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Original article

The association between coronaphobia and attitude towards COVID-19 Vaccine: A sample in the east of Turkey



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ARTICLE INFO

Article history:

Received 31 January 2021

Accepted 30 April 2021

Available online 12 June 2021

Keywords:

Attitudes towards vaccination

Coronavirus 19 Phobia

COVID-19

ABSTRACT

Purpose. – This study was conducted to examine the association between coronaphobia and attitude towards COVID-19 vaccine in the society.

Methods. – This cross-sectional descriptive study was conducted with snowball sampling method between December 30, 2020 and January 10, 2021. The survey form was sent online to individuals who were 18 years of age and older. 1252 individuals who responded to the surveys were included in the study. The data were collected by using “Descriptive Information Form”, “Attitudes towards the Covid-19 vaccine scale” and “Coronavirus 19 Phobia Scale (CP19-S)”. Descriptive statistics and Pearson Correlation analysis were used in the evaluation of data.

Results. – In the study, it was found that the participants had a mean ATV-COVID-19 scale positive attitude sub-dimension score of 2.81 ± 1.04 , while they had a mean negative attitude sub-dimension score of 2.95 ± 0.78 and a mean total score of 2.89 ± 0.78 . It was found that the participants had a mean C19P-S psychological sub-dimension score of 21.03 ± 5.36 , a mean psychosomatic sub-dimension score of 10.30 ± 4.11 , a mean social sub-dimension score of 15.04 ± 4.71 , a mean economic sub-dimension score of 8.89 ± 3.46 and a mean total scale score of 55.28 ± 15.00 . It was found in the study that there was a positive association between the participants' C19P-S and social sub-dimension and ATV-COVID-19 and positive attitude sub-dimension, while there was a negative association between ATV-COVID-19 and negative attitude sub-dimension ($p < 0.05$).

Conclusions. – It was found that the participants had a moderate level of coronavirus phobia and positive attitudes towards the vaccine. It was found that positive attitudes towards COVID-19 vaccine increased as the coronavirus phobia increased.

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Introduction

Due to the emergence of novel coronavirus (SARS-Cov-2), human civilization is going through the most critical turning point of this millennium [1]. SARS-CoV-2 coronavirus disease-2019 (COVID-19) pandemic is the greatest international health crisis of our age [2]. As of January 10, 2021, approximately 90.3 million people were infected with COVID-19 and 1.93 million people lost their lives in the world due to the virus [3]. In Turkey, COVID-19 was found in approximately 2.3 million people and the number of people who lost their lives was reported as 22.807 [4]. These unaccounted losses have made the COVID-19 pandemic a major

source of psychological stress globally [5]. It has been reported that COVID-19 infection affects the psychology of the society and the individuals negatively and may harm their mental health. Some of the psychological problems experienced by individuals during this pandemic process are anxiety, depression, worry, somatization, insomnia psychoticism and fear [6,7]. Fear of COVID-19 has been called coronaphobia [8].

Phobia is an anxiety disorder defined with continuous, extreme and unrealistic fear against a person, an activity, an animal or a situation. Phobia keeps individuals away from the factors that trigger fear. However, when such an avoidance is not possible, it causes worry and distress [8]. In case of coronaphobia, individuals can show exaggerated and abnormal behaviors as a result of excessive focus on COVID-19 pandemic and ways to protect from the virus. Mental health of individuals who experience fear, panic, despera-

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tion, hopelessness, uncertainty and anger due to the pandemic are also negatively affected [5,8,9].

Considering that COVID-19 is a novel disease and has high transmission rates, coronaphobia is intense and widespread. Coronaphobia includes socio-professional and personal domains and worries influence the individual and the society [8]. It has been reported that the more common infections become in a society, the more widespread phobias will probably be [10].

The cheapest and the most effective method in the prevention of viral pandemics is vaccines (Şahin and Demir, 2020). Vaccination is stated to be significant and compulsory in controlling the COVID-19 pandemic [11]. It has been proven that vaccines are the most effective and economic way in preventing and controlling infectious diseases [12]. COVID-19 vaccine is a vaccine which aims to provide acquired immunization to COVID-19. By mid-December 2020, 57 COVID-19 vaccine candidates were reported in clinical researches [2]. On December 2020, U.S. Food and Drug Administration declared that they gave emergency use approval for Pfizer-BioNTech COVID-19 vaccine and Moderna COVID-19 vaccine [13]. In Turkey, emergency use approval was given for CoronaVac/Sinovac COVID-19 vaccine. In order to control COVID-19, the threshold for community immunity should be between 50% and 67% [14]. In addition, the efficiency of vaccines depends on factors such as the capacity of distribution and delivery to pandemic areas and the willingness of the population to accept the vaccine [15].

In their campaign, anti-vaccination activists reject the existence of COVID-19 completely and they oppose vaccination. Misinformation on social media (the speed of developing the vaccine) also has a significant effect on attitudes towards COVID-19 vaccine [16]. This situation increases the worries of the society and negatively affects attitudes towards vaccine [17]. Negative attitudes towards the vaccine may have a negative influence on the society's mental health by increasing the existing pandemic crisis. For this reason, attitudes towards COVID-19 vaccine should be examined [18]. It is thought that high coronaphobia levels increase positive attitude towards COVID-19 vaccine. This study was conducted to examine the relationship between coronaphobia and attitudes towards COVID-19 vaccine in the society.

Material and method

Type of study

This study was conducted as a cross-sectional descriptive study to examine the relationship between coronaphobia and attitudes towards COVID-19 vaccine.

Place and time of the study

The study was conducted in the east of Turkey between January 1 and 10, 2021.

Sample and population of the study

The population of the study consisted of individuals older than 18 years of age living in the east of Turkey. The sample of the study was determined with "snowball sampling method", which is one of the non-random sampling methods. In accordance with this sampling method, data collection forms prepared with GoogleDocs program were sent online (e-mail, Whatsapp) to individuals older than 18 years of age and they were asked to fill in the forms and share the form with people around them who were older than 18 years of age. 1400 individuals were reached with this survey form. The study was completed with 1252 (89% participation) individuals who returned the data collection forms.

Power analysis of the study was calculated with GPower 3.1 program. In the literature review conducted, based on the percentage measurement values of the methods to be studied, the sample was found to be sufficient with a sample size of 0.1861, power of 95% and error margin of 0,05.

Data collection instruments

The data were collected by using "Descriptive Information Form", "Attitudes Towards the COVID-19 Vaccine (ATV-COVID-19)" and "COVID-19 Phobia Scale (CP19-S)".

Descriptive information form

This form, which was prepared by the researchers, is a 9- item form which includes questions such as the participants' age, gender, marital status, level of education, working status, the state of having COVID-19 and the state of having a relative who died of COVID-19 within the immediate circle.

Attitudes towards the COVID-19 vaccine (ATV-COVID-19)

It was developed by Geniş et al. in 2020 to measure the attitudes towards the COVID-19 Vaccine. The scale consists of 9 items and has two sub-dimensions (positive and negative attitude). The items in the negative sub-dimension (5, 6, 7, 8,9) are reversely coded. The scale is a 5-Likert type scale. The items in the scale are evaluated between 1 "Totally disagree" and 5 "Totally agree". A value between 1 and 5 is obtained according to the item score average in scale sub-dimension. A high score from the positive attitude sub-dimension shows positive attitude towards vaccine. A high score from the negative attitude sub-dimension shows less positive attitude towards vaccine. Cronbach alpha value of the scale was calculated as 0.80 [19]. In the present study, Cronbach alpha value was found as 0.88.

COVID-19 phobia scale (CP19-S)

The scale was developed by Arpacı et al. in 2020 to evaluate the phobia that may develop against coronavirus [20]. The scale is a 5-Likert type self-report scale. The items in the scale are evaluated between 1 "Totally disagree" and 5 "Totally agree". The scale has a total of 4 sub-dimensions. Items 1, 5, 9, 13, 17 and 20 measure the psychological sub-dimension; items 2, 6, 10, 14 and 18 measure the psychosomatic sub-dimension; items 3, 7, 11, 15, and 19 measure the social sub-dimension and items 4, 8, 12, and 16 measure the economic sub-dimension. The scores of sub-dimensions are obtained with the total score of the answers given to items of that sub-dimension. Total C19P-S score is obtained with the sum of sub-dimension scores and ranges between 20 and 100. High scores mean high sub-dimension and general coronaphobia levels. Cronbach alpha value of the scale was calculated as 0.92 [20]. In the present study, Cronbach alpha value was found as 0.92.

Data analysis

The data were analysed with SPSS 22.0 (Statistical Package for Social Science) statistical package program. Descriptive statistics, data of quantitative variables, Shapiro Wilk normality test and Q-Q graphs and normal distribution were evaluated. Pearson Correlation Analysis was used to evaluate the relationship between normally distributed scale mean scores. Statistical significance level was accepted as $P < 0.05$.

Ethical considerations

This study was conducted in accordance with the principles of Helsinki Declaration of Human Rights. In order to conduct the study, ethical approval from the Ethics Committee (2020/12) and necessary permissions from the Ministry of Health were taken. The form

Table 1
Distribution of the participants in terms of descriptive characteristics (n = 1252).

Descriptive characteristics	N	%
Gender		
Female	737	58.9
Male	515	41.1
Marital status		
Single	988	78.9
Married	264	21.1
Level of education		
Primary	17	1.4
Secondary	47	3.8
High school	143	11.4
Undergraduate and above	1045	83.5
Working status		
Yes	339	27.1
No	913	72.9
State of having COVID-19		
Yes	212	16.9
No	1040	83.1
Presence of individuals with COVID-19 in the immediate circle		
Yes	967	77
No	288	23
Presence of individuals who died due to COVID-19 in the immediate circle		
Yes	451	36
No	801	64
The state of considering having COVID-19 vaccine		
Yes	463	37
No	789	63
Mean age	X ± SS	
	24.84 ± 8.61	

Table 2
Distributions of ATV-COVID-19^a and C19P-S^b Mean Scores of the Participants (n = 1252).

Scales	Minimum Score	Maximum Score	X ± SS
ATV-COVID-19 and Sub-dimensions			
Positive attitude	1	5	2.81 ± 1.04
Negative attitude	1	5	2.95 ± 0.78
ATV-COVID-19	1	5	2.89 ± 0.78
C19P-S and sub-dimensions			
Psychological dimension	6	30	21.03 ± 5.36
Psychosomatic dimension	5	25	10.30 ± 4.11
Social dimension	5	25	15.04 ± 4.71
Economic dimension	4	20	8.89 ± 3.46
C19P-S	20	100	55.28 ± 15.00

^a ATV-COVID-19: attitudes towards the COVID-19 vaccine.

^b C19P-S: COVID-19 phobia scale.

including the required statements about the purpose and application method of the study was sent online to the individuals in the study and the consents of the participants were taken.

Results

In the study, it was found that the mean age of the participants was 24.84 ± 8.61; 58.9% were female, 78.9% were single, 83.5% had an educational status of undergraduate and above, 72.9% did not have a job, 83.1% did not have COVID-19, 77% had an individual with COVID-19 in their immediate environment and 64% did not have any individuals who passed away due to COVID-19 in their immediate circle (Table 1).

In the study, it was found that the participants' positive attitude sub-dimension mean score of ATV-COVID-19 scale was 2.81 ± 1.04, while the negative attitude sub-dimension mean score was 2.95 ± 0.78 and the total scale mean score was 2.89 ± 0.78. It was found that the participants' psychological sub-dimension mean score of C19P-S scale was 21.03 ± 5.36, while psychosomatic sub-dimension mean score was 10.30 ± 4.11 social sub-dimension mean score was 15.04 ± 4.71, economic sub-dimension mean score

was 8.89 ± 3.46 and total scale mean score was 55.28 ± 15.00 (Table 2).

In the study, a positive association was found between the participants' C19P-S and social sub-dimension and ATV-COVID-19 and positive attitude sub-dimension, while a negative association was found between ATV-COVID-19 and negative attitude sub-dimension. A positive association was found between C19P-S psychological sub-dimension and ATV-COVID-19 and positive attitude sub-dimension. Positive association was found between C19P-S economic and psychosomatic sub-dimension and ATV-COVID-19 positive attitude sub-dimension, while a negative association was found with the negative attitude sub-dimension ($P < 0.05$) (Table 3).

Discussion

In this section, the results of the study were discussed in the light of the relevant literature.

In the study, the participants were found to have moderate level of mean C19P-S total score. In terms of sub-dimensions, it was found that mean psychological and social sub-dimension scores were high, while mean economic and psychosomatic sub-

Table 3
Analysis of the association between the participants' ATV-COVID-19^a and C19P-S^b mean scores.

Scales	ATV-COVID-19	Positive attitude	Negative attitude
C19P-S	$r = 0.067$ $P = 0.017$	$r = 0.218$ $P = 0.00$	$r = -0.111$ $P = 0.00$
Psychological sub-dimension	$r = 0.094$ $P = 0.001$	$r = 0.189$ $P = 0.00$	$r = -0.033$ $P = 0.244$
Psychosomatic sub-dimension	$r = 0.051$ $P = 0.07$	$r = 0.210$ $P = 0.00$	$r = -0.131$ $P = 0.00$
Social sub-dimension	$r = 0.062$ $P = 0.029$	$r = 0.182$ $P = 0.00$	$r = -0.082$ $P = 0.004$
Economic sub-dimension	$r = 0.002$ $P = 0.940$	$r = 0.155$ $P = 0.00$	$r = -0.161$ $P = 0.00$

^a ATV-COVID-19: attitudes towards the COVID-19 vaccine.

^b C19P-S: COVID-19 phobia scale.

dimension scores were low. This result shows that the participants were psychologically affected by showing exaggerated and abnormal behaviors as a result of excessive focusing on the ways to protect from COVID-19 pandemic and the virus and also social life is negatively affected by the possibility of the disease being transmitted. In their study they developed the coronaphobia scale, Arpacı et al. (2020a) found that the mean C19P-S total scale was moderate. While mean psychological and social sub-dimension scores were found to be high, mean economic and psychosomatic sub-dimension scores were found to be low [20]. In a study Arpacı et al. (2020b) conducted the validity of coronaphobia scale on US adults, mean C19P-S total and sub-dimension scores were found to be low [21]. In a study conducted on individuals in Turkey who were in 3-month long home quarantine and who were working from home due to COVID-19, Çelenay et al. (2020) found that C19P-S total, psychological sub-dimension and social sub-dimension mean scores of the individuals staying at home were moderate, while their economic and psychosomatic sub-dimension mean scores were low. Similarly, it was found that C19P-S total, economic and psychosomatic sub-dimension mean scores of the participants were low, while their psychological and social sub-dimension mean scores were moderate [22].

In a study Kulekçioglu et al. (2020) compared coronaphobia in individuals with and without fibromyalgia, individuals with fibromyalgia were found to have good level of mean C19P-S total, psychological and social sub-dimension scores, while they had low level of mean economic and psychosomatic sub-dimension scores. It was also found in this study that individuals without fibromyalgia had low level of mean C19P-S total, economic and psychosomatic sub-dimension scores, while they were found to have moderate level of mean psychological and social sub-dimension scores [23]. Different results in studies conducted may be due to different populations, average ages of the sample groups, differences in the dates the studies were conducted in, news related with COVID-19 and the vaccine, increased mortality and morbidity of COVID-19.

In the present study, the participants were found to have moderate level of positive attitude towards vaccine. In a study Reiter et al. (2020) examined the attitudes towards COVID-19 vaccine in May, 69% of the participants were found to have positive views on the vaccine [24]. In a study Kwok et al. (2020) examined the attitudes of nurses towards vaccine in Hong Kong between March and April, 63% of the nurses were found to have positive attitude towards vaccine [25]. In a study conducted in USA by Poque et al. (2020), 68% of the participants were found to have positive attitude towards vaccine [26]. In a study conducted in Turkey in September by Köse et al. (2020), 68.6% of the healthcare professionals were found to have positive attitude towards COVID-19 vaccine [27]. Similarly, in a study conducted by Grech et al. (2020) in September on healthcare professionals in Malta, 52% of the healthcare

professionals were found to have positive attitude towards COVID-19 vaccine [28]. In a study conducted by Al-Mohaithef et al. (2020) in Saudi Arabia, 64.7% of the participants were found to have positive attitude towards COVID-19 vaccine [18]. In a new World Economic Forum-Ipsos survey which included approximately 20,000 adults from 27 countries, 74% of the participants stated that they would have COVID-19 vaccine when it is available [29]. In addition, it has been stated that the positive views of the people for vaccine in most western countries varied between 59–75% [30]. The results of our study are similar to the literature. Vaccination is one of the most successful public health interventions in history and it plays an important role in the prevention of diseases by preventing disease from advancing [31]. Therefore, the production of a vaccine for a disease such as COVID-19 that has brought a great financial and moral burden worldwide is a globally expected event. In particular, the opinions of state authorities about the vaccine on social media and positive news about the vaccine on social media have caused the society to see the vaccine as a way to get rid of the limitations of the coronavirus [29]. Considering all of these, it is expected for individuals to show positive attitudes towards vaccine in the present study.

In the study, a positive significant association was found between the participants' C19P-S, psychological, psychosomatic, economic and social sub-dimensions and ATV-COVID-19 and positive attitude sub-dimensions. This result shows that as coronaphobia increases, positive attitudes towards COVID-19 vaccine also increase.

It can be seen that under the negative effect of the pandemic, individuals show a large number of preventive behaviors such as avoiding mass transportation, washing hands frequently and wearing masks to minimize the risk [32]. Studies conducted have shown that perceived risk causing fear and anxiety increases positive attitude towards the vaccine [25,33]. Similarly, it has been stated in literature that participants with high levels of anxiety related with the pandemic have higher probability of accepting the COVID-19 vaccine [34]. The results of the study are in parallel with the literature.

Conclusions

In the study, the participants were found to have moderate level of coronaphobia and positive attitude towards vaccine. Positive significant association was found between C19P-S, psychological, psychosomatic, economic and social sub-dimensions and ATV-COVID-19 and positive attitude sub-dimension. In addition, negative significant association was found between C19P-S, psychosomatic, economic and social sub-dimensions and negative attitude sub-dimension. It was found that positive attitude towards COVID-19 vaccine increased as coronaphobia increased.

In line with these results, it can be recommended to:

- provide psychological counselling to teach coronaphobia coping methods;
- minimize negative attitude towards vaccine by raising awareness in the society about COVID-19 vaccine.

Funding or sources of support

There is no support source.

Disclosure of interest

The authors declare that they have no competing interest.

Author Contributions

GBT, MA, ZÖ, CD were involved in the initial conception of the study. GBT, MA, ZÖ, CD conducted the interviews. GBT and MA analysed the data. All authors interpreted the data. All authors reviewed, revised and edited the paper.

All authors designed the study, searched literature, analyzed the data, prepared the article, and approved the final version for submission.

Acknowledgments

The authors are grateful to all participants who agreed to participate voluntarily in this study.

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