# Trust, distrust and skepticism: Parent's perspective on COVID-19 prevention and vaccination in children aged 0-5 years

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#### ABSTRACT

**Objective:** The study aimed to determine the attitudes of parents with children aged 0-5 years towards protecting their children from COVID-19, the rate of those who hesitated to have their children vaccinated, and the factors causing hesitation.

Methods: In this descriptive, cross-sectional study, we conducted a survey with parents of children aged 0-5 years from July 2021 to May 2022.

**Results:** Four hundred and sixty-four parents with children 0-5 years of age were analyzed. The mean age of the participants was  $34.6 \pm 7.3$  years and the mean number of children was  $1.79 \pm 0.78$ , the majority (72%) of which were mothers. The main source of information for COVID-19 was television channels for the participants (68.5%). Parents most often chose to wash their hands (91%) to prevent their children from contracting COVID-19. Fifty-seven percent of parents, especially those whose source of information for COVID-19 was social media platforms (OR 1.45 [1-2.1], p= 0.048), distrusted the measures they took to prevent their children from contracting COVID-19. Fifty-one percent of parents distrusted hospital measures to prevent transmission of COVID-19, and 55% were hesitant to get their children vaccinated for COVID-19. Increasing parental age (OR 1.02 [1.01-1.05], p= 0.040), having a family member who has had COVID-19 (OR 1.47 [1.01-2.16], p= 0.043), and parents' trust in hospital COVID-19 measures (OR 2.04 [1.41-2.91], p= 0.001) have increased the desire to vaccinate their children against COVID-19.

**Conclusion:** Considering that vaccination is the most important step in preventing infection, information provided to parents by reliable authorities can help increase vaccination acceptance rates.

Keywords: Attitude, child, COVID-19, parents, vaccination

# INTRODUCTION

The coronavirus-2019 (COVID-19) pandemic has become the largest modern public health emergency with 661 million infections diagnosed worldwide as of December 2022.<sup>1</sup> Since the SARS-CoV-2 virus, which is the causative agent of the disease, is highly contagious, children of all ages can be affected, and its incidence in children is similar to that in adults. Their role in the spread of the disease cannot be ignored, as children

can transmit COVID-19, whether they are symptomatic or not.<sup>2-5</sup> Inevitably, interventions were needed both to contain the pandemic and to help parents protect their children from COVID-19.<sup>6-9</sup> Although personal protective behaviors are very important in controlling the pandemic, vaccination is the most important step.<sup>10,11</sup> Considering that the American Academy of Pediatrics recommends vaccination of all children aged 6 months and older with no contraindications, it can be predicted that the COVID-19 vaccination in children will now become the



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new 'routine'.<sup>12,13</sup> However, the emergences of new variants as well as the hesitation of vaccination are among the obstacles to control the disease.<sup>4</sup> As with other vaccine-preventable diseases, vaccine hesitancy, which means delaying or refusing vaccination despite the availability of vaccines, has gained importance within the scope of COVID-19 vaccination in children as a result of medical mistrust.<sup>2,4,11,14,15</sup> However, the success of the vaccination program depends on the public's desire to be vaccinated. Because parents decide on behalf of their children, their attitudes toward vaccination play a vital role in their willingness to vaccinate their children.<sup>4,14,16</sup> Unfortunately, COVID-19 is not the first virus to threaten humanity, and it may not be the last. Therefore, given the strong correlation between trust in healthcare providers and the medical system and vaccine acceptance, it is crucial to fully understand parents' attitudes in order to establish an ecosystem of trust.9,15,17,18 In our study, we primarily focused on determining the attitudes of parents with children aged 0-5 years to protect their children from COVID-19 infection, the rate of those who hesitated to vaccinate their children, and the factors causing the hesitation.

#### **MATERIALS AND METHODS**

#### Study design

In this descriptive, cross-sectional study, we conducted a survey of parents of children aged 0-5 years from July 2021 to May 2022.

#### Target population, study sample and data collection

The target population was the parents of children aged 0-5 years who were followed up in the Pediatrics Clinic of Çanakkale Onsekiz Mart University Hospital, who could read and understand Turkish. We conducted the research at a time when COVID-19 vaccines were not yet approved for children in this age group. In the literature review on vaccine hesitancy in the community, it was reported that 65.4% of parents with children aged 0-5 years were hesitant to have their children vaccinated against COVID-19.<sup>19</sup> The sample size was calculated using the formula  $n=Z\alpha^2 P$  (1-P) / d<sup>2</sup>. In the formula,  $Z\alpha=1.96$  for the 95% confidence interval and the estimated acceptable margin of error d=0.05, and the minimum sample size was calculated as 386 parents. However, we collected a larger sample to better represent the target population.

#### Study procedure

The protocol and informed consent of the study were approved by the Clinical Research Ethics Committee of Çanakkale Onsekiz Mart University [date: 09.06.2021, no: 2021-06]. Before participating in the study, members of the research team experienced in conducting surveys asked each parent if they could participate in the study after introducing themselves. Interested participants were informed of the identity of the researcher, the purpose/importance of the research, the fact that participation is voluntary, the survey will not contain the personal information of the participants, the duration of the survey, how the data will be stored, they can stop filling out the survey whenever they want, and the information will be used for scientific research purposes. Written informed consent was obtained from those who agreed to participate in the study. Participants were not offered any incentives for their time.

#### Survey instrument

Within the scope of the research, a survey developed based on the literature was used to determine the attitudes of the parents.<sup>10,11,19</sup> In addition to the questions in Table 1, the form included the parent's gender, age, number of children, residence (rural/urban), level of education (secondary education or lower/ Bachelor's degree or higher), COVID-19 information sources (Table 2), history of COVID-19 infection, and personal precautions taken to prevent the transmission of COVID-19 to their child. The self-administered questionnaire consisted of 17 questions that could be completed in 5 minutes.

#### **Outcome measures**

The primary outcome was parents' attitudes toward protecting their children from COVID-19, the secondary outcome was the proportion of those who hesitated to vaccinate their children with COVID-19 vaccines, and the tertiary outcome was to identify risk factors for vaccine hesitancy.

#### **Data analysis**

The Statistical Package for the Social Sciences program (SPSS, version 23.0, IBM Company) was used for statistical analysis of the data. Descriptive statistics such as mean  $\pm$  standard deviation (SD), frequency (n), and percentage (%) were used to generate summary tables for study variables. Univariate binary logistic regression analysis was performed to determine the relationship between participants' socio-demographic characteristics and sources of information, and their trust in protective measures and their intention to have their children vaccinated against COVID-19. A p value of < 0.05 was used to determine the statistical significance.

Table 1. Parents' responses to survey questions				
Questions	Answers (numbers of parents, [percentage]) N=464			
Are you worried about your child contracting COVID-19?	Yes	No		
	428 (92)	36 (8)		
How well do you follow physical distancing rules?	Always	Sometimes/never		
	352 (76)	112 (24)		
Do you think children are transmitting the COVID-19 infection?	Yes	No/not sure		
	294 (63)	170 (37)		
Do you trust the measures you take to prevent the transmission of COVID-19?	Yes	No/not sure		
	201 (43)	263 (57)		
If your child had a fever and/or cough, would you take them to the hospital immediately?	Yes	No/not sure		
	341 (73)	123 (27)		
Do you think hospitals are more dangerous than other public places?	Yes	No/not sure		
	289 (62)	128 (28)		
Can doctors transmit COVID-19 to your child during the examination?	Yes	No/not sure		
	177 (38)	287 (62)		
Do you trust the measures taken in the hospital to prevent the transmission of COVID-19?	Yes	No/not sure		
	229 (49)	235 (51)		
Would you to vaccinate your child for COVID-19?	Yes	No/not sure		
	210 (45)	254 (55)		

# RESULTS

#### Parents characteristics and source of COVID-19 information

Of 526 participants with children 0-5 years old, 464 (88.2%) were analyzed (Figure 1). The mean age of the participants was  $34.6\pm7.3$  years, and the mean number of children was  $1.79\pm0.78$ . The majority (72%) were mothers, those living in the city (87.9%), those with secondary education or lower (69%). The sources of information for COVID-19 were mostly television channels, social media platforms, and the website of the Ministry of Health. The socio-demographic characteristics and information sources of the parents are presented in Table 2.

# Parents' attitudes and trust in protecting their children from COVID-19

Ninety-two percent of the parents were concerned about their child being infected with COVID-19. Washing hands (91%), ventilating the room (80%), and wearing masks (74%) were the most frequently preferred practices of parents to prevent their children from contracting COVID-19, and not sending them to





daycare and leaving them in the house were also among the preferred practices (Table 3). Fifty-seven percent of parents, especially parents whose source of information for COVID-19 was family members/friends (OR 1.9 [1.27-2.84], p= 0.002) or social media platforms (OR 1.45 [1-2.1], p= 0.048), distrusted the measures they took to prevent their children from contracting COVID-19. Fifty-one of the parents did not trust the measures

Table 2. Parent characteristics and source of COVID-19   information				
Characteristic	Numbers of parents (Percentage) N=464			
Parent, Mother	335 (72.2)			
Parent age, years (mean ±SD)	34.6±7.3			
Number of children (mean ±SD)	1.79±0.7			
Urban residents	408 (87.9)			
Secondary education or lower	320 (69)			
Presence of a family history of COVID-19 infection	178 (38.4)			
COVID-19 information				
Television channels	318 (68.5)			
Social media platforms	262 (56.5)			
Ministry of health website	241 (51.9)			
Google etc.	169 (36.4)			
Family/Friends	157 (33.8)			
Scientific articles	104 (22.4)			
Newspapers	64 (13.8)			
I am not interested	8 (1.7)			

Table 3. Practices of parents to protect	t children from
COVID-19 infection	

Practices	Numbers of parents (Percentage) N=464
I make my child wash their hands often	423 (91)
I often ventilate my child's room	371 (80)
I wear a mask when my child goes out	345 (74)
I often disinfect his/her hands with cologne/alcohol	329 (71)
I change my child's mask every day	316 (68)
I only feed my child cooked food	203 (44)
I allow my child to consume peelable fruit	182 (39)
I clean the packaged food and give it to my child	181 (39)
I do not accept guests	101(22)
I do not take my child to crowded places	78 (17)
I do not send my child to daycare	39 (8)
I do not take my child out of the house	31 (7)

taken in the hospital to prevent COVID-19 transmission. Thirtyeight percent of the parents, especially parents who have only one child (OR 2.13 [1.45-3.13], p= 0.048), thought that doctors could infect their children with COVID-19 during the examination (Table 1).

# Parents' willingness to vaccinate their children against COVID-19

Fifty-five percent of parents were hesitant about getting their children vaccinated for COVID-19 (Table 3). Parental gender, level of education, place of residence, number of children, and source of information for COVID-19 did not change willingness to vaccinate, but the desire to vaccinate their children increased slightly as parent age increased (OR 1.02 [1.01-1.05], p= 0.040). Having a family history of COVID-19 infection increased the willingness of parents to vaccinate their children (OR 1.47 [1.01-2.16], p= 0.043). In addition, trust in hospital measures to prevent transmission of COVID-19 was another factor that increased parents' willingness to vaccinate their children (OR 2.04 [1.41-2.91], p= 0.001) (Table 4).

# DISCUSSION

This study, which we conducted with the participation of 464 parents at a time when COVID-19 vaccines were not yet approved for children aged 0-5 years, has two main findings. Firstly, 57% of parents distrusted the measures they took to prevent their children from contracting COVID-19, 51% distrusted the measures taken in the hospital, and 38% thought doctors could transmit COVID-19 to their children during the examination. Secondly, 55% of parents were hesitant about getting their children vaccinated against COVID-19. Risk factors for vaccine hesitancy were found as lack of trust in the measures taken to prevent COVID-19 transmission in the hospital, young age of parents, and no family history of COVID-19 infection.

Studies evaluating the effectiveness of personal protective behaviors during the COVID-19 pandemic shows that behaviors such as mask use, maintaining physical distance and washing hands can prevent transmission.<sup>10,11</sup> As in our study, it is known that the majority of parents take precautions such as using masks, washing hands and avoiding crowded environments because they are worried about their children being infected with COVID-19.<sup>6,20-22</sup> However, despite all these precautions, parents may think that they cannot adequately protect their children from COVID-19.<sup>9</sup> People tend to carry out preconceived ideas even when information is easily accessible.<sup>23</sup> In addition, distrust of healthcare providers and the medical system in today's society has been exacerbated by the inconsistencies in scientific communication during the COVID-19 era.<sup>23,24</sup>

Table 4. Factors affecting parents' decision to vaccinate their 0-5 year old children with COVID-19				
Factors	OR (95% CI)*	p-value**		
Parent				
Mother	Reference			
Father	1.12 (0.71-1.64)	0.586		
Parent age	1.02 (1.01-1.05)	0.040		
Number of children	1.08 (0.85-1.36)	0.515		
Family history of COVID-19 infection				
Yes	1.47 (1.01-2.16)	0.043		
No	Reference			
I trust personal protective measures				
Yes	0.84 (0.50-1.05)	0.071		
No/Not sure	Reference			
I trust the protective measures in the hospital				
Yes	2.04 (1.41-2.91)	0.001		
No/Not sure	Reference			
*OR (95% Cl): Estimated relative risk and 95% confidence interval represented by odds ratio ** Boldface used to indicate statistical significance, where p-value <0.05				

Since COVID-19 was an "infodemia" of both true and false information at the same time.<sup>25</sup> Therefore, it is inevitable that parents are skeptical about the effectiveness of the protective measures taken. However, trust in science is even more important in times of social change and distress.<sup>26</sup> Medical distrust, defined as "the tendency to distrust medical systems and personnel believed to represent the dominant culture in a given society", is associated with less acceptance of medical advice.<sup>24</sup> In our study, although the majority of parents took personal protective measures to protect their children from COVID-19, about half did not rely on these measures. For this reason, we think that the Ministry of Health and reliable scientists should inform parents about the effectiveness of protective measures and the safety of health services, especially through social media platforms.

Vaccination is a fundamental measure and an inalienable right to protect public health.<sup>14,27</sup> Vaccination of children against COVID-19 is also important as it can reduce the spread by providing herd immunity as well as preventing the disease.<sup>20,28,29</sup> It is reported that 38-87% of parents with  $\leq$ 5 children have a positive opinion about having their children vaccinated against COVID-19, and some have concerns about this issue.<sup>19-21,30,31</sup> In general, factors that influence vaccine acceptance are trust (trust in vaccine efficacy and safety), indifference (perception of disease risk), evaluation (weighing up risks and benefits of vaccines), and restraint (availability of information about vaccines).<sup>20</sup> Particularly, the rapid development of COVID-19 vaccines has raised concerns that the vaccine may be 'experimental', and/or that its side effects may not have been adequately investigated.<sup>21,32,33</sup> Studies have shown that the lack of a reliable source of information about COVID-19 vaccines and concerns about their safety and efficacy in young children are associated with parents' reluctance to have their children vaccinated against COVID-19.13,28 Similar to our study, Sabra et al.<sup>20</sup> demonstrated that the majority of parents are hesitant to get vaccinated against COVID-19, even though they are worried about their child getting COVID-19 and perceive it as a serious illness. Therefore, we think that the main reason why parents do not want to have their children vaccinated against COVID-19 may be concerns about the safety of COVID-19 vaccines in children. However, as we have shown in our study, while low trust in healthcare personnel contributes negatively to this process, trust in healthcare, science and scientists contributes positively to vaccination.<sup>15,25,26,31,34-36</sup> The effect of trust in science on attitudes towards vaccination indicates that the message conveyed must be scientifically reliable and understandable.<sup>34</sup> Studies show that most parents require information about the COVID-19 vaccine, and providing sufficient information to hesitant parents increases their likelihood of vaccinating their children.<sup>4,37</sup> However, given that doctors are the most preferred source of information for parents to vaccinate their children<sup>38</sup>, and that hesitant parents trust their pediatricians the most<sup>18</sup>, we think that pediatricians, in particular, should provide parents with comprehensive and objective information about the efficacy and safety of COVID-19 vaccination in children. The findings should be interpreted in light of some potential methodological limitations inherent in our study. Firstly, as in most surveys, parents may have given socially desirable responses rather than reflecting their actual behaviors, so interpreting the relationships described can be difficult. Secondly, since the survey was conducted in a region of Turkey, it may not reflect the situation across the country. Thirdly, because data on vaccines continue to be published, parents may have different perspectives than when our survey was conducted.

# **CONCLUSION**

This study gives a brief idea of what parents need to vaccinate their 0-5 year old child against COVID-19. Especially considering that vaccination will be the most important step in preventing infection and nearly half of the parents are hesitant about vaccination, informing parents by reliable authorities, especially pediatricians, can help increasing vaccination acceptance rates. In addition, national studies are needed to investigate the causes of medical distrust in the safety of not only vaccination against COVID-19, but also future vaccination campaigns.

#### **Ethical approval**

This study has been approved by the Çanakkale Onsekiz Mart University Clinical Research Ethics Committee (approval date 09.06.2021, number 2021-06). Written informed consent was obtained from the participants.

### Author contribution

Surgical and Medical Practices: TÇ, BBT; Concept: TÇ, BBT; Design: TÇ, BBT; Data Collection or Processing: TÇ, BBT; Analysis or Interpretation: TÇ, BBT; Literature Search: TÇ, BBT; Writing: TÇ, BBT. All authors reviewed the results and approved the final version of the article.

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The authors declare the study received no funding.

#### **Conflict of interest**

The authors declare that there is no conflict of interest.

# REFERENCES

- 1. World Health Organization (WHO). WHO Coronavirus Disease (COVID-19) dashboard. 2022. Available at: https://covid19.who.int
- Zhou J, Li Z, Meng H, Chang Y-C, Peng N-H, Wei B. Chinese Parental Awareness of Children's COVID-19 Protective Measures. Am J Health Behav. 2021;45:657-64. [Crossref]

- Aedh AI. Parents'attitudes, their acceptance of the COVID-19 vaccines for children and the contributing factors in Najran, Saudi Arabia: A crosssectional survey. Vaccines (Basel). 2022;10:1264. [Crossref]
- Mangat C, Rich J, Sanghavi D, et al. Parents' perspective on COVID-19 vaccine in children 6 months through 4 years: a cross-sectional study from Northwest Wisconsin. BMJ Open. 2022;12(9):e065453. [Crossref]
- Deville JG, Song E, Ouellette CP. COVID-19: Clinical manifestations and diagnosis in children. In: Edwards MS, Blake D, editors. UpToDate (updated: Feb 24, 2023; literature review: Mar 2023). Available at: https://www.uptodate.com/contents/covid-19-clinical-manifestationsand-diagnosis-in-children (Accessed on Apr 28, 2023).
- Abuhammad S. Parents' knowledge and attitude towards COVID-19 in children: a Jordanian study. Int J Clin Pract. 2021;75:e13671. [Crossref]
- Sun J, Xu Y, Qu Q, Luo W. Knowledge of and attitudes toward COVID-19 among parents of child dental patients during the outbreak. Braz Oral Res. 2020;34:e066. [Crossref]
- Talukder A, Islam MN, Sarker M, et al. Knowledge and practices related to COVID-19 among mothers of under-2 children and adult males: a crosssectional study in Bangladesh. BMJ Open. 2022;12:e059091. [Crossref]
- Gerçeker GÖ, Özdemir EZ, Özdemir B, Bektaş M. Development of the parental attitude scale-protecting children during COVID-19 and the relationship between parental attitudes and fear of COVID-19. J Pediatr Nurs. 2022;62:113-20. [Crossref]
- Hou Z, Song S, Du F, et al. The Influence of the COVID-19 Epidemic on Prevention and Vaccination Behaviors Among Chinese Children and Adolescents: Cross-sectional Online Survey Study. JMIR Public Health Surveill. 2021;7:e26372. [Crossref]
- Coroiu A, Moran C, Lindsay BL, Geller AC. Parent-for-child mask behavior during the COVID-19 pandemic in Canada and the United States: An investigation of attitudes, norms, and perceived control using the theory of planned behavior. Prev Med Rep. 2021;24:101533. [Crossref]
- 12. Committee on Infectious Diseases. COVID-19 vaccines in infants, children, and adolescents. Pediatrics. 2022;150:e2022058700. [Crossref]
- Humble RM, Sell H, Wilson S, et al. Parents' perceptions on COVID-19 vaccination as the new routine for their children ≤ 11 years old. Prev Med. 2022;161:107125. [Crossref]
- 14. Prosopari A, Adamakidou T, Mastrogiannis D, et al. Perceptions, Attitudes and Intentions of Greek Parents Toward their Underaged Children Vaccination Against Covid 19. Mater Sociomed. 2022;34:197-203. [Crossref]
- Zhang X, Guo Y, Zhou Q, Tan Z, Cao J. The Mediating Roles of Medical Mistrust, Knowledge, Confidence and Complacency of Vaccines in the Pathways from Conspiracy Beliefs to Vaccine Hesitancy. Vaccines (Basel). 2021;9:1342. [Crossref]
- 16. Galanis P, Vraka I, Siskou O, Konstantakopoulou O, Katsiroumpa A, Kaitelidou D. Willingness, refusal and influential factors of parents to vaccinate their children against the COVID-19: A systematic review and meta-analysis. Prev Med. 2022;157:106994. [Crossref]
- 17. Tal O, Ne'eman Y, Sadia R, Shmuel R, Schejter E, Bitan M. Parents' attitudes toward children's vaccination as a marker of trust in health systems. Hum Vaccin Immunother. 2021;17:4518-28. [Crossref]
- Nowak SA, Gidengil CA, Parker AM, Matthews LJ. Association among trust in health care providers, friends, and family, and vaccine hesitancy. Vaccine. 2021;39:5737-40. [Crossref]
- 19. Yılmaz M, Sahin MK. Parents' willingness and attitudes concerning the COVID-19 vaccine: a cross-sectional study. Int J Clin Pract 2021;75:e14364. [Crossref]

- 20. Sabra HK, Bakr MA, Rageh OESM, Khaled A, Elbakliesh OM, Kabbash IA. Parents' perception of COVID-19 risk of infection and intention to vaccinate their children. Vacunas. 2023;24:37-44. [Crossref]
- Wan X, Huang H, Shang J, et al. Willingness and influential factors of parents of 3-6-year-old children to vaccinate their children with the COVID-19 vaccine in China. Hum Vaccin Immunother. 2021;17:3969-74. [Crossref]
- 22. Akarsu B, Canbay Özdemir D, Ayhan Baser D, Aksoy H, Fidancı İ, Cankurtaran M. While studies on COVID-19 vaccine is ongoing, the public's thoughts and attitudes to the future COVID-19 vaccine. Int J Clin Pract. 2021;75:e13891. [Crossref]
- 23. Vranic A, Hromatko I, Tonković M. "I Did My Own Research": Overconfidence, (Dis)trust in Science, and Endorsement of Conspiracy Theories. Front Psychol. 2022;13:931865. [Crossref]
- 24. Allen JD, Fu Q, Shrestha S, et al. Medical mistrust, discrimination, and COVID-19 vaccine behaviors among a national sample U.S. adults. SSM Popul Health. 2022;20:101278. [Crossref]
- Jennings W, Stoker G, Bunting H, et al. Lack of Trust, Conspiracy Beliefs, and Social Media Use Predict COVID-19 Vaccine Hesitancy. Vaccines (Basel). 2021;9:593. [Crossref]
- 26. Lamot M, Kerman K, Kirbiš A. Distrustful, Dissatisfied, and Conspiratorial: A Latent Profile Analysis of COVID-19 Vaccination Rejection. Int J Environ Res Public Health. 2022;19:10096. [Crossref]
- 27. Soveri A, Karlsson LC, Mäki O, et al. Trait reactance and trust in doctors as predictors of vaccination behavior, vaccine attitudes, and use of complementary and alternative medicine in parents of young children. PLoS One. 2020;15:e0236527. [Crossref]
- Dayton L, Miller J, Strickland J, Davey-Rothwell M, Latkin C. A socioecological perspective on parents' intentions to vaccinate their children against COVID-19. Vaccine. 2022;40:4432-9. [Crossref]
- Bajos N, Spire A, Silberzan L, et al. When Lack of Trust in the Government and in Scientists Reinforces Social Inequalities in Vaccination Against COVID-19. Front Public Health. 2022;10:908152. [Crossref]

- Kreuter MW, Garg R, Marsh A, et al. Intention to vaccinate children for COVID-19: A segmentation analysis among Medicaid parents in Florida. Prev Med. 2022;156:106959. [Crossref]
- Marron L, Ferenczi A, O'Brien KM, et al. Views on COVID-19 vaccination of young children in Ireland, results from a cross-sectional survey of parents. Vaccine. 2022;40:5716-25. [Crossref]
- Fedele F, Aria M, Esposito V, et al. COVID-19 vaccine hesitancy: a survey in a population highly compliant to common vaccinations. Hum Vaccin Immunother. 2021;17:3348-54. [Crossref]
- 33. Neumann-Böhme S, Varghese NE, Sabat I, et al. Once we have it, will we use it? A European survey on willingness to be vaccinated against COVID-19. Eur J Health Econ. 2020;21:977-82. [Crossref]
- 34. Seddig D, Maskileyson D, Davidov E, Ajzen I, Schmidt P. Correlates of COVID-19 vaccination intentions: Attitudes, institutional trust, fear, conspiracy beliefs, and vaccine skepticism. Soc Sci Med. 2022;302:114981. [Crossref]
- 35. Soveri A, Karlsson LC, Antfolk J, Lindfelt M, Lewandowsky S. Unwillingness to engage in behaviors that protect against COVID-19: the role of conspiracy beliefs, trust, and endorsement of complementary and alternative medicine. BMC Public Health. 2021;21:684. [Crossref]
- 36. Gjini E, Moramarco S, Carestia MC, et al. Parents' and caregivers' role toward childhood vaccination in Albania: assessment of predictors of vaccine hesitancy. Ann Ig. 2023;35:75-83. [Crossref]
- 37. Almalki OS, Alfayez OM, Al Yami MS, Asiri YA, Almohammed OA. Corrigendum: Parents' Hesitancy to Vaccinate Their 5-11-Year-Old Children Against COVID-19 in Saudi Arabia: Predictors From the Health Belief Model. Front Public Health. 2022;10:914691. [Crossref]
- Napoli A, Miraglia Del Giudice G, Corea F, Folcarelli L, Angelillo IF. Parents' reasons to vaccinate their children aged 5-11 years against COVID-19 in Italy. Front Med (Lausanne). 2022;9:949693. [Crossref]