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RESEARCH ARTICLE

EVALUATION OF THE SOCIAL PERCEPTION ABOUT CORONAVIRUS PANDEMIC IN TURKIYE BY USING DATA MINING

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ABSTRACT

Purpose: The purpose of this study was to examine the social perception of the Coronavirus disease (COVID-19) pandemic, and to evaluate the public's knowledge level about the COVID-19, opinion, and emotional condition.
Material and Methods: An online questionnaire created by the researchers was applied to all communities living in Turkey, between 1-15 May 2020 date. Association rules analyses were performed using the descriptive analyses for the research data and the "Apriori Data Mining Analysis" method for the questions, which were anticipated to be associated with each other.
Results: 3751 people participated in the study. It has been determined that there are differences in terms of the level of knowledge and perception of COVID-19 in terms of factors such as living in rural areas, low education level, and socioeconomic level. Although almost all of the society (96.1%) know that COVID-19 is a very contagious disease, they have different perspectives in terms of their risk of getting the disease. Social distance application is evaluated as very effective in preventing the spread of the disease by 90.2% of the society. Although it is known by a significant portion of the society (70.8%) which behaviors are appropriate or not in implementing social distance, the rate of those who do not know (29%) is relatively important.
Conclusion: Informing the society about the precaution against COVID-19 and compliance with these measures and making attempts to ensure the necessary compliance are seen as key points in preventing the spread of the disease. Making decisions covering all components of the society, increasing compliance with the proposed precautions, and developing practices to ensure sustainability are gaining importance.

Keywords: COVID-19, social perception, data mining

INTRODUCTION

The coronavirus infection emerged in Wuhan, the capital of China's Hubei province, in December 2019 (1). The disease caused by the new pathogen (2019-nCoV) known as COVID-19 quickly spread across different parts of Hubei and all other Chinese provinces and worldwide (2). As of May 2020, a large number of Coronavirus disease (COVID-19) cases were detected all across the world and in Turkey, and World Health Organization (WHO) declared COVID-19 a global pandemic on March 11, 2020 (3, 4, 5). Measures were actively taken to monitor the progress of COVID-19, give effective medical care, and determine measures to prevent the spread of the infection before the first case was seen in our country. The "National Pandemic Plan", already published in 2006, was adapted to coronavirus infection and teams were organized based on a 24/7 working order.

Coronavirus Scientific Advisory Board was established on January 10, 2020, to struggle against COVID-19 infection by the Republic of Turkey Ministry of Health due to the coronavirus pandemic. COVID-19 Risk Assessment, measures to be taken, case-control use of personal protective equipment, need-based guidelines for diagnosis and treatment, treatment algorithms, leaflets, and relating documents have been published by the concerned Scientific Committee (5, 6).

In addition, people have been informed about the situation in the country regarding coronavirus, the symptoms of the disease, the modes of transmission, the measures to be taken, the cruciality of adaptation to the process through various means of communication such as web page, television, newspaper, and so on created by the Ministry of Health for the society (5).

However, citizens can also inquire about COVID-19 via social media or their own personal research, and thus their knowledge of COVID-19 may differ. Moreover, suspected/diagnosed cases and changes in mortality may have an impact on the public's estimates of the severity and controllability of COVID-19. All this information directly affects the emotional and behavioral reactions of the community to COVID-19, which may give rise to varieties in the level of knowledge, opinion and mood of the society regarding the COVID-19 pandemic.

There is a variety of studies in the literature which aim to evaluate social perception, level of knowledge, emotions and opinions concerning COVID-19. Li et al. (2020) conducted a national survey, in which they discussed issues such as Chinese public's emotional and behavioral reactions, social participation and precautionary behavior in respect of COVID-19. Based on cognitive appraisal theory, this study examined Chinese public's knowledge about COVID-19, perceived severity and controllability, and their emotional and behavioral outcomes among Chinese public (7). Research was performed by Geldsetzer (2020) to determine the knowledge and misperceptions about COVID-19, in which 2987 adults residing in the USA and 2978 adults in the United Kingdom participated. In the study, the society's level of knowledge about the cause, symptoms, current state, future development, case-fatality rate, recommended healthcare-seeking behavior and measures to prevent the infection, and the perceptions of the risk posed by community members of East Asian ethnicity residing in these countries were examined. (8). Rus, Sandu and Tasente (2020) conducted a research in Romania, consisting of 244 people, on the perceptions and attitudes of the society within the scope of the strategic measures taken against the COVID-19 crisis. The objective of the research, where questionnaire was applied, was to evaluate the social perception related to the spread and the severity of the phenomenon of COVID-19, to examine the attitude of the public towards the prohibitions regarding COVID-19, use of public places including places of worship or prayer, avoidance of social gatherings, to assess the perception of population on quality of life in this period and how it was affected, and, relatedly, their attitude towards buying their needs such as food (9). McFadden et al. (2020) carried out a survey, in which 718 adults in the United States participated, and they evaluated the risk perceptions of the public about COVID-19. In this survey, they examined society's opinion on who they felt should lead the process of COVID-19 in the US (President of the US, Director of the Centers for Disease Control and Prevention and Director of the National Institutes of Health), and the approach to restrictive infection prevention policies and the reliability of various sources of information (10).

The objective of this study was to examine the social perception about the COVID-19 outbreak, and to evaluate public's knowledge level about the COVID-19, opinion and emotional condition.

MATERIAL AND METHODS

The study was approved by the Ankara City Hospital No:2 Clinical Research Ethics Committee (Protocol number: E2-22-1287, Approval date: 19.01.2022). The study was realized aiming at all communities residing in Turkey. We calculated the sample size for the survey taking as a base Turkey Statistical Institute (TUIK), the results of Address Based Population Registration System 2019. It was intended to reach 3671 people as a result of the sample size calculations made at 95% confidence level, however, 3751 people participated in the questionnaire applied using random sampling method, one of the improbable sampling methods (11).

The questionnaire created by the researcher group was used as the data collection tool in the survey. The questionnaire employed in the survey consists of 5 parts, containing questions about public's level of knowledge, opinion and emotional condition regarding the COVID-19 outbreak.

Online survey method was applied between May 1 and May 15, 2020 with the data collection tool. Before the application of the survey, the participants were informed about the objective of the research, its content, the use of data, etc. and their consent was obtained for their participation in the research.

Association rules analyses were performed using the descriptive analyses for the research data and the "Apriori Data Mining Analysis" method for the questions, which were anticipated to be associated with each other.

RESULTS

3751 participants took part in the study, and demographic data of the sample, the descriptive analyses regarding the research questions, and the results of data mining analyses are given below.

Demographic Data

The distribution of the sample in terms of age, gender, marital status, education level, income status and residence data is shown in Table 1.

According to Table 1, most of the study participants were between 21-45 years (59,4%). 70% of the participants were women, 30% were men. Our survey was accessible to all communities. When evaluated together with the answers given to the survey questions within the scope of the study, the female response rates are significantly higher than the male response rates. This may be due to the fact that women are more susceptible to the COVID-19 disease than men. For example, the answers given to the question *"I am not very interested in making other people sick"* were found to be 1.67 in men and 1.27 in women. This suggests that women are more inclined to 'disagree', so they may be more susceptible to COVID-19. Similarly, *"Practicing social distancing is generally consistent with the fact that I care about other people."* The rate of answers given to the question is 4.70 for women and 4.51 for men. This suggests that women tend to do preventive and protective practices against COVID-19 more than men, which suggests that women are more susceptible to COVID-19.

In terms of marital status, 42% were single and 58% were married. As regards the income distribution, the smallest group was those with the minimum wage with the percentage of 4.4%, whereas the highest number of the participants in terms of income distribution was the group with an income of 3001-5000 Türkiye Liras (TL). While the large majority of the participants (79%) lived in metropolis, those living in rural areas / villages (2%) ensured the least participation. Approximately half of the participants (46.1%) had bachelor's degree, followed by those who had master's degree with 17.6%.

Table 1. Demographic data of the sample

Total N=3751	Number (n)	Percent (%)
Age		
20 years and under	279	7,4
21-45 years	2228	59,4
45-64 years	1116	29,8
65 years and older	133	3,4
Gender		
Female	2626	70
Male	1125	30
Marital Status		
Single	1575	42
Married	2181	58
Education Level		
Illiterate	8	0,2
Elementary School	33	0,9
Middle School	105	0.3
High School	618	17
Associate Degree	331	8,8
Bachelor's Degree	1728	46,1
Master's Degree	660	17,6
Doctoral studies and further	273	7
Income Status (TL)		
Unemployed	831	22
Minimum Wage	168	4,4
2500-3000	349	9,3
3001-5000	1017	27,1
5001-10000	1011	27
10000 and above	380	10,1
Residence		
Metropolis(>More than 750.000 inhabitants)	2965	79
Small city/town	710	19
Rural area/village	81	2

Descriptive Analyses

The analysis results regarding the distribution percentage of the answers given to the questions within the scope of the study are given below.

It was determined that the participants expressed that they had known the appropriate and inappropriate behaviors with a total of 70.8% as 43.8% of the participants answered as "strongly disagree" and

Table 2. State of knowing about social distancing and the practice behavior of the sample

How many meters do you know the recommended social distancing for protection from COVID-19 infection?	*"How effective do you think social distancing is to prevent you from becoming infected?"*	*"I do not know which behaviors are appropriate and inappropriate to practice social distancing properly".*	Associated Answer Frequency of Questions Among Those Who Answered as "I apply" and "Yes, I immensely apply" to the question *"Are you intentionally increasing the physical distance between you and other people in order to practice social distancing right now?"*
1-2 meters	Effective	Strongly disagree	18%
1-2 meters	Fully effective	Strongly disagree	17%
1-2 meters	Effective	Disagree	14%
1-2 meters	Effective	Agree	6%
1-2 meters	Effective	Strongly agree	5%
1-2 meters	Fully effective	Strongly agree	5%
3 meters	Effective	Strongly agree	2%
3 meters	Fully effective	Strongly agree	2%
1-2 meters	Slightly effective	Disagree	2%
1-2 meters	Slightly effective	Strongly disagree	2%
3 meters	Effective	Disagree	1%
1-2 meters	Slightly effective	Neither Agree Nor Disagree	1%

27% "disagree" with the statement *"I do not know which behaviors are appropriate and inappropriate to practice social distancing properly".* However, approximately 29% of the participants does not know the appropriate behaviors related to social distancing, which should be considered as a high rate taking into account the reflection of the issue.

89.6% of the participants answered the question *"How effective do you think social distancing is to prevent you from becoming infected?"* as "effective / fully effective", 9.4% as "slightly effective". This showed the awareness of the participants that social distancing had a major role in becoming infected. Furthermore, the insufficient consideration of social distancing, which has a role in transmission of this infection, by relatively few participants seems that it is a social group that needs to be evaluated for the measures to be taken within the scope of preventing the transmission of the infection.

90.2% of the participants answered the question as "effective / fully effective", 9% "slightly effective" to the question *"How effective do you think "social distancing" is in preventing the spread of the COVID-19 virus?"* It revealed that the awareness that social distance was a crucial behavioral pattern in preventing the spread of the disease is very high. However, as stated in the previous question, the fact that social distancing was thought to be "slightly effective" by some participants at a relatively low rate, is considered as an issue that should be tackled within the scope of measures to be taken to prevent transmission of the infection.

The percentage of those who answered the question *"How many of those around you (friends, relatives, acquaintances, etc.) currently practice social distancing?"* as "all" was 50.8%. This ratio suggested that there was not a sufficient level of coherence between the awareness of social distancing behavior and its practice. The participants in the rural areas answered this question as "some (47%)", which also drew attention. Among those who did not have a bachelor's degree, the rate of those who answered as "all" were around 45%, while those who answered as "some" were around 38%.

The rate of those who answered as "all" to the question *"How many people "like you" (people of similar age, race, and cultural background) currently practice social distancing?"* was found 39.6%. This supports that there is inadequate level of coherence between the awareness of social distancing behavior and the practice of social distancing. The fact that more than half of the participants living in rural areas answered this question as "some" is also striking when taking into consideration the previous question. Those who did not have a bachelor's degree

Table 3. The state of knowing social distancing and practice behavior of people around

How many of those around you (friends, relatives, acquaintances, etc.) currently practice social distancing?	*Do the people you care about know the importance of social distancing practice?*	Associated Answer Frequency of Questions
All or almost all	Very Much	45%
Some	Some	17%
Few	Some	5%
Some	A little	2%
Few	A little	2%
Few	Very little	1%

answered this question with the highest rate (48%) as “some”.

66.5% of the participants answered as "much" and 27.7% answered "some" to the question *“Do the people you care about know the importance of social distancing practice?”* As in the previous related questions, even if the importance of social distancing is known by the majority, a risky behavior may be displayed by those who do not pay adequate attention. At this point, the option "much" was found to be less (55%), and the option "some" (36%) higher for those living in rural areas compared to those living in cities.

The answers “much" and "no" were given around 10% to the question *“Do you think you are likely to be infected by the COVID-19 virus next month?”* The answer “some”, which is below “much” option, was given as the highest rate 33.1%, followed by the option “very little” with 26%. These findings showed that there are quite different perspectives in terms of the risk to be infected by the disease. Those living in rural areas differed from those living in the city with the option “very little” (38%) at the highest rate. The “very little” option is also differentiated among those who did not graduate from the university with the highest rate (29%).

96.1% of the participants answered as "highly contagious" and "contagious" to the question "Based on what you have heard or read so far, how contagious do you think people infected with the COVID-19 virus and who show symptoms such as cough and fever are?" It was noteworthy that women chose “highly contagious” compared to men and men answered as “contagious” more than women did.

57.2% of the participants opted for "strongly disagree" and "disagree" regarding the statement *"If I were going to be more socially distant, I wouldn't know how to spend my time.”,* and 20.7% chose "neither agree nor disagree", and 22% chose “agree". While more than half of the participants did not worry about how to spend their time, a significant number of people do not have an idea about the issue or they strongly agrees on this statement. Women preferred “strongly disagree” option more than men. Within this context, taking the results into consideration, it is seen among the issues that need to be evaluated and measures should be developed.

47.8% of the participants preferred the option “disagree”, 24.8% “neither agree nor disagree”, and 27.3% “agree” regarding the statement *“The individuals overreact to the threat posed by COVID-19 virus”.* Within this scope, almost half of the participants obviously disagreed that the individuals overreacted. It was also noteworthy that a significant rate of participants opted out “neither agree nor disagree”. The males tend more to “agree” (32%) on this statement than the females (25.5%).

Responding to the question *“Is there anyone who is likely to be exposed to severely negative outcomes if infected by COVID-19 virus?”,* “none” is the least chosen option by the participants with 12%. The rate of those who opted out “1-2 persons” and “3-5 persons” were approximately 34% each, which makes 68% in total, whereas the rate of the participants who answered as “6 persons and more” was just 19.4%. These rates are considered to be a crucial result, which provide insight in terms of informing individuals at risk in the community, warning them and taking necessary precautions.

As for the answers given by the participants to the question *“Which resources do you rely on for information about COVID-19 virus?”*, the first three answers were by far higher than the other options as shown as 77.2% for “Ministry of Health”, 75.1% for “Scientific Advisory Board”, 64% for “scientific publications”, respectively. “Friends” option takes the first place as the least reliable resource with 5.5%, successively followed by “other” with 7.1%, and “non-governmental organisation’s (NGO)” with 8.8% (Figure 1). Within this framework, it can be observed

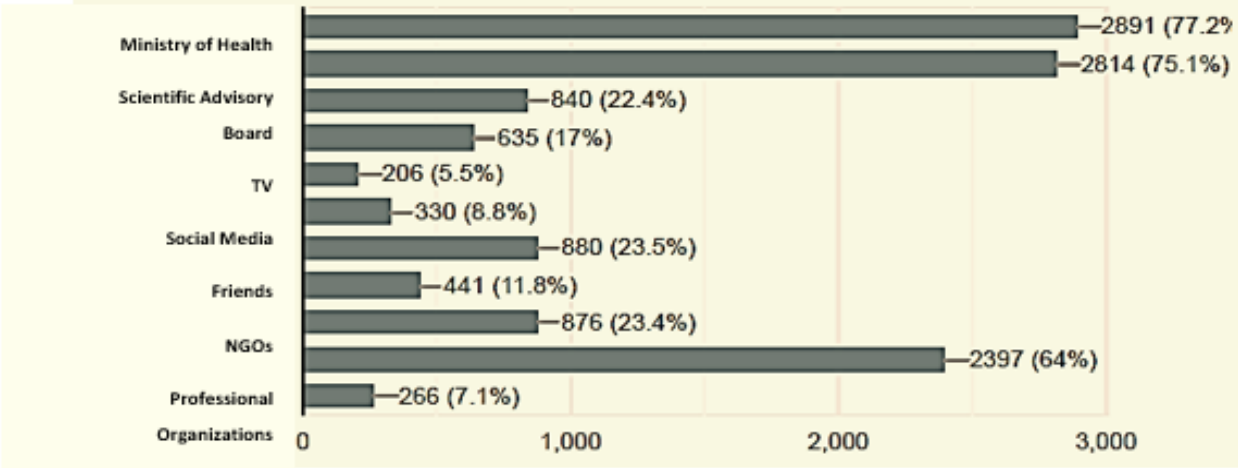

Figure 1. Unipedal (left) static balance test

that the participants highly relied on Ministry of Health, which is entirely in charge and the executer of the issue, and the Coronavirus Scientific Advisory Board formed by the Ministry of Health. Public's relying on Scientific Advisory Board and scientific publications emphasizes the significance of science in all studies to be carried out.

Data Mining Association Rules Analysis

The participants, who answered the question "Are you intentionally increasing the physical distance between you and other people in order to practice social distancing right now?" as "I apply" and "I immensely apply", gave answers to three questions below, the results of which were obtained after analyzing the answers through association rule algorithm (with the parameters of minimum support = 0.01, minimum confidence = 0.2), and they are presented in Table 2.

When Table 2 is examined, although those who consciously increased their physical distance to practice social distancing knew the distance in meters and thought that it was a vital factor in becoming infected, it drew attention that the rate of those who did not know which behaviors were appropriate or inappropriate to practice social distancing properly was 50% (1% said neither agree nor disagree). In this context, it can be said that it is crucial to raise the awareness of the society about what such behaviors might be.

The results were obtained when the answers to the questions "Do the people you care about know the importance of social distancing practice?" and "How many of those around you (friends, relatives, acquaintances, etc.) currently practice social distancing?" were analyzed through association rule algorithm (with the parameters of minimum support = 0.01, minimum confidence = 0.20), and they are shown in Table 3.

Evaluating Table 3, among those who said that *the people you care about know the importance of social distancing practice* "very much", the ratio of those responded as "all or almost all" to the question *how many of those around you currently practice social distancing* remained at 45%. Besides, among those who said "some" for the importance of this practice, the rate of choosing "some" was determined as 17%. The total rate of those who chose both options together as "Few-Very Much" and "Few-Some" was seen as 10%. In this context, significant differences were observed between knowing the importance of social distancing and its practice, and it is thought that activities should be carried out to let the society adopt it rather than knowing it.

Among those who answered the question Are you intentionally increasing the physical distance between you and other people in order to practice social distancing right now?" as "I apply" and "I immensely apply", the results were obtained when the answers given to three questions below were analyzed through association rule algorithm (with the parameters of minimum support = 0.01, minimum confidence = 0.20), and they are displayed in Table 4.

When we evaluate Table 4, we can observe those who stated they were intentionally increasing the social distancing between people generally indicated that the effect of their work, family, smoking, use of alcohol and drug was very low on this issue.

Table 4. Social distancing practice behavior and thoughts on social distancing

Considering my work, family, etc., it is difficult for me to practice more social distancing.	Smoking, alcohol and drug use by me or my relatives makes social distancing difficult.	Practicing more social distancing will increase the severity of me and my relatives' mental health problems.	**Associated Answer Frequency of Questions** Among Those Who Answered as "I apply" and "Yes, I immensely apply" to the question *"Are you intentionally increasing the physical distance between you and other people in order to practice social distancing right now?"*
Neither agree nor disagree	Strongly disagree	Strongly disagree	9%
Disagree	Strongly disagree	Neither agree nor disagree	5%
Strongly disagree	Neither agree nor disagree	Neither agree nor disagree	3%
Strongly disagree	Neither agree nor disagree	Strongly disagree	3%
Strongly disagree	Disagree	Disagree	3%
Strongly disagree	Strongly disagree	Strongly agree	3%
Strongly disagree	Neither agree nor disagree	Neither agree nor disagree	2%
Strongly disagree	Strongly agree	Strongly disagree	2%
Strongly disagree	Agree	Disagree	2%
Strongly disagree	Strongly disagree	Agree	1%
Strongly disagree	Neither agree nor disagree	Agree	1%
Strongly disagree	Disagree	Agree	1%
Strongly disagree	Agree	Agree	1%
Strongly disagree	Strongly agree	Strongly agree	1%

Table 5. Emotions and thoughts regarding social distancing

If I were going to be more socially distant, I wouldn't know how to spend my time	If I were going to be more socially distant, I wouldn't know how to keep in touch with the community.	I feel like I really do not know how to keep myself and my loved ones safe.	**The Frequency of the Answers** among those who answered the question "*Practicing more social distancing will increase the severity of me and my relatives' mental health problems"* as "strongly agree" and "agree"
Strongly disagree	Strongly disagree	Strongly disagree	16%
Disagree	Disagree	Disagree	3%
Strongly disagree	Strongly disagree	Neither agree nor disagree	3%
Strongly disagree	Strongly disagree	Disagree	3%
Strongly agree	Strongly agree	Strongly agree	3%
Disagree	Strongly disagree	Disagree	2%
Disagree	Strongly disagree	Strongly disagree	2%
Strongly disagree	Strongly disagree	Strongly agree	2%
Strongly disagree	Strongly disagree	Agree	2%

Table 6. Association of thought on the practice and effectiveness of social distancing ın terms of age

AGE	*Are you intentionally increasing the physical distance between you and other people in order to practice social distancing right now?*	*"How effective do you think social distancing is to prevent you from becoming infected?" (in other words: to what extent your social distancing behavior reduces your risk of transmission)*	*"How effective do you think "social distancing" is in preventing the spread of the Covid-19 virus?"*	**Associated Answer Frequency of Questions**
20 years and under	No never	Effective	Effective	12.149%
20 years and under	I hardly practice	Fully effective	Fully effective	8.411%
20 years and under	I hardly practice	Slightly effective	Slightly effective	4.672%
20 years and under	I hardly practice	Fully effective	Fully effective	3.738%
20 years and under	No never	Fully effective	Fully effective	3.738%
20 years and under	I hardly practice	Effective	Fully effective	3.738%
21-45	No never	Effective	Effective	2.803%
21-45	I hardly practice	Slightly effective	Effective	2.803%
21-45	I hardly practice	4_ Effective	Effective	2.803%
21-45	No never	Fully ineffective	Fully ineffective	2.803%
21-45	I hardly practice	Effective	Effective	2.803%
21-45	I hardly practice	Fully effective	Fully effective	2.803%
21-45	No never	Effective	Effective	1.869%
21-45	I hardly practice	Effective	Fully effective	1.869%
21-45	No never	Ineffective	Ineffective	1.869%
21-45	I hardly practice	Fully effective	Effective	1.869%
21-45	No never	Slightly effective	Slightly effective	1.869%
45-64	No never	Ineffective	Slightly effective	1.869%
45-64	I hardly practice	Fully effective	Effective	1.869%
45-64	I hardly practice	Fully effective	Effective	1.869%
45-64	No never	Slightly effective	Slightly effective	1.869%
45-64	I hardly practice	Slightly effective	Slightly effective	1.869%
45-64	I hardly practice	Effective	Slightly effective	1.869%
45-64	I hardly practice	Effective	Effective	1.869%
45-64	No never	Ineffective	Fully effective	1.869%
45-64	I hardly practice	Fully effective	Fully effective	1.869%

However, as for those who responded in this way, and stating that practicing more social distance would increase the severity of mental health problems for the person and his/her relatives, the option “neither agree nor disagree” remained at 10% and “agree” at 5% (“strongly agree” at 1%), which made us think that the issue should definitely de dealt with.

The participants, who answered the question “*Practicing more social distancing will increase the severity of me and my relatives' mental health problems”* as “strongly agree” and “agree”, gave answers to three questions below, the results of which were obtained after analyzing the answers through association rule algorithm (with the parameters of minimum support = 0.02, minimum confidence = 0.02), and they are displayed in Table 5.

As can be seen in Table 5, from the point of those who agreed with the question that practicing more social distance would increase the severity of mental health problems for them and their relatives; the ratio of the participants who did not know how to spend their time, how to keep in touch with the community, and how to keep themselves and their loved ones safe, was chosen with the option "strongly agree" as 3%. In addition, the rate of those who did not know how to keep themselves and their loved ones safe was 10% (3% “neither agree nor disagree”). Within this scope, the fact that a significant rate of participants as 10% worried about himself/herself and his/her loved ones suggests that an effort needs to be made in order to convey a sense of safety to individuals and the community.

In terms of age, among those who answered the question “Are you intentionally increasing the physical distance between you and other people in order to practice social distancing right now?” as “No never” and “I hardly practice”, the results were obtained when the answers given to three questions below were analyzed through association rule algorithm (with the parameters of minimum support = 0.01, minimum confidence = 0.20), and they are displayed in Table 6.

When Table 6 is evaluated, it is seen that the most insensitive group to the question “Are you intentionally increasing the physical distance between you and other people in order to practice social distancing right now?” was the one including the participants under the age of 20. Accordingly, it can be said that as age increases, sensitivity to this issue also increases. This point has an important role in motivating this group, which constitutes a large part of the country's population, and in developing methods by the authorities to reduce the risk of transmission.

DISCUSSION

While COVID-19 still remains as a global threat, improving the knowledge and the perception between the community and healthcare professionals in Turkey is critical. Following the announcement of a pandemic by WHO, various studies have been carried out in many countries in order to evaluate knowledge and perception levels of community and healthcare professionals on COVID-19 infection and to put forward suggestions. Some of the studies that are in parallel with this research are given below with their results:

In a study conducted on knowledge, severity and perceptions about COVID-19 among 4,607 citizens in 31 provinces in China in February 2020, it was concluded that the public actively participated in the measures taken and was a little affected emotionally and behaviorally (7). This situation shows consistency with our research results, and we can say that the public actively participated in the measures and took them seriously, nevertheless, they were psychologically affected. These findings are consistent with previous studies, which were found to have a positive relation between having adequate knowledge and perceived risk level in case of pandemic such as SARS, etc. (12, 13, and 14).

According to the results of the research carried out on 6,000 people between February-March 2020 regarding the knowledge and perceptions of the public about COVID-19 in the USA and the UK, it was observed that the public had the sufficient knowledge, however, there was inconsistency in recommended nursing behaviours and how the infection would be prevented among a great number of the participants, and also they had some misconceptions about the disease (e.g. eating in east Asian restaurants, the disease being more deadly for children, etc.) (8). In some studies conducted in China, it is seen that there are findings that contradict this, suggesting that the mortality in children is lower (15,16,17). When the results of our study are compared with the studies mentioned above, they show similarities in that the public generally has sufficient knowledge but the desired level regarding the transformation of knowledge into behaviour could not be reached.

As a result of the study conducted on 244 people in Romania between February-March 2020, a very small group of participants (36%) thought that there was an overreaction to the threat posed by the COVID-19 virus, the majority of whom stated that the disease was very critical, they would respect the measures to be taken by the state, especially social distancing, masks and gloves, and they were aware that this issue would also cause economic problems for the individual and the state [9]. Although these results are largely similar to the results of our study, the rate of those stating that there is an overreaction to the threat posed by the COVID-19 virus in our country (27.3%) is relatively lower than the Romanian people (36%).

The result of the study carried out on 718 adults to understand the risk perceptions regarding the COVID-19 outbreak in February 2020 in the US revealed that the risk perception was as low as 5 out of 10 (10). According to the results of our research, the rate of the participants, who indicated the possibility of getting COVID-19 disease as "very likely" were determined as 10%, and those who said "slightly likely" as 33.1%. This shows us the risk perception regarding the COVID-19 in Turkey is low in a similar manner to the research performed in the US.

In the study conducted in the USA, it was found that the society relie on the health professionals (4.3 out of 10) and the authorities (Centers for Disease Control and Prevention and Director of the National Institutes of Health) (4.2 out of 10) to obtain information about the disease (10). Besides, a study in Finland revealed that in terms of the reliability of the authorities, there were discussions about "unreliability of the information provided" and "insufficiency of the measures taken" in the process of COVID-19 (18). The results of our study indicates that Scientific Advisory Board and the Ministry of Health in Turkey are the most reliable resources in order to obtain information, which proves that these resources are highly trusted.

In the United Arab Emirates, according to the results of the study conducted on 453 healthcare workers, aiming to examine the knowledge and perceptions of healthcare professionals about COVID-19, it was determined that a significant portion of healthcare workers had insufficient knowledge about the transmission and symptoms of the disease, age and occupation status was found to correlate with the issue (19). The result of this study revealed that there were similarities between the indicators of age, gender, place of residence and educational status and insufficient knowledge. Accordingly, in a study including 435 participants in Bangladesh aiming to examine knowledge and perceptions about COVID-19, a significant portion of the participants had poor knowledge of transmission and symptoms, and it was found that they showed a positive perception of COVID-19 prevention and control. Here, factors such as profession and age were found to correlate with insufficient knowledge and insufficient perception of COVID-19. The findings of this study showed that there was an information gap about the amount of information available on COVID-19 and the depth of knowledge between healthcare personnel and general public, especially about the transmission and incubation period of COVID-19 (20). According to the results of the study conducted on 559 people in order to evaluate the level of knowledge, perception and attitude of the Egyptian people against COVID-19 infection, it is seen that the level of knowledge among the elderly, less educated, low-income and rural residents is significantly low, similar to the findings in our study (21).

As can be seen, the results of many studies conducted to evaluate the social perception of COVID-19 are relatively in line with this study. Factors such as living in rural areas, low education level, socio-economic level, especially in terms of COVID-19 knowledge and perception level, emerged among the risky groups in this study. The reliability and especially the importance given to Scientific Advisory Board decisions in Turkey have been among the essential considerations unlike other studies. However, it is vital that the entire community complies with the measures recommended against COVID-19, where transmission is such an important issue. In this context, first of all, informing and raising the awareness of the society are among the most sensitive issues in order to implement these measures, and it is seen as a key point for the state to take decisions related to all components of the society and to ensure the sustainability of the practices by realizing them completely particularly due to the public health concern.

Other studies having been carried or to be carried out on COVID-19 is likely to be an important tool in tracking the public's knowledge and misperceptions over time. In this framework, it is thought that supporting and encouraging these and similar studies, the up-to-date evaluation of the findings will

be leading in terms of public health plans and policies. It can be suggested that these studies can particularly exert an influence on designing and presenting intervention programs for the state.

CONCLUSION

After all, due to the cruciality of risk and reliability perception regarding the information resources of the society, the implementation of the recommendations made by the Scientific Advisory Board in Turkey and is considered to be notable in recognition of the adoption of the recommendations and their practice by the society.

The fact that the training of both the society and healthcare professionals on this subject should continue within the scope of each new information obtained is also among the recommended issues. It is suggested to make more effort especially to educate and support the lower economic strata.

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