



# Anti-Vaccination and COVID-19 Vaccine Hesitancy among Adolescents

## Ergenlerde COVID-19 Aşı Reddi ve Aşı Tereddütü

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### Abstract

**Aim:** The emergence of COVID-19 vaccines in the pandemic has led to discussions about vaccine hesitancy in the general population. This study, it was aimed to determine the anti-vaccination and COVID-19 vaccine hesitancy levels in a sample of adolescents.

**Material and Method:** This is a cross-sectional study. It was conducted with 303 individuals aged between 15-18 years who received to the pediatric outpatient clinic between October and November 2021. Study data were collected using a structured questionnaire including the 'Vaccine Hesitancy Scale' and 'Vaccine Hesitancy in Pandemics scale.' In the analysis of the relations between the variables, the t-tests in independent groups, the One-way Anova test and the Pearson correlation test were applied.

**Results:** 43.5% of the participants and 85.6% of the parents were vaccinated. Among unvaccinated individuals, 27.4% were not willing to get vaccinated. Even if vaccination were compulsory, 22.2% would still refuse to get vaccinated. 28.7% stated that they were affected by anti-vaccination rhetoric. The participants' mean scores were 30.2±4.8 and 48.1±17.0 on the scales. No significant difference was found between females and males. In low-income groups, vaccine hesitancy levels were higher than in those with higher income. The vaccine hesitancy level in Pandemics was significantly lower in those who suffered from Covid-19. The vaccine hesitancy levels were significantly lower in those whose parents were vaccinated. The vaccine hesitancy levels were significantly higher in those informed about vaccines from social media.

**Conclusion:** Knowledge of the risks and complications of diseases and information disseminated on social media platforms are factors that significantly influence attitudes towards vaccination.

**Keywords:** Vaccine hesitancy, COVID-19, anti-vaccination

### Öz

**Amaç:** A COVID-19 aşılarının pandemiye gündeme gelmesi, genel popülasyonda aşı tereddütü hakkında tartışmalara yol açmıştır. Bu çalışmada, bir ergen örnekleminde aşı karşıtlığı ve COVID-19 aşı tereddüt düzeylerinin belirlenmesi amaçlanmıştır.

**Materyal ve Metot:** Bu, kesitsel bir çalışmadır. Ekim-Kasım 2021 tarihleri arasında çocuk polikliniğine başvuran 15-18 yaş arası 303 kişi ile gerçekleştirildi. Çalışma verileri, 'Aşı Tereddüt Ölçeği' ve 'Pandemilerde Aşı Tereddütleri skalasını' içeren yapılandırılmış bir anket kullanılarak toplandı. Değişkenler arasındaki ilişkilerin analizi, bağımsız gruplarda t-testi, One-way Anova testi ve Pearson korelasyon testi uygulanmıştır.

**Bulgular:** Katılımcıların %43,5'i ve ebeveynlerin %85,6'sı aşılanmıştır. Aşısız bireylerin %27,4'ü aşı olmak istememiştir. Aşı zorunlu olsa bile, %22,2'si yine de aşı olmayı reddedecektir. %28,7'si aşı karşıtlığı söyleminden etkilendiğini belirtmiştir. Katılımcıların ölçek puan ortalamaları 30,2±4,8 ve 48,1±17,0 idi. Kadınlar ve erkekler arasında anlamlı bir fark bulunamadı. Düşük gelirli gruplarda aşı tereddüt düzeyleri, yüksek gelirli gruplara göre daha yüksekti. Pandemilerdeki aşı tereddüt düzeyi, COVID-19'dan muzdarip olanlarda önemli ölçüde daha düşüktü. Ebeveynleri aşılanmış olanlarda aşı tereddüt düzeyleri anlamlı olarak daha düşüktü. Sosyal medyadan aşı hakkında bilgi sahibi olanlarda aşı tereddüt düzeyleri anlamlı olarak daha yüksekti.

**Sonuç:** Hastalıkların riskleri ve komplikasyonları hakkında bilgi sahibi olunması ve sosyal medya platformlarında yayılan bilgiler aşıya yönelik tutumları önemli ölçüde etkileyen faktörlerdir.

**Anahtar Kelimeler:** Aşı tereddütü, COVID-19, aşı karşıtlığı

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## INTRODUCTION

The vaccine is a biological preparation, developed in different ways. One of them is eliminating the pathogenic properties of microbes (e.g., viruses, bacteria) or the capacity to cause disease in humans and animals, and the other is inactivating the toxins released by some microbes (1). Vaccines contain antigens that stimulate the immune system to produce an immune response similar to that elicited by the natural infection. Many types of vaccines are named based on the classification of antigens used to prepare vaccines. Live vaccines are derived from wild viruses or bacteria that are attenuated. Inactivated vaccines are not live and cannot replicate. mRNA and DNA vaccines contain the antibody-forming antigenic structure of the mRNA or DNA of the target microorganism. Vector vaccines are produced by adding genetic information to the antibody-forming antigenic structure of the target microorganism (1).

Immunization is among the significant public health interventions to help to prevent vaccine-preventable diseases and deaths. In Turkey, the first nationwide vaccination program "The extended immunization program" was initiated in 1981, targeting five diseases. This program was expanded to include 18 doses of vaccines against seven diseases in 2005 and 13 diseases in 2013 (2). Despite the implementation of compulsory vaccination, vaccination rates have remained around 75% during the years before 2007 due to geographical and climate conditions, poor record-keeping practices, and lack of financial incentives for healthcare providers and legal measures. As of 2007, vaccination rates have exceeded 95% in Turkey (3). However, vaccine refusals have emerged worldwide in the 1990s, and Turkey since 2010.

Anti-vaccination includes indecision about vaccination, vaccine hesitancy, and vaccine rejection. But when vaccination has been started in the early 1800s, concurrently vaccine hesitancy has also started. According to the WHO and UNICEF, vaccine hesitancy refers to a delay in acceptance or refusal of vaccination for one or more vaccines despite the availability of vaccination services. On the other hand, vaccine refusal refers to deliberately refusing to get vaccinated and the rejection of vaccines altogether (4). Vaccine hesitancy is complex and context-specific, varying across time, place, and vaccines". Vaccine hesitancy is a continuum between accepting and rejecting all vaccines. The reasons for vaccine hesitancy are concerns about chemicals found in vaccines, mistrust of vaccine manufacturers and belief that the vaccines are promoted for financial gain, and beliefs such as "natural immunity register or "natural methods are more effective in preventing diseases" (5). In Turkey, the number of parents refusing vaccines has increased from 5091 in 2015 to more than 12.000 in 2016 and over 23.000 in 2017 (6).

The development of vaccines to protect from the Covid 19 disease for the emergence of the pandemic worldwide

led to discussions about vaccine hesitancy in the general population. The opinions of people outside the scientific community, spread throughout mass media and social media platforms, caused the increase in the infodemic. The COVID-19 pandemic has possibly impacted public opinion about the healthcare system, leading individuals to think about vaccine refusal. However, there are limited studies on this subject in the literature. In particular, there are no studies from Turkey investigating anti-vaccination or vaccine hesitancy among adolescents. This study aimed to determine the levels of anti-vaccination and COVID-19 vaccine hesitancy in a sample of adolescents.

## MATERIAL AND METHOD

This research study was conducted with 303 individuals aged between 15-18 years who received the pediatric outpatient clinic of Kahta district state hospital between October and November 2021. Study data were collected using a structured questionnaire. The questionnaire includes specific sociodemographic characteristics, reasons for vaccine refusal or hesitancy, attitudes towards COVID-19 vaccines, and responses to 'The vaccine Hesitancy Scale' and 'Vaccine Hesitancy in Pandemics scale'. The Vaccine Hesitancy scale developed by Kılınçarslan et al. has a long form with 21 items and a Cronbach alpha value of 0.905 (7). The Vaccine Hesitancy in Pandemics scale is the Turkish version of the Vaccine Hesitancy Scale developed by Larson et al. in 2015. It was modified to measure vaccine hesitancy in pandemics with 10 items. Reliability and validity of the Turkish version of the scale with ten items have been demonstrated by Çapar and Çınar. Its Cronbach alpha coefficient is 0.901 (8,9). While the vaccine hesitancy scale ranges from 21 to 105 points, the vaccine hesitancy in pandemics scale ranges from 10 to 50 points. Higher scores for both scales indicate increased mistrust towards the vaccine. At the time of the study, those who received at least two doses of vaccine were considered to be vaccinated in Turkey. For this reason, those who received two doses of vaccine in our study were accepted as vaccinated.

Approval for the study was obtained from the Ethics Committee for Non-Interventional Trials of Adiyaman University Faculty of Medicine on September 21,2021 (No. 2021/07-12). Parents of all adolescents were informed about the purpose and scope of the research in detail, and interviews were conducted with volunteer participants. Written informed consent was obtained from the parents of the participants.

Statistical analysis: Descriptive data are shown as frequency, percentage, and mean/standard deviation. Quantitative data were analyzed with the Kolmogorov-Smirnov test, and it was determined that data were distributed by the normal distribution. In the analysis of the relations between the variables in independent groups, the One-way Anova test and the Pearson correlation test were applied. Twas-value of <0.05 was considered significant for statistical significance.

## RESULTS

Among 303 participants, 80.3% were boys, and 19.7% were girls. The monthly income of 21.3% of families was low, 52.5% was middle and 26.2% was high. Table 1, it was given the COVID-19 vaccine-related characteristics of the study sample.

As it was seen in Table 1, for the protection from COVID-19 disease, 72.7% of the participants considered the vaccination as the most successful method after masking, social distancing and hygiene. 1.7% considered alternative medicine (e.g., hijama (cupping therapy), hirudotherapy, acupuncture, medicinal herbs) and 25.6%

considered increased intake of fruits and vegetables.

Although 85.6% of the parents were vaccinated, 43.5% of participants were vaccinated. 28.1% of unvaccinated young wanted to get vaccinated and 27.4% were not willing to get vaccinated. Even if vaccination were compulsory, 22.2% would still refuse to get vaccinated. The most motivating factors were "Announcement of scientific research findings on vaccine safety" and "Recommendation by the family physician or a doctor". The most persuasive measure of vaccination was the 'Exclusion of unvaccinated students from face-to-face education'. 58.1% of the participants believed unvaccinated persons to affect all community members.

**Table 1. COVID-19 vaccine-related characteristics of the study sample**

Characteristics	n	%
<b>Parental COVID-19 vaccination status</b>		
Non vaccinated	43	14.4
Mother vaccinated	212	70.0
Father vaccinated	215	71.0
<b>Adolescent's COVID-19 vaccination status</b>		
Vaccinated	132	43.5
Willing to get vaccinated	85	28.1
Not willing to get vaccinated	83	27.4
Unsure	3	1.0
<b>Think of getting vaccinated if vaccination was mandatory?</b>		
Yes	70	41.0
No	38	22.2
Unsure	63	36.8
<b>Motivating Factors for getting vaccinated</b>		
Public disclosure of the findings of scientific research on vaccine safety	245	80.9
Recommendation by the family physician or a doctor	230	75.9
Famous people getting vaccinated or recommending vaccination	121	39.9
Measures imposed on unvaccinated individuals	85	28.1
Incentives of cash or gifts for vaccination	46	15.2
<b>Measures considered to be persuasive for getting vaccinated</b>		
Exclusion of unvaccinated students from face-to-face education	270	89.1
Greater fines for unvaccinated individuals without face masks	237	78.2
Not being able to receive outpatient services care except for emergency healthcare	232	76.6
Curfew enforcement for unvaccinated individuals at certain hours	225	74.3
Unvaccinated individuals banned from public transport	159	52.5
Unvaccinated individuals are barred from parks and holiday locations	143	47.2
Unvaccinated individuals are not allowed to enter public places	72	23.8
<b>The impact of unvaccinated people on the community</b>		
The entire community will be affected	175	58.1
Only that person will be affected	60	19.9
Close contacts will be affected	48	15.9
Nobody will be affected	18	6.0

Table 2, it was given the opinions of the participants on COVID-19 vaccine refusal.

As it was seen in Table 2, among the participants, 22.9% believed that vaccination was not indispensable for public health, and 36.7% did not regard vaccine refusal as a threat to public health. 28.7% of the participants stated that they were affected by anti-vaccine discourses. It was found that 52.8% of the participants thought that people could be forced to get vaccinated, and 62.3% tried to persuade vaccine-hesitant people around them to get vaccinated. 92.7% reported that they would get tetanus and rabies vaccines when necessary (e.g., in the case of an injury/accident, cat/dog bite), and 65.4% were willing to get the seasonal flu vaccine.

Table 3, it was given the means of vaccine hesitancy scores of the study sample by descriptive characteristics, COVID-19 status and COVID-19 vaccination status.

As it was seen in Table 3, the participants' mean scores were  $30.2 \pm 4.8$  for the "Vaccine Hesitancy in Pandemics Scale" and  $48.1 \pm 17.0$  for the "Vaccine Refusal Scale", respectively. When the participants were evaluated according to sex, no significant difference was found between females and males in the mean scores for Vaccine Hesitancy in Pandemics scale and Vaccine Hesitancy scale. In low-income groups, vaccine hesitancy levels were higher than in those with higher income.

The vaccine hesitancy level in Pandemics was significantly lower in those who suffered from Covid-19, while there was no significant difference in the mean scores for the general vaccine hesitancy. There was no significant difference between the participants, those parents suffered from

COVID-19 in the mean scores on both scales. The vaccine hesitancy levels were significantly lower in those whose parents or close contacts were hospitalized or died from COVID-19.

The vaccine hesitancy levels on both scales were significantly lower in those who were willing to receive the COVID-19 vaccine, those who did not believe in the anti-vaccine content of videos circulating on social media, and those who were not influenced by anti-vaccination rhetoric, those who believed in all vaccines safe.

The vaccine hesitancy levels on both scales were significantly higher in those whose parents were unvaccinated or vaccine-refusing, those with the primary source of information about vaccines were neighbours, friends, relatives, religious leaders, and those informed about vaccines from social media, and those who believed in all vaccines unsafe.

72% correlation in the same direction was found between levels of vaccine hesitancy during the pandemic and vaccine refusal levels among adolescents. While vaccine hesitancy in pandemics can increase the level of rejection of all vaccines; Similarly, vaccine rejection can increase vaccine hesitancy in pandemics.

In Table 4, it was given the reasons for distrusting COVID-19 and other vaccines in the study sample.

As it was seen in Table 4, the most common reason for rejecting the COVID-19 vaccine was concerns about the adverse effects. The most common reason for considering the other vaccines as unsafe was rumours about their harmful ingredients.

**Table 2. Opinions of the participants on COVID-19 vaccine refusal**

Opinions	Agree n (%)	Disagree n (%)	Unsure n (%)
Vaccine refusal is a problem that poses threat to the entire community	172 (57.9)	109 (36.7)	16 (5.4)
People can be forced to get vaccinated	159 (52.8)	132 (43.9)	10 (3.3)
Anti-vaccination arguments influence me	82 (28.7)	192 (67.1)	12 (4.2)
Vaccination is necessary for public health	204 (67.8)	69 (22.9)	28 (9.3)
I try to persuade vaccine-hesitant people around me to get vaccinated	187 (62.3)	87 (29.0)	26 (8.7)
I would get tetanus and rabies shots when it becomes necessary (e.g.. in the case of an injury/accident. cat/dog bite)	278 (92.7)	19 (6.3)	3 (1.0)
I am willing to get a seasonal influenza vaccine	197 (65.4)	91 (30.2)	13 (4.3)

Table 3. Mean vaccine hesitancy scores of the study sample by descriptive characteristics, COVID-19 status and COVID-19 vaccination status						
Characteristics	n	%	Vaccine hesitancy scale in Pandemics Mean Score	p	Vaccine hesitancy scale Mean score	p
<b>Sex</b>						
Male	216	80.3	29.9±4.7	0.543	46.9±16.6	0.346
Female	53	19.7	30.4±5.1		49.4±16.7	
<b>Monthly Household Income</b>						
3000 TL or less	60	21.3	30.6±5.2	0.024	51.9±17.8	0.004
3000 to 5000 TL	148	52.5	30.4±4.8		48.4±17.2	
5000 TL or more	74	26.2	28.8±3.9		42.5±13.9	
<b>Suffered from COVID-19</b>						
Yes	104	34.7	29.2±4.6	0.016	45±16.1	0.230
No	196	65.3	30.6±4.9		49.6±17.3	
<b>Parents suffered from COVID-19</b>						
Yes	140	46.4	30.0±4.3	0.547	47.0±15.8	0.294
No	162	53.6	30.3±5.2		49.1±18.0	
<b>Hospitalization for COVID-19 among parents or close contacts</b>						
Yes	44	14.6	30.0±4.2	0.815	42.5±13.0	0.005
No	257	85.4	30.2±4.9		49.0±17.5	
<b>Death from COVID-19 among parents or close contacts</b>						
Yes	35	11.7	29.5±4.1	0.419	41.5±13.7	0.007
No	263	88.3	30.2±4.9		48.6±17.2	
<b>COVID-19 Vaccination Status in parents</b>						
Vaccinated	256	85.6	29.8±4.6	0.001	45.7±15.7	0.001
Unvaccinated	43	14.4	32.9±5.0		62.6±18.1	
<b>COVID-19 Vaccine Refusal among parents</b>						
Yes	43	14.9	34.2±4.0	0.001	63.0±12.5	0.001
No	245	85.1	29.4±4.5		45.3±16.3	
<b>Willingness to get COVID-19 vaccine</b>						
Willing	126	59.4	29.1±4.2	0.001	43.2±10.9	0.001
Unwilling	83	39.2	34.9±3.9		68.9±11.9	
Unsure	3	1.4	30.0±2.6		68.0±4.4	
<b>The primary source of information about vaccines</b>						
Physicians/Healthcare professionals	40	13.3	28.6±4.2	0.001	42.4±13.1	0.001
Media/Internet	212	70.7	29.9±4.7		46.8±16.5	
Other (neighbours, friends, relatives, religious leaders)	48	16.0	32.7±4.8		58.4±18.4	
<b>Media outlets influencing the decision about vaccination</b>						
TV, radio, newspapers, magazines	175	60.3	29.5±4.7	0.003	45.4±16.0	0.003
Social media	115	39.7	31.2±4.7		51.6±18.4	
<b>Believing in the anti-vaccine content of videos circulating on social media</b>						
Yes	38	12.6	34.9±5.1	0.001	67.2±16.9	0.001
No	252	83.7	29.3±4.3		44.5±14.8	
Unsure	11	3.7	33.2±5.5		65.6±12.3	
<b>Influenced by anti-vaccination rhetoric</b>						
Yes	82	27.1	31.9±4.8	0.001	51.4±18.8	0.001
No	192	63.4	29.0±4.5		44.0±14.5	
Neutral	12	4.0	33.2±2.9		70.0±7.5	
<b>Opinions on other vaccines (flu vaccine, childhood vaccines, e.g. measles and tuberculosis vaccines)</b>						
Vaccines are safe	221	73.9	29.1±4.1	0.001	40.8±11.7	0.001
Vaccines are unsafe	63	21.1	34.1±4.7		70.0±11.1	
Neutral	15	5.0	30.5±6.8		63.7±13.9	



**Table 4. Reasons why the study sample considered COVID-19 and other vaccines as unsafe**

Reasons for the reluctance of the COVID-19 vaccine	n	%
Concerns about adverse effects of vaccines	78	25.7
Negative comments of others on vaccines	57	18.8
I think the COVID-19 vaccine is ineffective	55	18.2
Believing the immune system will fight off the disease	35	11.6
Negative opinions of experts regarding vaccines	29	9.6
Waiting for a Turkish COVID-19 vaccine to be available	14	4.6
I think there are no adequate studies on COVID-19 vaccines	13	4.3
Vaccines are manufactured abroad	9	3.0
Religious concerns regarding vaccine content	10	3.3
I think that there is no such disease as COVID-19	9	3.0
I am waiting for others to get vaccinated first	8	2.6
Negative opinion of a physician/healthcare provider about the COVID-19 vaccine	7	2.3
Fear of injection	6	2.0
Considering vaccination as some plot of foreign countries (e.g., secretly implanting microchips via vaccination)	2	0.7
Reasons for considering all vaccines as unsafe	n	%
I've heard that they contain harmful substances	73	24.1
I've been told that vaccines will cause diseases at later ages	64	21.1
Some people say vaccines cause infertility	19	6.3
Vaccines are manufactured by foreign countries	15	5.0
I think foreign countries or pharmaceutical companies advocate vaccination for their interests	14	4.6

## DISCUSSION

The anti-vaccine movement has been increasing in recent years, leading to poor health outcomes as well as the waste of resources. By measuring the vaccine hesitancy and causative factors, the current status of vaccine hesitancy can be determined objectively, and the effectiveness of intervention strategies can be monitored. This study, it was evaluated the approach to vaccines, vaccine hesitancy and thoughts about Covid-19 vaccines in the adolescent age group.

While nearly 73% of the participants thought that vaccination was the most successful method in the fight against Covid-19 after mask, social distancing and hygiene, approximately 44% were vaccinated. It was stated that the most motivating factors in the decision for vaccination were "Public disclosure of scientific research findings on vaccine safety", "Recommendation by the family physician/a doctor" and "Exclusion of unvaccinated students from face-to-face education".

In our study, one-quarter of the participants thought the vaccination was necessary for public health. One study found that the total number of people who thought the vaccination was unnecessary to prevent diseases was not very high. Undecided individuals also were half of the total participants (10). Another study underscored that the high number of vaccine-hesitant parents was a potential public health threat, and this should not be underestimated to ensure the vaccination needs of children were met (11).

In our study, in terms of the mean score of both scales, the research group has a moderate level of vaccine hesitancy that was higher than expected. No significant difference was found between females and males in the mean scores for both Vaccine Hesitancy in Pandemics scale and the Vaccine Hesitancy scale when the study participants were evaluated according to sex. In a study from Turkey, it was reported that males were statistically more likely to be hesitant about vaccination (10). However, in another study, no significant difference was found between the

sex regarding vaccine refusal and vaccine hesitancy (12). In our study, vaccine hesitancy is more common in low-income families than in higher-income families. One study reported that vaccine hesitancy decreased with higher household income (13). In another study, vaccine hesitancy was more common among parents with lower socioeconomic status (14). In a survey-based, a North American study involving pediatricians, better educated, wealthier families were found to experience more vaccine refusals (15). A study on mothers revealed increasing rates of vaccine refusal among parents with high socioeconomic status (16). In previous studies, investigating the sociodemographic and sociocultural determinants of childhood vaccine refusal and hesitancy, several factors were involved in decision-making, including younger age, religious faith, alternative medicine, and parental lifestyle. Other factors were perceptions of the child's body and immune system, perceived risk of diseases, vaccine effectiveness and side effects, concerns about vaccine safety, perceived advantages, previous negative experience with vaccination, and social environment (17-19).

In our study, suffering from COVID-19 affect the levels of vaccine hesitancy in pandemics, but did not affect the levels of other vaccines' hesitancy. The participants whose parents were hospitalized or died from COVID-19 had lower levels of vaccine hesitancy. This suggests that diseases and potential complications influence attitudes towards vaccination. Similarly, 93% of the participants reported getting tetanus or rabies vaccine in the case of an injury, accident, or cat/dog bites. Two-thirds of the participants were willing to get the seasonal flu vaccine. This suggests that perceived health risk associated with the disease, especially in emergencies, is an important determinant of vaccination decision-making.

In our study, the correlation between participants' hesitancy to both all and pandemic vaccines was 72%. A moderately strong positive correlation was found between vaccine hesitancy in pandemics and vaccine hesitancy levels in the current study. The levels of vaccine hesitancy in pandemics were higher among the participants who did not want to get other vaccines, and vaccine hesitancy levels were higher among the participants who were not willing to receive the Covid-19 vaccine. One-third of the participants reported that anti-vaccine discourse influenced getting vaccinated. An Australian study by Atwell et al. in 2017 discussed the impact of "The Unhealthy Other" propaganda on society. It was constructed by vaccine-rejecting parents employing a discourse that called the vaccinated children "unhealthy other" (20). Many studies have reported that information about various health-related issues and vaccines was obtained from the internet and social media, and parents' vaccination decisions were influenced by this information (21-24). A systematic literature review of 145 published studies on European populations showed that the primary concern of the individuals about vaccination was related to the safety of vaccines. The majority of them believed

that the risks of vaccination outweigh the benefits (25).

The most common reason for the reluctance of the COVID-19 vaccine was the concern about its adverse effects and the rumours about the harmful content of the non-COVID-19 vaccines. As the reason for believing, vaccines were most commonly considered unsafe. In a 2017 study, conducted with healthcare workers in Denizli province of Turkey to investigate their attitudes towards the influenza vaccine, the most crucial reason for the reluctance to influenza vaccine was the disbelief in the necessity of the vaccine (64.5%) (26). In a study among parents who refused vaccination in Venezuela, the most critical barriers to vaccination were fear of side effects and the disbelief in the necessity of the vaccine for children in more than one dose (27).

## CONCLUSION

The vaccine hesitancy level in the study group was higher than expected. Socioeconomic level, knowledge of the risks and complications of diseases, illness experience, families' approach to vaccination, opinions on the safety of vaccines, and information disseminated on social media platforms are factors that significantly influence attitudes towards vaccination. The spread of unreliable and false information on social media should be avoided, and accurate information on health-related topics and the risks and complications associated with diseases should be delivered to the community using all kinds of mass media. Since getting information from sources other than non-healthcare professionals is the main driver of vaccine misinformation, measures should be implemented to ensure that health-related information is delivered solely by health authorities.

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