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COVID-19 Vaccine Rejection among Muslims in Turkey: Religiosity and Fear of Death

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Abstract

This study aimed to examine the relationship between COVID-19 vaccine refusal and religiosity and fear of death among Muslims living in Turkey. This cross-sectional study was conducted online with 1046 adults aged 18 and older. The Ok-Religious Attitude Scale (Islam) (ORASI) (8 items) and Thorson-Powell Death Anxiety Scale (TPDAS) (20 items) were used as data collection instruments. The data were analyzed using the Pearson chi-square test, Student's t-test, and binary logistic regression. A p-value of < 0.05 was considered significant. The proportion of those who had not received the vaccine in the study COVID-19 was 35.1%. While religiosity scores for the group that had not received the COVID-19 vaccine were low ($p < 0.05$), death anxiety scores were high but not statistically significant ($p > 0.05$). In binary logistic regression analysis, vaccine rejection was 7.19 times higher among single people, 50.55 times higher among workers and tradesmen, and 3.36 times higher among people who did not have COVID-19. As religiosity increased, the risk of vaccine refusal decreased 1.037-fold.

Keywords

COVID-19 Vaccines, Vaccine Hesitancy, Religiosity, Fear of Death, Muslim

1. Introduction

Vaccinations are critical in maintaining health and reducing disease-specific mortality rates [1] [2]. However, no vaccine can effectively reduce mortality rates if it is not widely accepted [3]. Vaccine refusal is a delay in accepting or rejecting vaccines and is considered one of the top ten threats to global health [2]. In recent decades, vaccine trust has declined, and anti-vaccine movements have

increased in North America, Europe, and other parts of the world [4]. By the end of 2020 and early 2021, COVID-19 vaccines have been approved for use in the general population in various countries. This global experience has sparked curiosity about whether it will solve the problem of vaccine hesitancy that has plagued the global public health community in recent decades, and research on COVID-19 vaccine hesitancy has started worldwide [5]. The COVID-19 pandemic has necessitated regional lockdowns, hygiene promotion, social distancing, travel restrictions, and vaccination [6]. This caused people to lose self-control, one of their most basic characteristics, thus increasing their fear of death [7] [8]. In the literature, the highest rates of COVID-19 vaccine acceptance in the general population are reported from Ecuador, Malaysia, Indonesia, and China. In contrast, the lowest rates are reported for Kuwait, Jordan, Italy, Russia, Poland, the United States, and France [9]. Reasons of Covid-19 vaccination hesitancy may vary according to individuals/groups expressing reluctance to certain type of vaccine. These reasons should be carefully evaluated and solutions should be sought. While studies have reported that emotional, cultural, social, spiritual, and political factors are as effective as cognitive factors in vaccination decision-making [10] [11], people with stronger religious beliefs are more reluctant to vaccination [12] [13]. Islamic law allows the use of non-halal-certified substances when dealing with emergencies that "threaten the life of a nation". Nevertheless, vaccine acceptance is a challenge in many Muslim countries. In the literature, Islam is associated with lower vaccination rates [14]. A growing number of Muslim-majority countries worldwide are affected by the pandemic. As of early May 2020, Turkey, Saudi Arabia, Pakistan, and Iran were among the Muslim countries that were most affected by the coronavirus pandemic [15]. In Turkey, as in many other countries, debates about whether COVID-19 vaccines are compatible with religious beliefs have occupied a prominent place on the agenda. Some radical groups in the country judged the statements of the Presidency of Religious Affairs on vaccination to be biased. They argued that religion was being used for other purposes. Vaccines were judged as an attempt to transform human beings into a different form than the one God created. Turkey is a Muslim-majority country. Since religious affiliation is considered a potential barrier in some Muslim countries, it is important to determine the acceptability of the COVID-19 vaccine to make health policy decisions and improve vaccination coverage in the future. Therefore, the main purpose of this study is to investigate the acceptability of the COVID-19 vaccine among Muslims in Turkey. The study aims to investigate the influence of religiosity and fear of death on rejecting the COVID-19 vaccine.

2. Materials and Method

2.1. Study Design

This is a descriptive cross-sectional study with an online survey over time.

2.2. Population and Sample

The survey, conducted in March 2021 among Muslims living in different cities

in Turkey, used the snowball method. The inclusion criteria were that respondents were Muslim persons aged 18 years or older residing in Turkey. The link to the survey questionnaires was shared on social media platforms such as WhatsApp, Twitter, Facebook, and Instagram and in email groups, and participants were asked to share the survey link with the people they were in contact with. A total of 1046 people participated in the survey.

2.3. Data Collection

A questionnaire developed by the researchers was used as the data collection tool in the study. The questionnaire included sociodemographic characteristics, history of chronic illness, COVID-19 history of illness, immunization status, the Thorson-Powell Death Anxiety Scale, and the Ok-Religious Attitude Scale (Islam).

2.3.1. Thorson-Powell Death Anxiety Scale

The Turkish validity and reliability of the scale developed by Thorson and Powell was conducted by Karaca and Yıldız [16] [17]. The scale consists of 25 5-point Likert-type items. A minimum score of 0 and a maximum score of 100 can be obtained on the scale. Higher scores on the scale indicate higher levels of death anxiety. In this study, the internal consistency coefficient Cronbach's alpha of the scale was 0.91.

2.3.2. Ok Religious Attitude Scale

The Likert scale developed by Ok concerning the Islamic religion consists of 8 items and 4 dimensions [18]. The "cognition dimension" measures the person's general view of religion; the "emotion dimension" measures how much the emotional aspect of religion influences the person; and the 'behavior dimension' measures how much religious values guide one's behavior. The "relationship dimension" measures the extent to which the person feels God helps them. An increase in the score obtained on the scale indicates an increase in religious attitudes [18]. In this study, the internal consistency coefficient of Cronbach's alpha of the scale was 0.87.

2.4. Data Analysis

In this study, "two or more mRNA/viral vector vaccines", "one or more mRNA/viral vector vaccines with a double dose of inactivated vaccine", or "three doses of inactivated vaccine" were accepted. "A single dose of mRNA/viral vector vaccine" or "double dose of inactivated vaccine" was considered vaccinated in those with COVID-19. Analyses were performed using the SPSS 26.0 program. The analysis used the Pearson chi-square test, Student's t-test, and binary logistic regression. A p-value of < 0.05 was considered significant.

2.5. Ethical Permission

Permission to conduct the study was obtained from the Ethics Committee for

Non-Interventional Research of Malatya Turgut Ozal University [Date: February 12, 2021, Resolution Number: 37]. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. On the first page of the online questionnaire, there was a voluntary participation form that described the purpose of the study. It was stated that the information obtained with the survey form would be used for scientific purposes, that it would be evaluated confidentially within the framework of scientific ethics rules, and that it would not be used for any other purpose.

2.6. Limitations of the Study

Because the study was an online survey, illiterate individuals and individuals without Internet access were excluded.

3. Results

The mean age of the 1046 individuals who participated in the study was 45.76 ± 11.79 (min = 18-max = 70). 16.1% of the 1046 individuals who participated in the study did not have COVID-19, and 65.9% were vaccinated against COVID-19. 16.8% had lost a relative due to COVID-19. While the mean TPDAS score of the participants was 44.85 ± 19.16, the mean RAS score was 21.32 ± 5.75. Table 1 compares the vaccination status of COVID-19 with some descriptive characteristics of 1046 individuals who were not vaccinated against COVID-19. The proportion of those not vaccinated against COVID-19 was higher in women (34.0%), in the age group 46 - 64 (62.5%), in civil servants (44.0%) and those with an education status of high school or lower (42.1%), in single persons (56.2%), in persons with chronic diseases (42.0%), and in the group with less income than expenses ($p < 0.001$). While vaccination rates were lower among those who had lost a relative to COVID-19 than those who had not ($p < 0.001$), all who had COVID-19 and were treated during hospitalization were COVID-19 vaccinated.

Table 2 shows the distribution of TPDAS and RAS according to the vaccination status against COVID-19. Although the mean TPDAS score of those vaccinated with COVID-19 was higher than that of those not vaccinated, this was not statistically significant ($p > 0.05$). The mean RAS of those vaccinated with COVID-19 was statistically significantly higher than that of those not vaccinated ($p < 0.05$).

The logistic regression analysis of COVID-19 vaccine refusal is shown in Table 3. The established logistic regression analysis to predict vaccine rejection was found to be important (omnibus test $p < 0.001$). The model was created for individuals who were not vaccinated. The model's dependent variable is vaccine rejection (reference group: vaccinated, risk group: not vaccinated). Among the independent variables included in the model, marital status, age, occupation,

Table 1. COVID-19 vaccine status by descriptive characteristics.

	COVID-19 vaccine (n %)			
	No	Yes	Total	P
Gender				
Woman	75 (19.6)	439 (66.2)	514 (49.1)	<0.001*
Male	308 (80.4)	224 (33.8)	532 (50.9)	
Age (Year)				
18 - 45	515 (77.7)	115 (30.0)	630 (60.2)	
46 - 64	82 (12.4)	190 (49.6)	272 (26.0)	<0.001*
65 and over	66 (10.0)	78 (20.4)	144 (13.8)	
Education				
High school and below	232 (60.6)	205 (30.9)	437 (41.8)	<0.001*
High school	151 (39.4)	458 (69.1)	609 (58.2)	
Job				
Unemployed	79 (20.6)	67 (10.1)	146 (14.0)	
Civil Servant	113 (29.5)	146 (22.0)	259 (24.8)	<0.001*
Worker-Artisan	191 (49.9)	450 (67.9)	641 (61.3)	
Economical situation				
Income less than expenses	34 (5.1)	0 (0.0)	34 (3.3)	
Income equals expense	363 (54.8)	303 (79.1)	666 (63.7)	<0.001*
Income more than expenses	266 (50.1)	80 (20.9)	346 (33.1)	
Marital situation				
Single	36 (9.4)	37 (5.6)	73 (7.0)	0.020*
Married	347 (90.6)	626 (94.4)	973 (93.0	
Chronic disease				
Yes	195 (50.9)	98 (14.8)	293 (28.0)	<0.001*
No	188 (49.1)	565 (85.2)	753 (72.0)	
Death of a relative due to Covid-19				
Yes	106 (16.0)	70 (18.3)	176 (16.8)	<0.001*
No	557 (84.0)	313 (81.7)	870 (83.2)	
Getting sick with Covid-19				
Didn't get sick	66 (10.0)	102 (26.6)	168 (16.1)	
Received outpatient treatment	597 (90.0)	41 (10.7)	638 (61.0)	<0.001*
He was treated in hospital	0 (0.0)	240 (62.7)	240 (22.9)	

*statistically significant.

Table 2. TPDAS and ORASI scores according to Covid-19 vaccine rejection.

	COVID-19 vaccine			
	No	Yes	t	p
TPDAS	43.87 ± 19.95	45.35 ± 18.73	2.069	0.235
ORASI	20.80 ± 5.73	21.58 ± 5.75	1.187	0.039*

*statistically significant.

Table 3. Logistic regression analysis of Covid-19 vaccine rejection.

	β	p	O. R	Lower limit	Upper limit
Gender	0.247	0.187	1.280	0.887	1.847
Marital status	1.973	0.000*	7.192	3.048	16.970
Age	−0.108	0.000*	0.897	0.872	0.924
Education	0.186	0.438	1.204	0.753	1.926
Job	3.923	0.000*	50.559	17.892	142.873
Economical situation	0.005	0.994	1.005	0.277	3.644
Chronic disease	0.497	0.077	1.644	0.948	2.851
Covid-19 status	1.214	0.000*	3.367	1.750	6.478
Death of a relative due to Covid-19	0.101	0.739	1.106	0.611	2.004
ORASI	0.036	0.037*	1.037	1.002	1.072

*statistically significant.

COVID-19 status, and religious attitude contributed significantly to the model ($p > 0.05$).

4. Discussion

Since the onset of the COVID-19 pandemic, many countries have made extraordinary efforts to distribute vaccines against the virus [19] [20]. The key to successful pandemic control is high vaccination rates. Countries achieving high vaccination rates are not only due to the availability, efficacy, and safety of vaccines but also to people's desire to be vaccinated [21].

By the end of November 2022, 68.2% of the global population and 67.8% of Turkey had received at least one vaccine dose [22]. In this study, 65.9% of participants were vaccinated. According to the World Health Organization, the most important contextual factors affecting vaccination are culture, gender, and socioeconomic status [23]. In this study, refusal of the COVID-19 vaccine was more common in women aged 46 - 64 years, those with high or low education, singles, and the low-income group. In a study on COVID-19 vaccine hesitancy conducted in Ireland, vaccine hesitancy was higher among persons aged 35 - 44, women, and persons with low income [24]. In contrast, in Turkey's COVID-19 vaccine refusal study, it is reported that vaccination hesitancy is higher in women and those with low family incomes [25]. Farha *et al.* attributed the negative attitudes toward the vaccine COVID -19 in women to the fact that they are more skeptical than men and are more influenced by online-based conspiracy theories [26]. In this study, the high vaccination hesitancy in the low-income group could be due to a lack of access to information and low health literacy.

Chronic diseases increase the risk of morbidity and mortality due to COVID-19 [27] [28]. However, in this study, like the literature, people with chronic diseases were more likely to report vaccine hesitancy [29]. In addition, in this study, the vaccination rate of those who had lost a relative to COVID-19 was lower than

those who had not been vaccinated. At the same time, all those who had COVID-19 and were treated during their hospitalization received the COVID-19 vaccine. This led us to believe that the individual's severe illness could be due to an increased fear of death. In this study, although the fear of death was higher in the vaccinated group than in the non-vaccinated group, it was not statistically significant. Turhan and Boyacıoğlu reported that hospitalization increased death anxiety in COVID-19 patients [30]. In the literature, it is reported that people with intrinsic religious motivation have lower death anxiety [31]. Many studies in the literature report the association between vaccine refusal and religious belief [32] [33]. In one of these studies, Whitehead and Perry reported that the rate of COVID-19 vaccination is low among Christian nationalists [34]. In the same study, they theorized that Christian nationalists have higher rates of anti-vaccination attitudes overall due to their distrust of science, hostility to government intervention, emphasis on individualism and their right to protect public health, and commitment to Donald Trump, which is associated with anti-vaccination statements [34]. In this study, conducted with Muslims living in Turkey, the vaccinated group was more religious than the unvaccinated group. In contrast to our study, the study conducted with Muslims living in Pakistan reported that religiosity negatively influenced attitudes toward COVID-19 vaccination [35]. A meta-analysis examining the impact of religiosity on COVID-19 vaccination rates reported that Christianity was negatively associated with vaccination and had no association with Islam, Buddhism, Hinduism, and non-belief [36].

5. Conclusion

In this study conducted with Muslims living in Turkey, although fear of death did not affect the rejection of the COVID-19 vaccine, religious attitudes positively affected vaccination against COVID-19. This shows us that religious attitudes influence individual or social orientations during the seemingly difficult and complex pandemic. Considering all this, it can be said that religion, as a social phenomenon, made an important contribution to the healthy implementation of the vaccination campaigns carried out to achieve herd immunity during the pandemic. Reducing hesitation in vaccination and involving religious leaders in the decision-making processes regarding vaccination programs is very important. Given that the study covered Muslims in a single geographic region, it is not possible to generalize the findings to other populations, but the methodology used here may be useful to those wishing to understand COVID-19 vaccine hesitancy elsewhere.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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