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Effect of perception of COVID-19 and nonpharmaceutical intervention on desire and behavioral intention in touristic travels in Turkey

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Abstract

Purpose – This study analyzes the desires and behavioral intentions of tourists within the scope of perception of COVID-19 and nonpharmaceutical intervention during the COVID-19 pandemic.
Design/methodology/approach – The population of the research consists of people on a touristic trip in Turkey. Because of the pandemic, questionnaire data was collected online between 25 April and 15 May 2020. The research was carried out with 712 questionnaire forms. The data obtained were analyzed by structural equation modeling in the SM-PLS statistics program.
Findings – Perception of COVID-19 significantly and positively affects NPI and negatively and significantly affects desire. Perception of COVID-19 and NPI do not have a significant positive/negative effect on behavioral intention. Finally, desire has a significantly positive effect on behavioral intention.
Research limitations/implications – Since the research has limitations in terms of time, cost, accessibility and control difficulties, the entire population could not be reached. The study was carried out with only 712 tourists traveling in Turkey.
Practical implications – The obtained results will impact, particularly the decisions taken in Turkey's tourism sector. Moreover, if tourism companies know the decisions of the consumers during the pandemic process, they can use the appropriate marketing techniques.
Social implications – The result may give an idea about the decision-making process of the consumers on traveling during the pandemic. In this way, psychologically different research can be developed.
Originality/value – There has not been any study made in Turkey that investigated the context of the current research model. Therefore, this research is original.

Keywords Perception of COVID-19, Tourism, Nonpharmaceutical intervention, Behavioral intention, Desire, Turkey

Paper type Research paper

Introduction

In December 2019, a pneumonia-like pandemic, whose origin is not exact, broke out in the city of Wuhan in the Hubei State of China. In a short period, Chinese scientists were able to define this pandemic as Coronavirus 2 (SARS-CoV-2), a new kind of a severe acute respiratory disease called coronavirus. After the tests were made on a group of people who developed the

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symptoms of a respiratory illness (fever, cough, shortness of breath), the virus was detected for the first time on January 13, 2020 (Republic of Turkey Ministry of Health, 2020). After the emergence and the spread of the pandemic, panic and fear also spread throughout the world. Following the emergence of the first cases of the virus in the countries outside of China, the countries took preventive measures and sought medical treatment (Wu *et al.*, 2020). However, the treatment for COVID-19 is still not available. It is thought that a vaccine cannot be found in less than 18 months (an optimistic scenario) (Vieira, 2020).

Because the pandemic requires a public health policy, this period is led by public authorities in each country. In addition to the treatments of the confirmed patients in hospitals, the studies on medicine and vaccine for the illness is also carried out. However, the challenges and uncertainties regarding vaccines and medicines (Vieira, 2020) force the countries to take additional measures to slow down the spread. Among these measures which were primarily accepted are hygiene rules, social distance rules, restrictions, prohibitions, and nonpharmaceutical interventions (NPI). NPI is an important factor in the protection against the disease and the spread of the virus. It is inevitable for the tourism sector to be affected by the virus considering the travel restrictions and quarantine that the virus has caused. However, NPI has been the most important practice after the countries started to gradually lift the restrictions.

The tourism sector has been among the most affected sectors by this pandemic. Travel restrictions imposed by governments have had significantly decreased touristic activities (UNWTO, 2020a). Many countries have faced a monetary loss because of the cancellation of hotel reservations. The duration of travel restrictions varies depending on the spreading speed and the number of cases. Therefore, travel restrictions have been imposed during different periods in different countries. UNWTO (2020b) states that the national economic recovery will be possible through a boom in the tourism sector. NPI can create an opportunity for international/national tourism to recover and expand by decreasing the perception of risk in tourists. Tourists can tend to NPI as an effective coping method until the development of effective antiviral medicines and vaccines (Lee *et al.*, 2012). This study analyzes the effect of NPI on travel intentions and the perception of COVID-19 on NPI and desire. This study predicts that NPI affects the travel decisions of consumers, examines the effect of the desire in the Model of Goal-directed Behavior (MGB) (Perugini and Bagozzi, 2001) on travel intentions and evaluates the question of "whether people who want to travel actually intend to travel or not?". While the theory of planned behavior (TPB) states that attitude strengthens behavioral intention, MGB states that attitude strengthens behavioral intentions through desire. Perugini and Bagozzi (2001) used the desire variable together with TPB variables in the MGB model. This model considers desire a critical factor in the relationship between motivational, emotional, and habitual processes and purchasing decisions.

This study analyzes the decision-making processes of tourists by combining the perception of COVID-19 and NPI variables with the relationship between desire and behavioral intention. Even though the effects of the pandemic are on a global scale, each country has to enforce their own coping methods. For this reason, this research analyzes the relationship between COVID-19 and NPI in Turkey. Therefore, the research results can provide information and recommendations for government agencies. Furthermore, it is aimed to provide suggestions for the tourism sector, which has been severely harmed by this pandemic, by analyzing the effects of travel desires of tourists and NPI on their behavioral intentions.

Literature review

Pandemic and tourism: COVID-19

COVID-19 pandemic probably emerged in a seafood market in Wuhan city of China on 12 December 2019 (Guo *et al.*, 2020). COVID-19 is thought to be caused by a group of viruses from

the Coronaviridae family of Nidovirales order, which infects humans and animals (Shereen *et al.*, 2020, p. 91). Symptoms of the illness include fever, cough and shortness of breath (WHO, 2020a). COVID-19 stands out as the pandemic with the highest number of deaths among the epidemics of recent history. For example, while during the Severe Acute Respiratory Syndrome (SARS) epidemic in China between the years 2002–2003, 349 people lost their lives (Jamal and Budke, 2020) and 858 people lost their lives because of Middle East Respiratory Syndrome (MERS) according to WHO (WHO, 2020a). These data explain the worldwide concern.

UNWTO, in its evaluation regarding the economic effects of the COVID-19 pandemic, stated that the tourism sector is the sector affected by the pandemic the worst. (UNWTO, 2020a). The rapid increase of COVID-19 has forced countries to make radical decisions. Many countries were forced to seal their borders and end halt their travel and tourism activities. This situation is similar to the previous epidemics. For example, because of SARS, many infected countries suffered from downfalls in their tourism and travel revenue. In addition, individual isolation practices have been done in public places like cinemas, restaurants. For this reason, many sectors have been negatively affected by all of these practices (Keogh-Brown and Smith, 2008, p. 111). World Travel and Tourism Council (2003) stated that nearly 3 million people working in the tourism industry lost their jobs after SARS broke out. Countries affected by the pandemic the most, like China, Hong Kong, Vietnam and Singapore, suffered a loss of 20 billion dollars in terms of gross domestic product (Kuo *et al.*, 2008, p. 917). While Saudi Arabia lost 5 billion US dollars because of the restrictions in the tourism sector during the MERS outbreak, South Korea's international visitors decreased by 41% compared to the previous year during 2015 because of MERS. This visitor rate decreased by 60% just a month later, and the South Korean Government suffered a loss of 10 billion dollars (Smith *et al.*, 2019, p. 3). H1N1 pandemic also caused a worldwide economic recession. The tourism and accommodation sector has been greatly affected by this recession (Lee *et al.*, 2012, p. 91). The increase of the COVID-19 pandemic caused China's hotel market to suffer a decrease of 71% compared to January 23–26 in the previous year (Baker, 2020).

State decisions and the perception of risk towards travel affected this loss in the tourism sector. In addition to official security measures, the pandemic causes uncertainty of personal security in consumers, affecting entertainment industries like tourism. According to the information published by UNWTO on 28 April 2020, 100% of the destinations have taken restrictive measures, and 83% of them have taken restrictive measures that last for four or more weeks. However, UNWTO states that gradual easing of the travel restrictions (by ensuring security) can help countries, which have suffered from this pandemic, to reinvigorate their economies (UNWTO, 2020b).

Pharmaceutical and nonpharmaceutical interventions in COVID-19

Pharmaceutical and NPI are among the global/national governing options to prevent the spread of an influenza virus or remove it altogether (Oshitani, 2006; Lee *et al.*, 2012). Pharmaceutical ones are taking antiviral medications and developing new vaccines (Lee *et al.*, 2012, p. 90). In this current stage, many labs are working on different antiviral medicines to prevent or to cope with COVID-19. It is thought that the medicine, which failed against Ebola in 2014 but managed to pass the security tests, can halt the spread of COVID-19 by blocking an important enzyme (MacKenzie, 2020). However, no clinically approved antiviral medicine or a vaccine has been reported yet (Belete, 2020; Hamid *et al.*, 2020). It is suggested to design a human coronavirus while studying vaccines or antiviral medicines to end the current pandemic and to prevent a future pandemic from breaking out (Shereen, 2020, p. 96). However, a vaccine against COVID-19 has not been developed yet. The studies are carried out at a great pace. Ever since the genetic sequence of SARS-CoV-2 was published, more than 40

pharmaceutical companies from different countries have started developing COVID-19 vaccines. Furthermore, some vaccine candidates have progressed into the efficacy testing phase of clinical trials (Zhang *et al.*, 2020, p. 232). The Q&A section of the official web site of WHO (2020b), answers the question of whether there are any COVID-19 vaccines as follows: "Many potential vaccines for COVID-19 are being studied, and several large clinical trials may report results later this year." WHO also states that it is unclear when an effective COVID-19 vaccine can be ready for distribution. However, it is predicted that a vaccine can be developed early or mid-2021. Turkey also continues its studies on vaccines but there is not a ready to use vaccine yet.

The fact that an effective COVID-19 vaccine has still not been developed shows how important NPI is. For this reason, NPI is a significant component in protecting people from this disease and preventing the health systems all over the world from collapsing. According to Lee *et al.* (2012), in the early stages of an influenza pandemic, where pharmaceutical measures are not yet available, NPI offers non-pharmaceutical methods that can be applied to slow down the outbreak. With a similar view Oshitani (2006, p. 167) argues that NPI is an effective and additional method to reduce the spread of the virus and the likelihood of infection in high-risk populations while combating the outbreak.

NPI is a combination of personal and administrative measures including border restraint and control, quarantine and isolation, social distancing (closure of schools, patient quarantine), hygiene, hospital pandemic control and changes in population behavior (Cowling *et al.*, 2020; Saunders-Hastings *et al.*, 2017, p. 2). Using a mask is another form of NPI. A study on the COVID-19 pandemic states that the use of masks is beneficial for both disease prevention in healthy individuals and asymptomatic transmission (Eikenberry *et al.*, 2020). In Wuhan city, where the COVID-19 pandemic first appeared, schools and workplaces were closed within the scope of NPI, and the New Year holiday was extended. Also, the local state has imposed the concept of social distancing on society by promoting to stay away from crowded environments (Prem *et al.*, 2020). After the rapid spread of the information related to the globalization of the pandemic and the detection of the first cases, almost all countries where cases have been detected, including Turkey, have put similar NPI into practice.

Travel restrictions are perhaps the first of the radical NPI that governments made to reduce the impact of the outbreak when the outbreak gained a global status. Travel restrictions consist of completely/partially sealing the borders, suspension of the international flights, entry barriers for passengers passing through certain countries of origin or specific destinations, social isolation and visa measures. (UNWTO, 2020c). Past experiences with pandemics show that restrictive measures can drastically decrease the spread of the pandemic. For example, the 2009 H1N1 pandemic caused travel restrictions from/to Mexico, the scanning of the passengers while entering the airports, and inhibited people from traveling to Mexico unless it is obligatory (Bajardi *et al.*, 2011). Even though the uncertainty regarding the mechanism of spread of COVID-19 continues, according to the Centers for disease control and prevention (CDC), it is thought that this illness is derived from similar coronaviruses that spread through respiratory fomites from person to person (Sohrabi *et al.*, 2020, p. 72). Compared to SARS and MERS, COVID-19 spreads faster because of globalization and its adaptation to every environment, and therefore travel restrictions during the pandemic are important NPI. The incubation period of COVID-19 varies between 2 and 14 days (Republic of Turkey Ministry of Health, 2020; Vest Wirginia Department of Health and Human Resources, 2020) and this makes travel restrictions obligatory. The Chinese government has also been obliged to implement NPI, including travel restrictions, to reduce the spread (Lin *et al.*, 2020, p. 211). Due to the COVID-19 epidemic that continued in Iran in February 2020 after China, many countries in the Arabian Peninsula decided to implement travel restrictions in the areas affected by the outbreak (El Zowalaty and Järhult, 2020, p. 3).

After detecting the first COVID-19 case on March 10, 2020, Turkey, starting from the bordering countries, gradually banned all entries and exits from/to a country, implemented interprovincial travel restrictions, and travels have been subjected to the permissions granted by the official authorities. Thus, it was aimed to protect public health and to maintain the operability of the health system. Turkey Directorate General of Civil Aviation (SHGM, 2020) announced that on March 28, 2020, it was decided to implement travel restrictions by stopping all international flights indefinitely and allowing several domestic flights made with Turkish Airlines under a special permit (SHGM, 2020). According to the imprecise data of air transportation in 2019 (January–February–March), the number of international arrival and departure passengers has been reported to be 32,807,384 (DHMI, 2019). This number corresponds to approximately 40% of the country's population and shows that travel restrictions during the global COVID-19 outbreak are important decisions to protect both the country and other countries from the pandemic. In addition to these, there are thermal cameras in the country on the limited number of domestic flights, and passengers' temperatures are taken in interprovincial road trips. Apart from this, practices like informing people regularly on social distancing rules, wearing a mask; temporarily closing all educational institutions and workplaces included in the risk category, curfew on weekends (for people who are 65 and older; 20 and younger, the curfew was indefinite, but it was eased later on) can be counted as other means of taking NPI measures in the country.

Finally, the Ramadan Bairam, which is regularly celebrated every year in the country, corresponds to May 24–25–26 in 2020. However, the curfew has been extended to four days by including the eve (23 May) of the bairam. The curfew was imposed in 81 provinces between 22.05.2020, 24.00 and 26.05.2020, 24.00. Undoubtedly, it can be said that close-range and contact-based bairam rituals (bairam visits, hand-kissing, shaking hands) have a significant influence on this decision (Republic of Turkey Ministry of Interior, 2020).

Desire, behavioral intention and model of goal-directed behavior (MGB)

Socio-psychological approaches such as the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980) and theory of planned behavior (TPB) (Ajzen, 1991) form the basis of the model of goal-directed behavior (MGB) (Perugini and Bagozzi, 2001). These process-oriented approaches are designed to understand and explain human behavior in a particular situation (Song, 2010). In TRA, the behavior of individuals is determined directly with intention and indirectly with attitude and subjective norm (Ajzen and Fishbein, 1980). In behavioral intention in TRA, a determination is determined by voluntary (deliberate/voluntary/rational) components (attitude and subjective norm), and for this reason, the theory falls short of explaining behavior in non-voluntary/involuntary situations (Ajzen, 1991). To overcome this shortcoming, Ajzen (1985) proposed the theory of planned behavior (TPB) by adding the perceived behavioral control component to the model. According to TPD, perceived behavioral control can directly affect behavioral intention.

According to Perugini and Bagozzi (2001), TRA and TPB have a structure that is too simple, limited, and narrow to be applied to explain behavior. TPB is broader and more functional than TRA. However, the lack of factors related to motivational, emotional, and past habits in both TRA and TPB shows the insufficiency of both theories in explaining behaviors. Therefore, MGB has been proposed since it includes both intentional and non-intentional factors and components related to motivational, emotional, and past habits. MGB explains the behavioral intention better than TRA and TPB and is a more advanced model. In MGB, in addition to the TPB components, factors indicating motivational, emotional and actual behavior habits are also added to the model. These components are as followed; the desire (motivational), the positive and negative emotions envisaged about the future results of the behavior (emotional), the frequency of the behavior in question (habits) (Perugini and Bagozzi, 2001). MGB is determined by desire, attitude, subjective norm, perceived behavioral

control, positive/negative anticipated emotion, and frequency of past behavior. Perugini and Bagozzi (2004, p. 71) define desire as "the state of mind that results from an individual motivation to perform an action or achieve a goal." When an individual wants to do something, he/she tends to act, think, and feel in a certain way to achieve his/her individual goals. Desire is a concept that includes motivation. For example, various motivational factors related to travel trigger desire, and then that desire affects intention (Song, 2010).

Theoretical framework

The relationship between the perception of COVID-19 and NPI

NPI is critical in the spread of COVID-19. For this reason, people should give importance to NPI (Ngonghala *et al.*, 2020). Resorting to NPI is seen as the most effective way against COVID-19 until an effective drug or vaccine is developed. According to Lai *et al.* (2020), if it were not for NPI, then the cases in China would have increase 67-fold. In addition, if NPI were made starting from the first week of the emergence of the virus, the number of cases in China would have been 95% lower; 86% lower if they were made in the second week, and 66% lower if made in the third week of the start of the virus.

NPI is actions, apart from getting vaccinated and taking medicine that people and communities can take to help slow the spread of illnesses like influenza (flu) or COVID-19. NPI is also known as community mitigation strategies. NPI is categorized as; personal NPI (staying at home when sick, covering your mouth with a tissue while coughing or sneezing, frequently washing hands with soap); community NPI (practicing social distancing at schools, workplaces, and organizations to protect both yourself and your family from COVID-19) and environmental NPIs (cleaning frequently contacted surfaces or objects like door handles) (West Virginia Department of Health and Human Resources, 2020).

COVID-19 first spread to Europe after China, and many European countries have implemented nonpharmaceutical interventions, such as the closure of schools and national lockdowns (Flaxman *et al.*, 2020). Davies *et al.* (2020) investigate the effects of NPI on COVID-19 cases, deaths, and demand for hospital services in the UK. The model in the study was simulated. Even though the four primary preventions of the model (closing the schools, social distancing, protecting those who are 70 and older, and self-isolation of symptomatic cases) will decrease the burden on the health system in 2020, it will not be adequate for 2021 because the disease will cause the demand for health to keep increasing. Consequently, they emphasize that practicing NPI is essential. Brauner *et al.* (2020) suggest that if people practice NPI, then the spread of the virus can be prevented without self-quarantine.

Especially during pandemics like COVID-19, whose treatment is still not found, it is thought that tourists will consider practicing NPI during their travels if travel restrictions are eased or over. In order to reduce their perception of risk without the protection of a vaccine, individuals can practice personal NPI before or after their travels (Aledort *et al.*, 2007). Lee *et al.* (2012) found that the 2009 perception of H1N1 had a positive effect on nonpharmaceutical interventions. Benkouiten *et al.* (2014) emphasized the effectiveness of nonpharmaceutical measures (hand hygiene, using a face mask, social distance) in preventing the spread of respiratory infection diseases during the pilgrimage. Deris *et al.* (2010) stated that Malaysian pilgrims tried to reduce respiratory symptoms such as cough, runny nose, sore throat, and fever, which are the most common clinical symptoms encountered by pilgrims in Mecca, by using a mask as an NPI. It is assumed that the perception of COVID-19 has a direct or indirect effect on the wishes and desires of tourists to travel by using NPI to protect themselves from the pandemic. For these reasons, the following hypothesis was created;

H1. The perception of COVID-19 affect nonpharmaceutical interventions (NPI) positively.

The relationship among the perception of COVID-19, desire, and behavioral intention

As the number of crises, pandemics, and disasters that affect the tourism sector increases, the administrative acts against these situations have become an increasingly important matter in the tourism literature. For example, Miller and Ritchie (2003) implemented a tourism disaster framework made by Faulkner (2001) to prevent the restraints on tourism in the United Kingdom caused by foot-and-mouth disease. Even though the authors said that the model is useful, they found that it is not helpful for different outbreaks. In addition, Cooper (2005) analyzed the perceptions of Japanese tourists towards SARS during the SARS pandemic and found that they do not want to visit places where SARS had spread. Huang *et al.* (2019) stated that psychological risk, physical risk, performance risk and social risk factors are useful in determining the accommodation decisions of the tourists. In some cases, hotels are launching various initiatives to reduce the perception of health risks. For example, some hotels offer hypoallergenic rooms at high prices (Zemke *et al.*, 2015). The study shows that tourists agree to pay more in return for more highly disinfected rooms. It can be said that tourists take risks such as earthquakes, tsunamis, SARS, terror activities, and H1N1 into consideration while deciding on their destinations and other travel decisions (Garg, 2015). Global health risks like pandemics directly affect the attitudes and behaviors of tourists.

Wen *et al.* (2020) predict that COVID-19 will likely affect Chinese travelers' consumption patterns "with the growing popularity of free and independent travel, luxury trips, and health and wellness tourism. However, the fact that the tourists do not want to put their health at risk can affect their travel decisions." Reisinger and Mavondo (2005) define perceived risk as "cognitive possibilities regarding exposure to threats or danger." Depending on the perceived risk, tourists may want to change their travel plans and behaviors. For this reason, it was assumed that the travel decisions of tourists could be affected by the COVID-19 pandemic. The desires and behavioral intentions of tourists can be negatively affected by situations that directly threaten or risk their health. Also, the COVID-19 pandemic, whose future is unclear, can affect the travel decisions of consumers. In other words, tourists may not want to travel, or they can lose their motivation to travel because of both physical and psychological risks as the pandemic causes thousands of deaths every day.

For the travel plans of tourists, a pandemic is more important than psychological, economic, or social factors (Alaeddinoğlu and Rol, 2020). During a pandemic, tourists cancel their travel plans because they try to avoid suspicious places and people (Nicholl, 2006). Liew (2020) found that the interest in online hotel reservations, plane tickets, and package tour deals of tourism establishments (Booking Holdings Inc., Expedia Group and Trip.com Group Ltd.) decreases during a pandemic. Even though many claims say that governmental restraints cause this decrease, the risk perception of tourists also plays an important part. Another study by Rachmawati and Shishido (2020) analyzed the effects of COVID-19 on the desires of Indonesian tourists to travel abroad. It was found that approximately 78% of tourists canceled their plans to travel abroad and decided to reschedule. Additionally, the study also found that 22% of the tourists do not know what to do in their future travels. Zhu and Deng (2020) discovered that tourists started opting for rural tourism because of the risks of COVID-19. It was found that tourists have a more positive take on rural tourism in terms of costs and security; as one of the most significant advantages of rural tourism is the "perception of high security," which strengthens the tourists' hand in risk management. Alternative tourism options like rural tourism can increase the intentions and desires of tourists to travel. Another study made by Hang *et al.* (2020) found that hotels like Four Seasons and Hilton focus on cleaning to decrease the perception of risk in tourists. Li *et al.* (2020) point out that coronavirus causes tourists to plan short-term vacations, causing the tourism sector to face severe danger. Around half of the respondents in the study intend to take their next holiday six months or longer after the pandemic is brought under control, and because of that, tourism will get affected negatively. Also, Cahyanto *et al.* (2016) state that at the end of 2014, Americans refrained from domestic

travels because of the number of Ebola cases in the USA. The following hypothesis was created in line with this information.

H2. The perception of COVID-19 affects desire negatively.

H3. The perception of COVID-19 affects behavioral intention negatively.

The relationship between desire and behavioral intention

Different studies in the tourism sector have found a relationship between desire and behavioral intention. According to O'Leary and Deegan (2003), the travel motivation of tourists is a combination of needs and desires. This combination is considered to determine the trend to travel. Similarly, Bagozzi (1992) draws attention to the strong relation of desire with intention. Therefore, it is assumed that the desire will have a significant effect on the intention to travel. Koo *et al.* (2016), found that media exposure is an effective factor in the desire of tourists to visit a certain destination. They also found that satisfaction and desire affect travel intentions. Chiu *et al.* (2018), used MGB to study the purchasing behaviors of consumers while buying sports equipment online. The results revealed that attitude, subjective norm, positive and negative anticipated emotions had significant influences on the desire to buy sporting goods online. Moreover, the frequency of past behavior and desire played significant roles in influencing Korean consumers' behavioral intention. Lee *et al.* (2020), examined the effect of cultural worldview and authenticity on visiting heritage attractions. The study results show that desire has a significant moderating role between the premises of MGB and behavioral intention. In this context, the following hypothesis is included in the research;

H4. Desire affects behavioral intention positively.

The relationship between NPI and behavioral intention

The perception of risk and unclarity affect the decisions of tourists while planning for their travels (Karl, 2016). Unclarity, worry, fear and anxiety are closely related to the perception of risk (Yang and Nair, 2014). While deciding on their travel destinations, tourists have worries regarding security, peace, and stability. In the study of Garg (2015), it was found that most of the people who participated in the study take into consideration risks like an earthquake, tsunami, SARS, terrorist acts, H1N1. Global health risks like pandemics can directly affect the attitudes and behaviors of tourists. Wen *et al.* (2020) predict that COVID-19 will likely affect the consumption patterns of Chinese travelers with the growing popularity of free and independent travel, luxury trips, and health and wellness tourism. However, the level of risk perception in tourists can be a determiner in their travel plans (Aro *et al.*, 2009). Reisinger and Mavondo (2005) define the perceived risk as "cognitive possibilities regarding exposure to threats and danger." Depending on the perceived risk, tourists may want to change their travel plans and behaviors. Therefore, this study assumes that COVID-19 can affect the travel decisions of tourists. Tourists, who want to travel abroad despite the perceived risk caused by the pandemic, can take specific health measures during their travels (Reisinger and Mavondo, 2005). Except for the study by Lee *et al.* (2012), there are no studies in the literature on the effect of NPI on the behavioral intentions of tourists during or after a pandemic. According to Lee *et al.* (2012), some protective NPIs that tourists can apply to reduce their likelihood of infection are as followed; being informed about the disease and pandemic, improving personal hygiene while traveling, avoiding suspicious people and places, and following social distance rules. Coronavirus has caused changes in the way many businesses work. Many businesses provide services in places independent from the workplace. This way, the spread of the virus can be prevented. Hotels also implement a method of telecommuting on many of their employees. This strategy controls

the number of employees in the workplace and helps decrease the risk factors caused by crowding for hotel visitors. The same goes for the number of visitors. Many businesses serve customers well below their capacity. Thus, a more hygienic and safer place can be provided for a smaller number of people. Implementations like frequently ventilating the hotel rooms, forbidding hotel employees to clean without required equipment for hygiene (detergent, gloves) are crucial for the comfort and safety of tourist facilities. In addition, places with frequent human contact like a sauna, massage parlors, and kids' clubs should be closed as far as possible. Taking people's temperature at the entrance of the hotels, usage of masks in the hotels, presence of special healthcare units for emergencies, using disposable equipment, educating the hotel employees on the pandemic and NPI can help continue tourism activities and strengthen the behavioral intentions of tourists towards touristic travels. Assuming that the tourists will decide on their travels by taking nonpharmaceutical measures, the following hypothesis was created.

H5. NPI affects behavioral intention positively.

Methodology

Sample and data collection

The population of the research consists of Turkish people who were on a touristic journey in Turkey last year. In the research, an online questionnaire form was used as a data collection method. Some researchers in the tourism field stated that it would be better to use online questionnaires to efficiently access different fields of interest (Han and Kim, 2010; Kim and Ok, 2009). Therefore, because of the pandemic, questionnaire data was collected online between April 25, 2020 and May 15, 2020. The fact that social distancing is practiced in Turkey and the rest of the world, made it obligatory to collect the questionnaire data online instead of face to face. Because the population is too large, convenience sampling method was used to collect the data quickly and efficiently (Malhotra, 2004, p. 321). By sharing the questionnaire through social media, a wider population was reached faster. The questionnaire form was shared publicly.

The questionnaire form has been pretested. Pretest shows that the respondents had no difficulty in understanding the questions. In other words, the variables were determined to have validity and reliability. 714 respondents were reached. Two participants were excluded from the study since some questions were not answered in those two questionnaire forms. The research was carried on with 712 questionnaire forms. Smart PLS statistics program was used for data analysis.

The research model was prepared based on the studies of Lee *et al.* (2012) (see Figure 1). The questionnaire form consists of two parts. The first part consists of questions regarding the demographic characteristics of the respondents like gender, age, education and

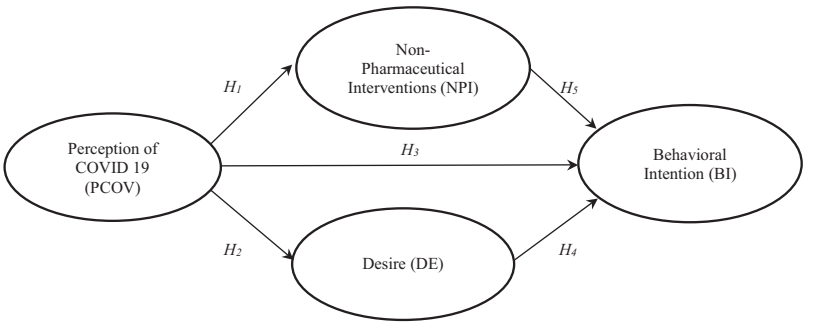

Figure 1.
Research
proposed model

information on their travels. The second part consists of 6 items to analyze Perception of COVID-19, 10 items to analyze NPI, 4 items to analyze desire and 5 items to analyze behavioral intention which were adapted by Lee *et al.* (2012). The statements used to evaluate the questions in the second part were adapted to a five-point scale format and were directed to the respondents in the range of "strongly disagree-strongly agree (1–5)."

Data analysis

In the research, SPSS and Smart PLS statistics programs were used in calculating the validity and reliability of the questionnaire form and testing the hypotheses. Cronbach Alpha (CA) analysis (Hair *et al.*, 2012) was applied to test the reliability. Confirmatory factor analysis (CFA) (Suhr, 2006) was applied for construct validity, and composite reliability (CR), average variance extracted (AVE) (Bagozzi and Yi, 1988; Hair *et al.*, 2012) to measure convergent validity. For discriminant validity, maximum shared variance square (MSV), average shared variance square (ASV), Heterotrait Monotrait Ratio (HTMT) (Henseler *et al.*, 2009), and AVE square root are examined (Fornell and Larcker, 1981; Hair *et al.*, 2012). In order to test the hypotheses, structural equation modeling was applied in the Smart PLS statistical program. PLS-SEM was chosen due to its suitability to the characteristics of the research and the qualification of the data collected (Hair *et al.*, 2012).

Results

Participants profile and the measurement model

While 50.3% of the participants are male, 49.7% are female. The majority of participants (28.8%) are in the 18–28 age range. On the other hand, 40% of the participants are university graduates. The last travel reasons for the respondents are mostly for entertainment purposes (28.5%) and education (24.7%). Respondents stated that they travel mostly with their families (47.8%), individually (24.9%) and friends (21.3%), respectively (Table 1).

Variable		*n*	%
Gender	Female	354	49.7
	Male	358	50.3
Age	15–24	205	28.8
	25–34	155	21.8
	35–44	124	17.4
	45–54	65	9.1
	55–64	80	11.2
	65≤	83	11.7
Education	Primary education	12	1.7
	High school	38	5.3
	Associate degree	177	24.9
	Bachelor's degree	285	40.0
	Master's degree/PhD	200	28.1
With whom did you last travel?	Individual	177	24.9
	Family	340	47.8
	Close Friends	152	21.3
	Business friends	43	6.0
Travel reason	Business	102	14.3
	Education	176	24.7
	Entertainment	203	28.5
	Visitation	163	22.9
	Healthy	47	6.6
	Research	21	2.9

Table 1. Demographic profile of the respondents

Table 2 shows the mean of all items. Accordingly, the "Traveling is dangerous because of COVID-19" (mean = 4.41) item of the perception of COVID-19, the "I will stay away from those who have COVID-19 symptoms during my trip" (mean = 4.67) item of the NPI for COVID-19, the "I want to travel as soon as possible" (mean = 3.28) item of the desire and the "I intend to travel in the near future" and "I have a plan to travel in the near future" (mean = 3.21) items of

Variables		λ	*t*-value	VIF	CR	AVE	MSV	ASV	Mean
Perception of COVID19 (PCOV) (α = 0.82)					0.87	0.53	0.13	0.05	
1	It is dangerous to travel because of COVID19	0.715	21.74	1.75					4.41
2	COVID19 is a very frightening disease	0.822	44.24	2.30					4.10
3	Compared to SARS and Influenza A (H1N1). COVID19 is more dangerous	0.750	29.16	1.78					4.05
4	I have much information about COVID19	0.690	22.14	1.42					3.84
5	I am afraid of COVID19	0.774	28.71	1.67					3.61
6	People around me seem to refrain from traveling internationally due to COVID19	0.628	14.57	1.38					4.00
Non-pharmaceutical interventions for COVID19 (NPI) (α = 0.86)					0.89	0.46	0.13	0.07	
1	I will check the information on COVID19 by visiting the website of the Republic of Turkey Ministry of Health or WHO before traveling	0.727	29.06	2.04					4.10
2	I will read and check precautions about COVID19 through doctors or health centers before traveling	0.709	27.21	1.93					4.21
3	I will prepare a first aid kit for COVID19 before traveling	0.649	16.42	1.98					3.68
4	I will get the information about local medical facilities to prepare for an emergency caused by COVID19 before traveling	0.725	27.20	2.18					3.93
5	I will frequently wash my hands while traveling	0.644	10.41	2.00					4.66
6	I will restrain from touching my eyes, nose, and mouth while traveling	0.678	13.78	2.02					4.59
7	I will cover my mouth and nose with a mask while traveling	0.586	9.67	1.58					4.55
8	I will keep away from those who have the symptoms of COVID19 while traveling	0.619	9.38	1.87					4.67
9	I will restrain from meeting people for a while after traveling	0.686	22.63	1.68					4.34
10	I will stay in quarantine for 14 days after traveling	0.761	21.98	2.24					4.57
Desire (DE) (α = 0.96)					0.97	0.90	0.83	0.30	
1	I want to travel in the near future	0.959	256.16	7.85					3.13
2	I wish to travel in the near future	0.950	219.26	7.06					3.28
3	I am eager to travel in the near future	0.936	177.58	5.05					2.93
4	My wish to travel in the near future can be described desirably	0.951	191.65	6.03					3.16
Behavioral Intention (BI) (α = 0.97)					0.97	0.89	0.83	0.29	
1	I intend to travel in the near future	0.958	243.86	9.39					3.02
2	I am planning to travel in the near future	0.957	215.05	9.23					3.02
3	I will make an effort to travel in the near future	0.950	201.16	6.98					2.88
4	I will certainly invest time and money to travel in the near future	0.927	120.68	5.20					2.78
5	I am willing to travel in the near future	0.942	161.29	5.79					2.92

Table 2. Confirmatory factor analyses, *t*-value, variance inflation factor, composite reliability, average variance extracted, maximum shared variance square, average shared variance square, and Cronbach's alpha

Note(s): *Measured using a 5-point scale format (1 = strongly disagree, 3 = neutral, 5 = strongly agree)
*λ = Factor loadings, VIF=Variance inflation factor, CR=Composite reliability, AVE = Average variance extracted, MSV = Maximum shared variance square, ASV = Average shared variance square, α = Cronbach Alpha
*Goodness-of-fit index = χ^2 = 2116.011, NFI = 0.86, SRMR = 0.08

the behavioral intention have the highest mean. Table 2` also shows a good fit to the data (SRMR = 0.08, NFI = 0.86, χ^2 = 2116.011). Internal consistency was calculated with Cronbach's alpha and it was found between 0.82 and 0.97 (Hair *et al.*, 2010). As the ideal VIF values among the variables are below the threshold value "between 5 and 10" (Smith *et al.*, 2020), it has been confirmed that the indicators have the expected VIF values in the structural model and do not have a multicollinearity problem. Convergent and discriminant validity were examined for construct validity. All factor loadings were higher than the minimum criterion of 0.5, with significant associated *t*-values and all composite reliability (CR) values for the multi-item scales exceeding the minimum criterion of 0.5 and 0.6, respectively (Bagozzi and Yi, 1988; Fornell and Larcker, 1981). Average variance extracted (AVE) is higher than 0.5, but it can accept 0.4. Because Fornell and Larcker said that if AVE is less than 0.5, but CR is higher than 0.6, the convergent validity of the construct is still adequate (Fornell and Larcker, 1981). By this means, convergent validity was fully supported.

The average variance extracted value for each construct was higher than the square of the correlation coefficient for corresponding inter-constructs (Fornell and Larcker, 1981). Also, the maximum shared variance square value of variables is smaller than the average variance extracted values. In contrast, the average shared variance square values of the variables were found to be lower than maximum shared variance square values (Hair *et al.*, 2010) and heterotrait-monotrait ratio values (Table 3) were higher than the minimum criterion 0.9 (Henseler *et al.*, 2009). These results confirmed the sufficient level of discriminant validity of the measurement model.

In Table 4, the research model had a good fit to the data (SRMR = 0.08, NFI = 0.86, χ^2 = 2117.180). As shown in Figure 2, perception of COVID-19, NPI and desire explained 0.06% of the total variance of behavioral intention. Also, the perception of COVID-19 accounted for 0.06% of the total variance of NPI and 0.06% of the total variance of desire, respectively.

In Table 5, the results of the path analysis have been estimated. Perception of COVID-19 ($ß_{PCOV\text{-}NPI} = 0.362, t = 7.908, p < 0.01$) has a significantly positive effect on NPI. Therefore, the H1 hypothesis is accepted. Also, the perception of COVID-19 ($ß_{PCOV\text{-}DE} = -0.137, t = 3.153, p < 0.01$) has a significant and negative effect on desire. Hence, the H2 hypothesis is accepted. On the other hand, perception of COVID-19 ($ß_{PCOV\text{-}BI} = -0.013, t = 0.437, p < 0.01$) and NPI ($ß_{NPI\text{-}BI} = -0.007, t = 0.732, p < 0.01$) do not have a significantly positive/negative effect on

Variables		Mean	SD	1	2	3	4
1	Behavioral Intention	2.92	0.75	**0.94**			
2	Desire	3.12	0.54	0.92*(0.94)*	**0.94**		
3	Perception of COVID19	4.00	1.42	−0.18*(0.18)*	−0.19*(0.21)*	**0.68**	
4	NPI	4.33	1.36	−0.14*(0.13)*	−0.13*(0.13)*	0.36*(0.42)*	**0.73**

Note(s): The results written in bold numbers in the sections of each scale refer to the square root of the AVE values and in italics and parentheses represent Heterotrait–Monotrait ratio (HTMT) values. p = <0.05

Test of hypotheses

Table 3.
Mean, standard deviation, construct correlations, $\sqrt{AVE}$ and Heterotrait–Monotrait ratio (HTMT)

	χ^2	NFI	SRMR
Criteria		≥0.80	≤0.08
Models	2117.180	0.86	0.08

Note(s): *SRMR representing standardized root mean square residual, NFI representing normed fit index

Table 4.
Goodness-of-fit indices for Model

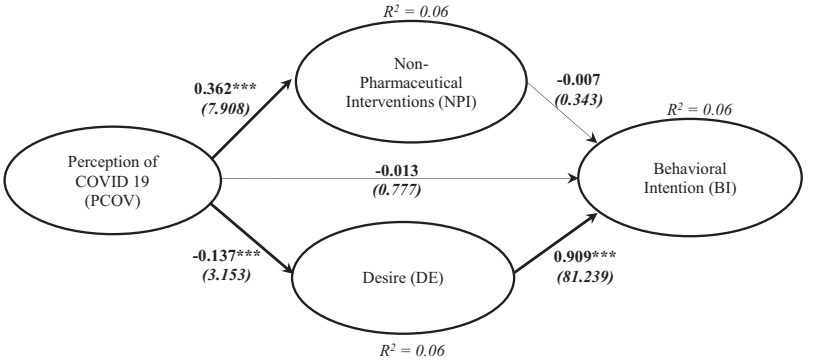

Figure 2.
Estimates of the structural model

Note(s): *Standardized coefficient (*t*-value), bold line = significant path
*Goodness-of-fit index = $\chi 2 = 2116.011$, NFI = 0.86, SRMR = 0.08

Hypothesis		Standardized ß	SD	*t*-value	*p*-value	Decision
H1	PCOV >>>NPI	0.362	0.04	7.908	0.000**	Accepted
H2	PCOV >>>DE	−0.137	0.04	3.153	0.002**	Accepted
H3	PCOV >>>BI	−0.013	0.01	0.777	0.437	Not accepted
H4	DE >>>BI	0.909	0.01	81.23	0.000**	Accepted
H5	NPI >>>BI	−0.007	0.02	0.343	0.732	Not accepted

Note(s): **p= <0.01

Table 5.
Structural estimates (hypotheses testing)

behavioral intention. For this reason, H3 and H5 hypotheses are not accepted. Finally, desire ($ß_{DE\text{-}BI} = -0.909$, $t = 81.23$, $p < 0.01$) has a significantly positive effect on behavioral intention, and therefore the H4 hypothesis is accepted.

Indirect and total effects

Desire (0.909) is the factor that has the most impact on behavioral intention. Perception of COVID-19 is a dominant factor in explaining NPI and desire with a total impact of 0.362 and −0.137, respectively. The perception of COVID-19 negatively impacted behavioral intention through desire ($ß_{PCOV\text{-}DE\text{-}BI} = -0.125, t = 2.881, p < 0.01$). The perception of COVID-19 did not indirectly negatively affected behavioral intention when it is mediated by individual NPI ($ß_{PCOV\text{-}NPI\text{-}BI} = -0.003, t = 0.335, p < 0.01$). Although the NPI and perception of COVID-19 did not affect behavioral intention, desire was a significant predictor of behavioral intention to travel. On the other hand, the perception of COVID-19 was a significant predictor of desire and NPI (see Table 6).

Discussion and conclusion

Conclusion

This study analyzes the decision-making processes of tourists by combining the Perception of COVID-19 and NPI variables with the relationship between desire and behavioral intention. Analyses show that the perception of COVID-19 has a positive effect on NPI. Lee *et al.* (2012) have found a similar result regarding the 2009 H1N1 pandemic. Lau *et al.* (2008) state that a

Independents variables	Dependent variables NPI	Desire	Behavioral intention
Perception of COVID 19 (PCOV)			
Direct effect	0.362*	−0.137*	−0.013
Indirect effect			
PCOV >>>DE>>>BI			−0.125*
PCOV >>>NPI>>>BI			−0.003
Total effect	0.362*	−0.137*	−0.140*
Non-Pharmaceutical Interventions (NPI)			
Direct effect			−0.007
Indirect effect			
Total effect			−0.007
Desire			
Direct effect			0.909*
Indirect effect			
Total effect			0.909*

Note(s): *$p < 0.001$

Table 6.
The direct, indirect and total effects of the structural model

higher risk perception can be related to influenza vaccination and wearing face masks. This result shows that the danger perception of COVID-19 is effective in personal NPI practices. In addition to personal risk perception, public information platforms are also effective in forming the perception of the pandemic.

The perception of COVID-19 has a negative effect on desire. This result shows that tourists perceive this pandemic, which has more than 4.5 million confirmed cases worldwide, as a risk and a travel restriction. Lee *et al.* (2012) found that the 2009 H1N1 pandemic did not have a negative effect on desire. The time difference and the impact areas of the pandemics can be the causes of this difference. This result shows that the perception of COVID-19 is a significant source of concern, and the desires of tourists are affected negatively by it. In other words, the COVID-19 pandemic continues to spread, and it is not certain when it will end. For this reason, the whole world is still in panic and fear. This situation increases the perception of risk in tourists. Yang and Nair (2014) state that uncertainty, fear, and concern trigger the formation of the perception of risk, while Garg (2015) states that factors like earthquake, tsunami, SARS, acts of terrorism and swine flu cause security, peace and stability concerns. Desire has a positive effect on behavioral intention. Desire is considered the closest indicator for behavioral intentions in MGB. This result shows that the behavioral intention of tourists will be positively affected when they experience a strong desire to travel. Although it seems difficult to develop business strategies that increase the desires of the tourists during this pandemic, which is unpredictable and full of uncertainties, this result is vital for the revival of tourism, at least when the pandemic tends to decrease in a country.

The negative impact of the perception of COVID-19 on behavioral intention was not accepted. This result shows that the travel intentions of tourists are not affected by the outbreak of COVID-19. However, the perceived risk was determined as a factor creating uncertainty in the travel intentions of the tourists (Yang and Nair, 2014; Garg, 2015), and it was claimed that this situation would affect their intentions negatively. This result may indicate that tourists do not believe that the pandemic can be a traveling obstacle or decrease their perception of risk depending on the control of the pandemic or the medical developments in its treatment. Tourists may also have been affected by the perception of people around them (that it will not create a traveling obstacle), or practices such as long-term quarantine (long-term home life) may have strengthened the travel intentions of tourists despite the

pandemic. Finally, the daily public information (the tendency of the cases in the country to decrease) of the Ministry of Health, which is the primary public institution on the pandemic, may have eliminated the effects of the negative perception of the pandemic on the travel intention. It should be noted, however, that NPI does not develop sufficient positive perception. This study concludes that NPI does not have a positive effect on intention. This result indicates that tourists do not consider NPI as a factor reducing the risk of travel, and for this reason, their intention to travel does not develop. The fact that the pandemic timeline (e.g., when will it end) and the pandemic calendar is different in every country and even in every city may have affected this result. Furthermore, the degree of the efficiency of the NPI that countries practice and the unclarity of the governments' penalties and encouragements may have affected the trust that tourists have for NPI. Also, tourists may have developed the belief that NPI is not protective enough, and therefore, think that the possibility of being infected is too high.

Practical implications

The results show that it will be a beneficial strategy for the government institutions to keep informing people on nonpharmaceutical measures. The positive effect of the perception of COVID-19 on NPI is considered essential for the operation of the healthcare system and for ensuring public health. For this reason, it is thought that the most important and efficient strategy is for the governments to practice nonpharmaceutical measures (at least until medicine or a vaccine is developed). It is suggested for all government institutions and entities to keep practicing NPI to reduce the effect of the pandemic.

This research shows that it will be a beneficial strategy for travel companies to focus on the perceptions that people have of the pandemic. Travel companies should support public information platforms on COVID-19, and they should also make access to information easier through web sites. Eliminating false or unclear information regarding the progress of the pandemic can help manage the perception of risk and unclarity that prevent tourists from making travel decisions and can reduce the factors that negatively affect their travel desires. If the desires of tourists are strengthened, they can develop behavioral intentions. If travel agencies encourage special offers and different tourism activities, the desire to travel can increase. It is striking that the perception of COVID-19 does not have a negative effect on behavioral intention. It can be said that tourists do not consider the pandemic as a strong risk factor while developing travel intentions. This situation creates some advantages (e.g., the idea of Lufthansa Airlines) for travel companies (e.g., ensuring the continuity of travel). For this reason, it would not come as a surprise if travel and accommodation companies turn this situation into an opportunity with the measures they take.

Theoretical implications

It is considered beneficial to focus on new strategies in addition to standard NPI to develop behavioral intentions of domestic/foreign tourists. If companies organizing international travel and tourism organizations in Turkey share information regarding the progress of the pandemic, spread speed, death rates in countries to help their customers form travel decisions towards countries where risks are lower, by making use of different communication channels (primarily social media), they can prevent fear and risk felt by their customers. This study provides a clue about the usefulness of focusing on such alternative strategies, as nonpharmaceutical measures do not affect the intention positively.

Limitations and future research

This study analyzes the perceptions of tourists regarding traveling during a pandemic. There is great uncertainty about the future progress of the outbreak. Therefore, it is useful to review

the travel desires and behavioral intentions of consumers after the end of the pandemic, as it is believed that the intentions and perceptions of tourists about NPI will change over time. Also, it is recommended for future studies to be carried out in different geographies and cultures. Because the effect of a global pandemic, its rate of spread, mortality rate, and the measures applied by the states make it difficult to generalize the study results in terms of pandemic literature.

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