship between the perception of COVID-19 and avoidance behavior.

The works in the literature show that the perceptions about diseases change depending on gender. Women tend to perceive diseases emerging from the external environment riskier (Greenberg and Schmieder, 1995; Gustafson, 1998; Leung *et al.*, 2005). Furthermore, a study conducted on university students found that women perceive the possibility of getting infected higher than men (Akan *et al.*, 2010). Moreover, women regard outbreaks as more infectious and deadlier (Leung *et al.*, 2005). On the other hand, a research made in China showed that women participants were more knowledgeable than men when it comes to COVID-19 (Zhong *et al.*, 2020). Bostan *et al.* (2020) found that women have better attitudes and behaviors compared to men which can be cause but the fact that women care more about hygiene because of their biopsychological characteristics and they are better at complying with the rules. The fifth research hypothesis that will test the moderating role of gender in the relationship between the perception of COVID-19 and avoidance behavior is as follows.

## H5. Gender has a moderating role in the relationship between the perception of COVID-19 and avoidance behavior.

A previous study made in Hong Kong and the Netherlands was not able to find a relationship between education levels and avoiding the virus (Lau *et al.*, 2004). People who studied at higher levels of education exhibited cautionary behaviors against SARS (Wu *et al.*, 2020). On the other hand, people with a lower level of education were more overwhelmed by this period as they were not able to work from home during coronavirus and therefore avoided many behaviors (Atchison *et al.*, 2020). It is a fact that education plays a major role in the fight



against infectious diseases (Sachan *et al.*, 2012; Guanche Garcell, 2020). Ceyhan and Uzuntarla (2020) found that education can positively affect the attitudes and behaviors towards the pandemic. The sixth research hypothesis that will test the moderating role of education in the relationship between the perception of COVID-19 and avoidance behavior is as follows.

*H6.* Education level has a moderating role in the relationship between the perception of COVID-19 and avoidance behavior.

Ekiz *et al.* (2020) found that elementary school graduates have the highest levels of perceived control while people with a bachelor's degree have the lowest levels. A study made in India on COVID-19 found that educated people are more cautious towards the pandemic. These people are more aware of the pandemic (Roy *et al.*, 2020). A study conducted in China on COVID-19 found that most of the highly educated participants are more knowledgeable on the pandemic (Zhong *et al.*, 2020). The level of education and the development of the socio-cultural structure positively affect the gathered information, attitudes, and behaviors (Ceyhan and Uzuntarla; 2020). The seventh research hypothesis that will test the moderating role of education in the relationship between perception of COVID-19 and avoidance behavior is as follows.

*H7.* The perception of COVID-19 differs depending on the education level.

The research made by Sögüt *et al.* (2020) on student midwives in Turkey and another research made by Khasawneh *et al.* (2020) on medical school students in Jordan found that most of the participants have sufficient amount of knowledge on the pandemic. Ceylan and Uzuntarla (2020) consider that the knowledge, attitudes and behaviors of the academicians towards the pandemic are on sufficient levels. People from different walks of life perceive the COVID-19 pandemic differently (Roy *et al.*, 2020). People with lower incomes were more overwhelmed by this period as they were not able to work from home during coronavirus (Atchison *et al.*, 2020). The eighth research hypothesis that will test the effect of the perception of COVID-19 depending on the income level is as follows:

*H8.* The perception of COVID-19 differs depending on the income level.

A research made by Zhang *et al.* (2020) on healthcare workers in China shows that 89% of them has sufficient knowledge on the pandemic, 90% of them behave accordingly to the pandemic and that experienced, and highly educated ones are more aware of the pandemic. Generally, healthcare workers have sufficient knowledge on outbreaks and behave and act in a more correct way (Sayed *et al.*, 2011; Wang *et al.*, 2020; Kim and Oh, 2016; Ergün *et al.*, 2020). In a study made in Malaysia during the swine flu, participants working in different jobs perceived the outbreak differently (Goodwin *et al.*, 2011). Another study made on COVID-19 shows that different occupational groups have different perspectives on the pandemic (Kramer and Kramer, 2020). Bhagavathula *et al.* (2020) found that perception of COVID-19 differs significantly depending on the occupation. Furthermore, it was found that people working under risk, perceive the pandemic differently (Koh, 2020). Monova test was made to understand whether the perception of COVID-19 differs depending on different occupational groups. The ninth hypothesis to be tested within this scope is as follows:

*H9.* The perception of COVID-19 differs depending on occupational groups.

### 3. Methodology

#### 3.1 Study model and purpose

This study aims to investigate the effects of the perception of COVID-19 on avoidance behavior. The study also analyzes the mediating role of personal control in the relationship

between the perception of COVID-19 and avoidance behavior. The following model (Figure 1) was developed after reviewing the literature.

### 3.2 The population and sample

The population of the research includes people in Turkey. The individuals were reached through an online questionnaire using convenience and snowball sampling methods. As the sample number minimum 384 was considered sufficient for representing the 95% of the population and a total of 418 people participated in study (Yıldız, 2017, p. 442).

### 3.3 Study scales

“The perception of COVID-19 Scale” and “Avoidance Scale” were used for this research. Both of the scales were taken from the study made by Çırakoğlu (2011). The scales and their sub-dimensions were chosen in line with the purpose of the study. We also paid strong attention to the scales being coherent with the literature. While evaluating the perception of COVID-19, we aimed to find out “whether the participants think of the pandemic as a conspiracy, what they think of macro control measures and whether they abide by personal measures.” We also attempted to determine whether the participants individually try to minimize the devastating effects of the virus and how they perceive the essential measures taken to stop the spread of COVID-19 like “cognitive avoidance, avoiding public places and personal contact.” The statements regarding conspiracy are “This is a political game created by developed countries,” “The pandemic emerged because developed countries try to sell drugs and vaccine,” “The pandemic was consciously spread for economic benefits.” Second, the statements on macro controls are “Sanctions are enough to stop the spread of the disease,” “The work done by health organizations is enough to fight the disease,” “The worldwide measures are sufficient.” The purpose of these statements is to examine whether the participants think the measures taken are sufficient. In order to analyze the thoughts of the participants on personal control, the following statements were included “If I pay attention to personal hygiene, I will not get the disease,” “If I have a good diet then this disease will not affect me,” “Everyone should wash their hands regularly to stop the spread.” The statements made to analyze the cognitive avoidance levels of the participants are as follows: “Changing the subject to avoid talking about the disease,” “Getting away from a situation where people are talking about the disease,” “Changing the channel when there are news on pandemic.” The participants were asked questions about whether they avoid public places to minimize the risk of catching the disease. The questions were on “Not going to malls to avoid catching the disease,” “Avoiding social events (cinema, theatre),” “Avoiding public transport not to catch the disease.” Lastly, there were statements on avoiding personal contact such as “Avoiding kissing people while greeting them in order not to get infected with COVID-19,”

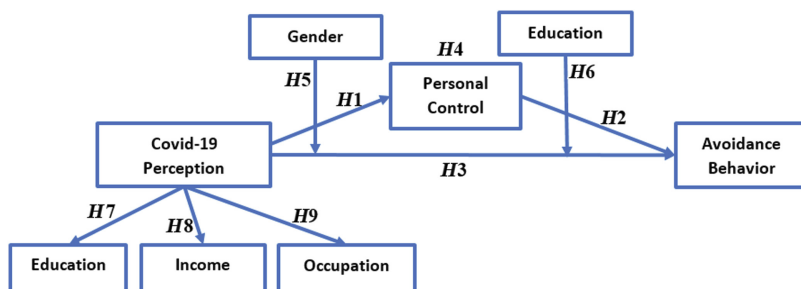


Figure 1.  
The study model



“Avoiding handshakes not to catch the disease,” “Avoiding public bathrooms not to get infected.” Therefore, the scales used in the study are believed to help make correct deductions by identifying the problem, making the necessary assessments and making recommendations in the light of the results.

The perception of COVID-19 consists of three sub-dimensions. These are Conspiracy (6 articles), Macro Control (5 articles) and Personal Control (5 articles) dimensions and in total consists of 16 articles. Another scale that is used is the “Avoidance Scale” has 3 sub-dimensions. These are Cognitive Avoidance (7 articles), Avoiding Public Spaces (4 articles) and Avoiding Personal Contact (3 articles) dimensions, and in total, it has 14 articles. Five-point Likert scale (Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree = 5) was used. To measure the “avoidance behaviors” scale, statements of frequency (1 = Never, 5 = Always) were used. The questionnaire form consists of questions to determine the demographic characteristics like gender, occupation, education, and income.

### 3.4 Study method and participants

Within the scope of the study, data were collected to evaluate the thoughts of individuals in order to achieve the expected aims and test the theoretical model. The occupations of the participants include civil servants, tradesmen, students, housewives, farmers, self-employed people, experts, workers and unemployed people. Questionnaire method was used to collect data. Because of social distancing and extraordinary measures caused by COVID-19, the questionnaire form was made with Google Documents. It was then sent to the participants by sharing a link through WhatsApp. 418 people participated in the questionnaire.

## 4. Findings

### 4.1 Descriptive statistics findings

Table 1 shows the findings regarding the genders, ages, and incomes of the participants. According to Table 1, women participants are more than men (57.9%), most of the participants are students (37.8%) when it comes to education, most of the participants are studying at a faculty (32.3%), and lastly, in terms of incomes most of the participants have an income of ₺4,501 or higher (39.7%).

	N		Occupation		Education		Income				
	N	%	N	%	N	%	N	%			
Female	242	57.9	Civil Servant	136	32.5	Primary Education	23	5.5	below 1,500₺	84	20.1
Male	176	42.1	Tradesman	30	7.2	High School	96	23	1,501–3,000₺	104	24.9
			Student	158	37.8	College	127	30.4	3,001–4,500₺	64	15.3
			Housewife	48	11.5	Faculty	135	32.3	4,501₺ and above	166	39.7
			Farmer	3	0.07	Graduate	37	8.9			
			Self-employed	5	0.012						
			Expert	3	0.07						
			Worker	15	3.6						
			Unemployed	20	4.8						

**Table 1.**  
Demographic characteristics

#### 4.2 Reliability analysis

Widely accepted Cronbach's coefficient alpha according to the study Kılıç made in 2016 is as follows (Perfect  $\alpha \geq 0.9$ ; Good  $0.7 \leq \alpha \leq 0.9$ ; Acceptable  $0.6 \leq \alpha \leq 0.7$ ; Weak  $0.5 \leq \alpha \leq 0.6$ ; Unacceptable  $\alpha \leq 0.5$ ) (Abdulmuhsin and Tarhini, 2021; Kılıç, 2016, p. 48).

Reliability coefficients of two scales and three sub-dimensions of each scale are shown in Table 2.

According to Table 2, reliability coefficients of the Perception of COVID-19 Scale ( $\alpha = 0.826$ ) and Avoidance Behavior Scale ( $\alpha = 0.876$ ) are sufficient. When it comes to sub-dimensions, the Macro dimension (0.754), the lowest dimension, has acceptable results, and the highest dimension Avoiding Personal Contact (0.925) has perfectly acceptable results. In general, reliability levels of the scales are considered acceptable, and they are suitable for making parametric analysis.

#### 4.3 Normality tests of the scales

After the reliability analysis, normality analysis was made to see whether the data is normally distributed. At this stage, the normality test for the Perception of COVID-19 Scale and COVID-19 Avoidance Behavior Scale was made. The data need to be normally distributed to adopt a qualitative research method (Altunışık, 2012, p. 164). There are different methods used to determine whether the data is normally distributed or not. Within the scope of is study, the values of two of these methods evaluated. The first one of these methods is evaluating the significance level of the Shapiro–Wilk normality test. In cases where there was significance  $p$  value  $> 0.05$ , the data were normally distributed (Abdulmuhsin *et al.*, 2021). Both scales were checked to see whether this condition was met, and in the cases that this was not met, the value of skewness and kurtosis was evaluated. If skewness and kurtosis values are between  $-1.5$  and  $+1.5$ , that means the data are normally distributed (Tabachnick and Fidell, 2012, p. 561).

Table 3 shows that the scales used in this study are normally distributed.

#### 4.4 Testing “the perception of COVID-19” scale with AFA

In order to test the construct validity of the scale consisting of 16 statements, exploratory factor analysis was made. The results of the exploratory factor analysis are shown in Tables 4–6. While analyzing the values of exploratory factor analysis, KMO and Bartlett's values

	Cronbach's alpha
<i>The perception of COVID-19 (CONSPIRACY + MACRO)</i>	0.826
(1) Conspiracy	0.883
(2) Macro control	0.754
(3) Personal control	0.841
<i>Avoidance behavior</i>	0.876
(1) Cognitive avoidance	0.854
(2) Avoiding public places	0.890
(3) Avoiding personal contact	0.925

**Table 2.**  
Reliability coefficients  
of the scales

	Statistics	Shapiro–Wilk df	Sig	Skewness	Kurtosis	
<b>Table 3.</b> Normality test	The perception of COVID-19	0.996	418	0.352	−0.086	0.14
	Avoidance behaviors	0.971	418	0.000	−0.352	0.016

were analyzed first. The values were suitable for factor analysis as the KMO value is 0.847, which is higher than 0.6 and  $p < 0.05$  (Güteryüz, 2019, p. 153).

Table 5 presents the results of the analysis, which was performed by using Varimax rotation, and shows the dimensions whose eigenvalue is higher than 1 (Güteryüz, 2019, p. 154). Table 6 shows that all of the factor loadings have a value of 0.399 or higher.

Total variance value has become 60.577% with the three dimensions after the factor analysis. The 1st factor explains 30.12% of variance (eigenvalue: 4.82), while the 2nd one explains 20.85% (eigenvalue 3.34) and the 3rd one explains 9.61% (eigenvalue 1.54) of variance.

#### 4.5 Testing “COVID-19 avoidance behavior” scale with AFA

In order to test the construct validity of the scale, exploratory factor analysis was performed. The results of the exploratory factor analysis are shown in Tables 7–9. While analyzing the values of exploratory factor analysis, KMO and Bartlett’s values were analyzed first. The values were suitable for factor analysis as the KMO value is 0.892, which is higher than 0.6 and  $p < 0.05$  (Güteryüz, 2019, p. 153). According to the results of communalities, extraction

Kaiser-Meyer-Olkin (KMO) values		0.847	<b>Table 4.</b> Kmo and Bartlett’s test
Bartlett’s test values	Approximate chi-square Significance	3,119, 680 0.000	

Dimensions	Total	Eigenvalues		Total	Total loaded value square		
		Impact on variance value (%)	Cumulative variance value (%)		Impact on variance value (%)	Cumulative variance value (%)	
1	4.819	30.117	30.117	4.819	30.117	30.117	<b>Table 5.</b> Total explained variance
2	3.335	20.846	50.963	3.335	20.846	50.963	
3	1.538	9.614	60.577	1.538	9.614	60.577	

Questionnaire questions	Factors			
	1	2	3	
Conspiracy 1	0.825			<b>Table 6.</b> Results of factor analysis
Conspiracy 2	0.824			
Conspiracy 3	0.799			
Conspiracy 4	0.873			
Conspiracy 5	0.820			
Conspiracy 6	0.606			
Macro control 1		0.829		
Macro control 2		0.824		
Macro control 3		0.837		
Macro control 4		0.435		
Macro control 5		0.399		
Personal control 1			0.885	
Personal control 2			0.820	
Personal control 3			0.762	
Personal control 4			0.682	
Personal control 5			0.535	

values of all of the scale items are over the threshold value (0.30). Therefore, the impact of each item on the factor is above the accepted value in the literature (Güteryüz, 2019, p. 154). The lowest extraction value (0.516) is of the item "Reading news on the pandemic" under the dimension "Cognitive Avoidance." Including the item with the lowest extraction value, all of the items have an impact above the standard value.

Table 8 presents the results of the analysis, which was performed by using Varimax rotation, and shows the dimensions whose eigenvalue is higher than 1 (Güteryüz, 2019, p. 154). Table 9 shows that all of the factor loadings have a value of 0.668 or higher.

Total variance value has become 72.414% with the 3 dimensions after the factor analysis. The 1st factor explains 36.51% of variance (eigenvalue: 5.11), while the 2nd one explains 28.663% (eigenvalue 4.013) and the 3rd one explains 7.241% (eigenvalue 1.014) of variance.

#### 4.6 Confirmatory factor analysis of "the Perception of COVID-19" scale and "COVID-19 avoidance behaviors" scale

Confirmatory factor analysis was performed on the model that consists of two factors, six sub-dimensions and 30 articles (Afsar and Umrani, 2020, p. 117).  $X^2/df$ , RMSEA, NFI, CFI, IFI,

**Table 7.**  
Kmo and Bartlett's test

Kaiser-Meyer-Olkin (KMO) values	0.892
Bartlett's test values	Approximate chi-square Significance
	4179.098 0.000

**Table 8.**  
Total explained  
variance

Dimensions	Total	Eigenvalues		Total	Total loaded value Square	
		Impact on variance value (%)	Cumulative variance value (%)		Impact on variance value (%)	Cumulative variance value (%)
1	5.558	39.701	39.701	5.11	36.510	36.510
2	3.816	27.254	66.956	4.013	28.663	65.174
3	0.764	5.459	72.414	1.014	7.241	72.414

**Table 9.**  
Results of factor  
analysis

Questionnaire questions	Factors		
	1	2	3
Cognitive avoidance 1	0.731		
Cognitive avoidance 2	0.769		
Cognitive avoidance 3	0.668		
Cognitive avoidance 4	0.786		
Cognitive avoidance 5	0.787		
Cognitive avoidance 6	0.738		
Cognitive avoidance 7	0.740		
Avoiding public places 1		0.798	
Avoiding public places 2		0.811	
Avoiding public places 3		0.711	
Avoiding public places 4		0.837	
Avoiding personal contact 1			0.850
Avoiding personal contact 2			0.843
Avoiding personal contact 3			0.796

GFI values are the representatives of the model fit. Table 10 reveals the acceptable fits of these values (Karagöz, 2019, p. 737) and research model fit values.

Table 4 shows that  $(X^2)/sd$  percentage, which is 2.607, is below reference value RMSEA shows a good model fit with the value of 0.062. NFI, CFI, GFI and AGFI also show a good model fit. Figure 2 shows the factor loadings and error variances of the variables. Figure 3 shows the factor loadings and error variances of variables.

As Figure 2 shows the model fit indices for the confirmatory factor analysis of the scales are acceptable. Therefore, construct validity is achieved.

Factor (sub-dimensions) loadings of the scale should be analyzed, and the articles should have a loading over 0.30. Table 11 shows the lowest and the highest loadings of the sub-dimensions.

Each factor should have a loading over 0.30 (Seçer, 2017, p. 187). Factor loadings of all articles in “thought” latent variable are between 0.50 and 0.73; in “living style” latent variable between 0.45 and 0.79; in awareness latent variable between 0.42 and 0.56. None of the articles in the sub-dimensions are problematic. Furthermore, there is a positive relationship between health anxiety, thought (0.92), living style (0.66) and awareness (0.71). The results show that the scale is reliable and valid (Tables 3 and 4; Figure 2).

The scales used in this research have enough validity and reliability in compliance with quantitative analysis methods (see Tables 2–11, Figure 2).

#### 4.7 Model test results

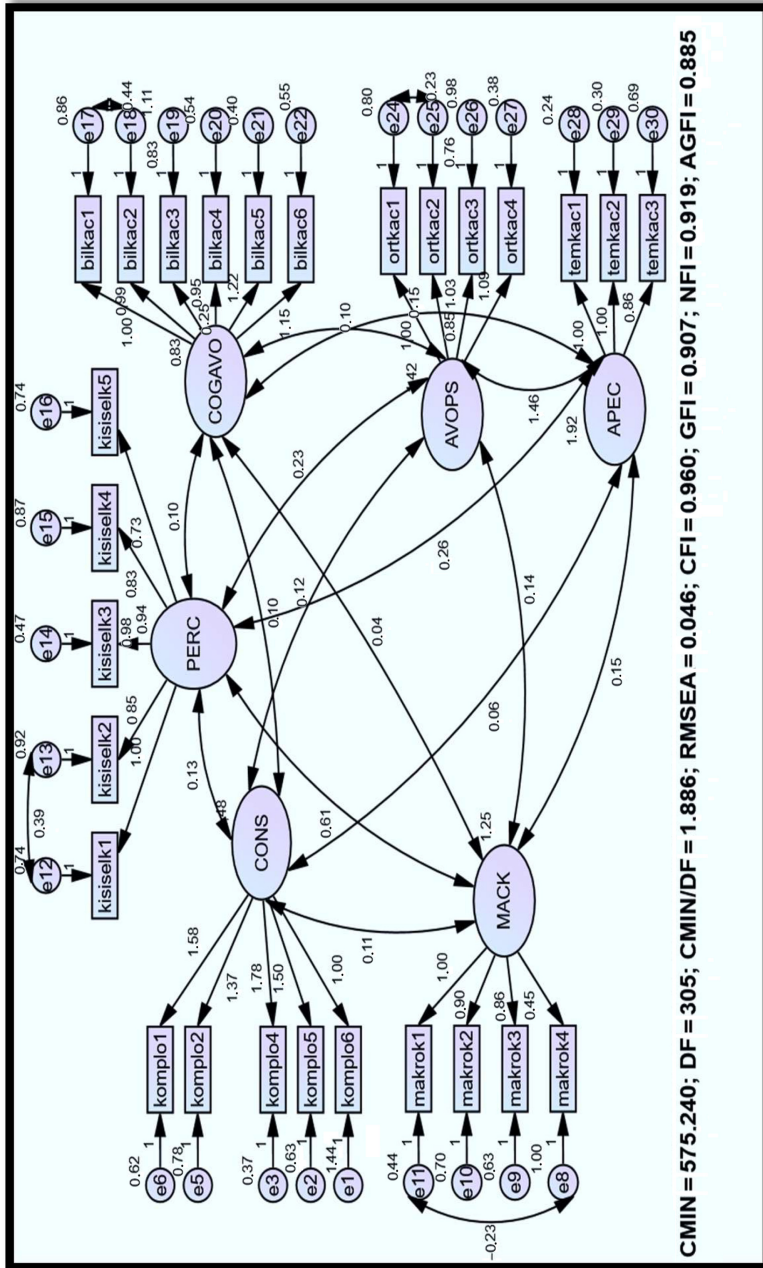
Table 12 shows the results regarding composite reliability and average variance extracted values of the convergent validity. Through the analysis of Composite Reliability and Average Variance Extracted we tested construct validity of the model, content and convergent validity. Forell and Larcker (1981) said that standard composite reliability value should be higher than the threshold value of 0.7. Additionally, Hair et al. (2010) mentioned that average variance explained value should be higher than the threshold value of 0.5.

Table 12 shows that AVE and CR values are higher than the acceptable threshold value. Therefore, the model has convergent validity.

4.7.1 Mediation model analysis according to the modern approach. Modern methods were used while analyzing the 4 hypotheses above. The primary purpose of the modern approach is to calculate the indirect impact value and make deductions from the calculated value. According to the method developed by Baron and Kenny, in order to talk about a mediating effect, the first three hypotheses should be validated, and then the mediating impact of H4 should be examined. This is not obligatory in the modern approach. It is not appropriate for only the qualitative judgments to describe mediation models with expressions like partial mediation or full mediation as they do in traditional methods. It is more suitable to report the findings regarding the mediation model in numbers by calculating direct effect ( $c2$ ), indirect effect ( $a.b$ ) and total effect ( $c = c2+ab$ ) values instead of partial mediation and full mediation (Hayes, 2018, p. 444).

Model fit indices	Model fit values	Acceptable fit values
$X^2/sd$	1.886	$0 < X^2/sd < 5$
RMSEA	0.046	$0.00 \leq RMSEA \leq 0.08$
NFI	0.919	$0.90 \leq NFI \leq 1.0$
CFI	0.960	$0.90 \leq CFI \leq 1.0$
IFI	0.885	$0.90 \leq IFI \leq 1.0$
GFI	0.907	$0.85 \leq GFI \leq 1.0$

**Table 10.**  
Model fit indices of the  
structural model



**Figure 2.**  
 CFA Results regarding  
 the perception of  
 COVID-19 and  
 avoidance behaviors

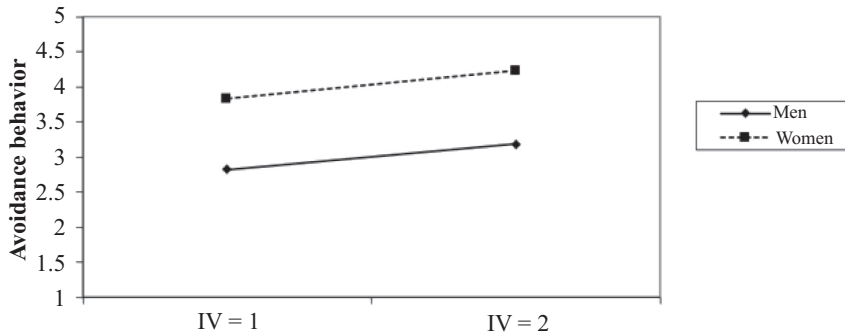
**Chi-Square = 1014.258      df = 389      P-value = 0.000**



In the modern method, it is a more pressing matter to find out whether the indirect effect ( $a.b$ ) is significant or not. “Modern mediation” effect developed by Hayes, does not directly consider the effect of the independent variable ( $X$ ) on the dependent variable ( $Y$ ) and mediating variable ( $M$ ), and the effect of mediating variable ( $M$ ) on the dependent variable. Instead, mediating independent effect provides more reliable statistical information (Hayes, 2018, p. 445). The modern method suggests the indirect effect to be tested with the Bootstrap method instead of the Sobel test because it can produce more reliable results than the Sobel test (Hayes, 2018, p. 445). The first four hypotheses were analyzed by PROCESSv.3.4.1 regression calculator program developed by Hayes.

Table 13 shows that thoughts about COVID-19 positively affect the perceptions of control. Individuals’ income levels and their thoughts on COVID-19 affect macro-control and the perceptions of control ( $b = 0.16$ , %95CI [0.097, 0.22],  $t = 4.5$  and  $p < 0.001$ ). Thoughts of people on COVID-19 explain 6% of the perception of control. Table 12 reveals that the H1 hypothesis has been accepted.

Table 14 shows that the perceptions of control positively affect avoidance behaviors ( $b = 0.18$ , %95CI [0.065, 0.29],  $t = 3.13$  and  $p < 0.05$ ). People’s perceptions of control towards



**Figure 3.**  
Graphic demonstration  
of the moderating  
effect

	Minimum	Maximum
Conspiracy dimension (6 articles)	0.52	0.88
Macro control (5 articles)	0.33	0.83
Personal control (5 articles)	0.57	0.85
Cognitive avoidance (7 articles)	0.64	0.83
Avoiding public places (4 articles)	0.71	0.89
Avoiding personal contact (3 articles)	0.82	0.94

**Note(s):** P.S. Standard coefficient were calculated

**Table 11.**  
Factor loadings  
(minimum and  
maximum)

Factors	AVE	CR
Conspiracy	0.57	0.79
Macro control	0.64	0.84
Personal control	0.56	0.88
Cognitive avoidance	0.54	0.82
Avoiding public spaces	0.56	0.83
Avoiding personal contact	0.52	0.81

**Table 12.**  
Convergent validity

the pandemic explain 3.8% of avoidance behaviors. Table 13 reveals that the H2 hypothesis has been accepted.

Table 15 shows that COVID-19 affects avoidance behaviors ( $b = 0.15$ , %95CI [0.008, 0.22],  $t = 0.04$  and  $p < 0.05$ ). Perception of COVID-19 explain approximately 4% of avoidance behaviors. Table 14 reveals that H3 hypothesis has been accepted.

Table 16 shows that personal control plays a mediating role in the effect of COVID-19 on avoidance behaviors ( $b = 0.03$ , %95CI [0.008, 0.06]  $p < 0.05$ ). The perception of control plays a partially effective mediating role in the relationship between the perception of COVID-19 on avoiding certain behaviors (0.03). In other words, people who are conscious of COVID-19 are more cautious to avoid possible effects of this virus (e.g., avoiding close contact). H4 has been accepted in light of the analysis results (see Table 17).

**Table 13.**  
The effect of COVID-19 on control perception

<i>R</i> -value	<i>R</i> <sup>2</sup> value	<i>p</i> -value	Beta value	<i>t</i> value	CI, 95% reliability gap	
					LLCI value	ULCI value
0.24	0.06	0.000	0.16	4.5	0.0964	0.2217

**Table 14.**  
Effect of control perception on avoidance behavior

<i>R</i> -value	<i>R</i> <sup>2</sup> value	<i>p</i> -value	Beta value	<i>t</i> value	CI, 95% reliability gap	
					LLCI value	ULCI value
0.19	0.038	0.0019	0.0019	3.13	0.065	0.29

**Table 15.**  
The perception of control has a mediating role in the relationship between the perception of COVID-19 and avoidance behavior

<i>R</i> -value	<i>R</i> <sup>2</sup> value	<i>p</i> -value	Beta value	<i>t</i> value	CI, 95% reliability gap	
					LLCI value	ULCI value
0.19	0.038	0.0001	0.15	0.04	0.08	0.22

**Table 16.**  
The mediating role of the perception of control in the relationship between the perception of COVID-19 and avoidance behavior

Impact value	BootSe	<i>p</i>	CI, 95% reliability gap	
			LLCI value	ULCI value
0.03	0.012	0.014	0.008	0.06

**Table 17.**  
Partial and full standardized effect size in the relationship between COVID-19 and avoidance behavior

	Impact magnitude	BootSe	CI, 95% reliability gap	
			LLCI value	ULCI value
Partial standardization	0.03	0.014	0.009	0.06
Full standardization	0.037	0.012	0.008	0.057

Full standardized effect size is 0.037, and partial standardized effect size is 0.03. If  $K^2$  is close to 0.01, it is called a low impact if it is close to 0.09 medium impact, and if it is close to 0.25, it is called high impact (Preacer and Kelley, 2011, p. 104). The mediating effect of the model is close to medium impact.

4.7.2 *Moderating role of gender in the relationship between COVID-19 and avoidance behaviors.* In order to discover the moderating role of gender, the data regarding the independent variable and moderator variables have been standardized. After that, the independent variable and moderator variables were multiplied for moderated regression analysis to calculate the interaction. Then, regression calculations were made through Amos. They were inserted in the “View Text” section. Table 18 shows the results. Results show that gender has a moderating role in the relationship between COVID-19 and avoidance behaviors.

Figure 3 shows that women are more sensitive than men when it comes to the relationship between the perception of COVID-19 and avoidance behaviors. Therefore, gender has a moderating role in this relationship, and women are more sensitive about this topic. Furthermore, the higher the level of the perception of COVID-19, the higher the degree of avoidance behaviors is. Therefore, H5 is supported.

In order to discover the moderating role of occupation, the data regarding the independent variable and moderator variables have been standardized. After that, the independent variable and regulatory variables were multiplied for moderated regression analysis to calculate the interaction. Then, regression calculations were made through Amos. They were inserted in the “View Text” section. Table 19 shows the results. It has been found that the occupation does not affect the relationship between COVID-19 and avoidance behaviors. Therefore, H6 is rejected.

4.7.3 *Difference tests regarding professional knowledge, income level and education information among COVID-19 perception avoidance behaviors.* Analysis shows that the perception of COVID-19 does not significantly differ depending on the education level. Therefore, there is no difference between the differences in education levels and COVID-19 ( $p < 0.05$ ). Therefore, H7 is rejected.

Manova test shows that there is a difference between the conspiracy and income level sub-dimensions of Perception of COVID-19. According to the result of the test of homogeneity, requirement of  $p > 0.05$  was met.  $p$ -value was 0.396, and in order to discover which income groups cause this difference, the “Benforroni” test was performed. Results show that people with incomes between L3,501 and 4,500 regard the perception of COVID-19 as conspiracy more than those with incomes of 1,500 or below ( $p < 0.007$ ). Another finding shows that

			Estimate	S.E	C.R	$p$
Interaction	→	avoidpct	0.016	0.041	0.397	0.042
ZCOvyeno	→	avoidpct	0.179	0.042	4.270	***

**Note(s):** \*\*\*Significant effect at the 0.001 level (2-tailed)

**Table 18.**  
Moderating role of gender

			Estimate	S.E	C.R	$p$
Interaction	→	avoidpct	0.176	0.042	4.221	***
ZCOvyeno	→	avoidpct	-0.054	0.042	-1.301	0.193

**Note(s):** \*\*\*Significant effect at the 0.001 level (2-tailed)

**Table 19.**  
The moderating effect of occupation in the relationship between the perception of COVID-19 and avoidance behaviors

£3,501–4,500 income groups consider COVID-19 as a conspiracy more than people with an income of £4,501 and above ( $p = 0.028$ ). According to these results, H8 was accepted.

Analysis shows that the perception of COVID-19 does not significantly differ depending on occupational groups. There is no difference between the differences in occupational groups and COVID-19 ( $p < 0.05$ ). Therefore, H7 is rejected.

## 5. Discussion

In addition to the level of anxiety, the degree of taking measures and avoidance behaviors also increase during an outbreak (Çirakoğlu, 2011). During COVID-19, anxiety and concern affected each individual differently. Anxiety and post-traumatic stress symptoms increase especially in individuals kept in isolation and quarantine (Roy, 2020). Accordingly, people started to exhibit different kinds of avoidance behaviors (Förster *et al.*, 2006). There are studies which found that the perception of COVID-19 affects avoidance behavior (Bostan *et al.*, 2020; Rubin *et al.*, 2009; Ekiz *et al.*, 2020). The emphasis of media and social networks on personal hygiene, social distancing and washing hands have increased awareness. Ceyhan and Uzuntarla (2020) found that 83.6% of the participants have a medium level knowledge, 82.1% have high level attitudes and 88.1% have high-level behavior. Academicians have high level knowledge, attitude and behaviors regarding COVID-19. The results of the study of Ceyhan and Uzuntarlae are similar with these results. Our study is similar to some previous studies made on different samples like general public and healthcare workers (Reuben *et al.*, 2020; Vijai and Joyce, 2020; Zhang *et al.*, 2020) while the results of our study are more positive than those of Srichan *et al.* (2020). Education level and the development of the socio-cultural structure are thought to positively affect the level of information, attitude and behavior. Additionally, the research results show that individuals change their purchasing decisions because they tend to stay away from public places like shopping malls and stores (Wetter *et al.*, 2020; Bohlen *et al.*, 2010).

### 5.1 Theoretical contributions

Lay theories are widely used in social sciences and help understand the complex and ambiguous behaviors of people (Furnham, 1988). This theory managed to make sense of the situation that people are going through during COVID-19.

COVID-19 pandemic has caused high levels of anxiety and concern in people all around the world. This situation has been perceived differently by each individual. Some people considered this pandemic as conspiracy, and some took more serious personal measures upon thinking that the communal measures are not sufficient. All of these perceptions caused people to avoid things like watching pandemic-related news, talking about the pandemic, getting in physical contact with others, going to shopping malls, joining social events and using public transportation. Therefore, people started to avoid many behaviors they exhibited before COVID-19. Lay theories manipulate the perceptions of people. This study discovered the effects of the perception of COVID-19 on avoidance behavior.

According to the H1 hypothesis, the perception of COVID-19 affects the perception of control. This finding complies with the findings of Jarvis *et al.* (2020), Kristiansen *et al.* (2007), Roy *et al.* (2020) and Sadique *et al.* (2007). This finding shows that the COVID-19 pandemic increases personal measures. People have started to care more about personal hygiene, social distance and wearing masks. According to the H2 hypothesis, personal control affects avoidance behavior. This finding is in parallel with the findings of Goodwin *et al.* (2011), Leppin and Aro (2009) and Sadique *et al.* (2007). This result shows that the level of anxiety and concern increased during the pandemic and that personal control causes avoidance behavior. Hence, COVID-19, like previous outbreaks, affects avoidance behaviors. According to the H3 hypothesis, the perception of COVID-19 affects avoidance behavior. This result corresponds to the findings of Goodwin *et al.* (2011), Jones and Salathe (2009), Lau *et al.* (2004) and Raude and

Setbon (2009) Even though they were not as wide-scale as COVID-19, SARS and Swine Flu also caused people to avoid certain behaviors. According to the H4 hypothesis, personal control has a mediating role in the relationship between perception of COVID-19 and avoidance behavior. This accepted hypothesis is in parallel with the findings of Eastwood *et al.* (2009), Lau (2004) and Hellewell *et al.* (2020). H5 suggests that gender has a moderating role in the relationship between perception of COVID-19 and avoidance behavior. This finding corresponds to the findings of Akan *et al.* (2010), Leung *et al.* (2005), Raude and ve Setbon (2009).

The study that Zhong *et al.* (2020) conducted on COVID-19 also found that women are more sensitive about COVID-19. Therefore, the hypothesis also confirms the result of this study. H6 hypothesis suggested that education level has a moderating role in the relationship between perception of COVID-19 and avoidance behavior; however, this hypothesis was rejected. This result does not correspond to the study of Wu *et al.*, (2020) conducted on SARS. However, it corresponds to the study of Lau *et al.* (2004). It was found that the perception of COVID-19 does not differ depending on the education level, so the H7 hypothesis was rejected. However, unlike this result, Roy *et al.* (2020) and Zhong *et al.* (2020) found that the education level showed differences. The reason for this may be that the level of education varies by country. According to the H8 hypothesis, the perception of COVID-19 differs depending on the income level. This result is in parallel with the findings of Roy *et al.* (2020) and Atchinson *et al.* (2020). Lastly, it was found that the perception of COVID-19 does not differ depending on occupational groups, so the H9 hypothesis was rejected. However, this is not the same in the studies of Goodwin *et al.* (2011) and Koh (2020). This difference may be caused by the fact that these studies were conducted in different countries at different times. Because each country reached its peak of the COVID-19 pandemic at different times, and different occupational groups were affected differently.

### 5.2 Practical contributions

This study deeply analyzed the perception of COVID-19 and found that some of these perceptions affect avoidance behavior. It is estimated that COVID-19 will cause large scale behavioral changes and significant psychological burdens. In other words, people will change their habits and will avoid behaviors that they exhibited in the past. People have started to avoid public places like malls, cinemas, theatres, using public transportation and getting in close contact with others, and in the long run, this will cause economic problems in many sectors.

In this case, businesses that pay attention to the behaviors that consumers avoid and that support them will be one step ahead of their competitors. Businesses should prioritize hygiene and their consumer's health. The ones whose marketing fields permit can invest more in digital marketing and approaching their customers through the Internet. Furthermore, businesses that increase protective measures against COVID-19 will lower their financial concerns.

## 6. Conclusion

The pandemic that poses a global threat still continues. Outbreaks can be perceived differently by different people. This study showed that the perception of COVID-19 affects personal control and personal control affects avoidance behavior. Accordingly, the mediating role of personal control in the relationship between COVID-19 and avoidance behavior was also discovered. Therefore, if the perception of COVID-19 level increases, the degree of avoidance behaviors also increases.

It is necessary to prepare the society against fake news during an outbreak. This way, people can be informed about the correct information before they encounter false information. Correct information should be given through state institutions and organizations based on esteemed scientific journals and scientific studies of universities. Therefore, the media should be more careful about this issue during an outbreak and should not make groundless news. Measures taken on a corporate, national or global level also directly affect the individual himself. Because

the individual will adopt and exhibit the behaviors of the group where they belong. Therefore, this study found that macro-control affects individual measures. For this reason, if institutions and organizations take extraordinary measures to protect human health and the economy, it will affect personal control positively. This way, the spread of the disease can be prevented.

Behavioral changes during COVID-19 cause an unprecedented number of more avoidance behaviors. For this reason, preventive measures for COVID-19 should be taken both on an individual and a communal level. Furthermore, the perception of COVID-19 causes people to avoid thinking or talking about COVID-19, communal areas, physical contact with other people or risky surfaces. Moreover, gender has a moderating role in the relationship between perception of COVID-19 and avoidance behavior. Women are especially more sensitive about this issue than men. One reason for this can be that women pay more attention to the risks of COVID-19. Another reason might be that the burden that the women are facing during the pandemic is more than men, and this causes women to be more sensitive when it comes to avoidance behaviors. The study also found that the perception of COVID-19 differs depending on income. People with medium income perceive COVID-19 as conspiracy more than people with low income do. The reason for this may be that people with medium income follow the news about the pandemic and therefore are more affected by groundless news.

The consumer behavior model suggests that consumer behavior is closely related to psychology and sociology because the interactions between people and the market consist of many inter-disciplinary fields. Consumer behaviors went through some changes during COVID-19. For example, while people in India, China, Indonesia and Nigeria continued their spending, people in the USA, Canada, England and France lowered their consumption. Coronavirus affected many sectors negatively in a short period. Time will show what kind of effects it will have in the future. However, people's lifestyles will undoubtedly be substantially affected by the course of the virus. This virus, which will cause the most harm to socio-economic life, has turned into a crisis in the economy, health, and social life because it caught the countries off guard and has been forcing established regulations to change or reform. COVID-19 will cause possible medium and long-termed socioeconomic effects. The pandemic is expected to cause permanent behavioral changes in the future.

The results of our study show that hygiene, social distancing and avoiding personal contact are important to decrease the effects of the pandemic. Furthermore, people should avoid crowded places like shopping malls and markets in addition to postponing events like weddings and parties.

### *6.1 Limitations and future studies*

The limitation of this study is that it is conducted only on people living in Turkey. Future studies can be conducted on different geographies and cultures. This study was on the perception of COVID-19 and avoidance behaviors (cognitive, public spaces, personal contact). Future studies can be made on the effect that the perception of COVID-19 has on anxiety, concern, and stress levels. It is important reveal the degree of psychological damage that pandemic causes in order to decrease the effects of the pandemic and take more strict measures to prevent more damage. Additionally, public institutions, companies and NGOs should execute social support programs. Our study was made only on individuals in general. Future studies can analyze the opinions of different occupational groups like craftsmen, managers, farmers and workers have on the pandemic.

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