

ORIGINAL ARTICLE

Medicine Science 2022;11(1):53-8

Do healthy lifestyle behaviors affect COVID-19 vaccination attitudes in Generation Z?

ID Sumeyye Barut¹, ID Esra Sabanci Baransel², ID Aylin Can Akarsu³¹Firat University, Faculty of Health Sciences, Department of Midwifery, Elazig, Turkey²Midwifery, Malatya, Turkey³Munzur University, Faculty of Health Sciences, Department of Midwifery, Tunceli, Turkey

Received 10 December 2021; Accepted 20 December 2021

Available online 28.12.2021 with doi: 10.5455/medscience.2021.12.397

Copyright@Author(s) - Available online at www.medicinescience.org

Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.



Abstract

This study was carried out to determine the effects of healthy lifestyle behaviors on the COVID-19 vaccine attitude in the Z generation. The descriptive cross-sectional study was conducted in Turkey using web-based questionnaires, and 510 participants (348 women, 162 men, age 15-24) in the Z generation. The data were collected by using Personal Information Form and Health Lifestyle Behaviors Scale-II (HLBS-II). It was determined that 89.4% of the female participants and 85.8% of the male participants, who participated in the study, had the COVID-19 vaccine. It was determined that 84.2% of the women who had the COVID-19 vaccine received the second dose, while 76.3% of the men had the second dose. It was determined that the mean scores of women and men who had COVID-19 vaccine, found the COVID-19 vaccines safe, and believed that it was more beneficial than harm, had higher mean scores from HLBS-II and the difference between the groups was statistically significant ($p < 0.05$). As a result of this study, it was determined that the healthy lifestyle behavior levels of the Z generation have an effective role on the COVID-19 vaccine attitudes during the COVID-19 pandemic process.

Keywords: Generation Z, healthy lifestyle behaviors, vaccination attitude, COVID-19

Introduction

The World Health Organization (WHO) stated that the best way to reduce the morbidity and mortality rates due to COVID-19 worldwide and to control the epidemic is social immunization. At the same time, it emphasizes that the most effective way to eradicate the COVID-19 pandemic is community immunization [1, 2].

Health promotion is a dynamic process for maximizing the level of well-being of the family and individuals that make up the society, as a physical, social and spiritual whole. The person protects his/her own health in the health promotion process and finds the opportunity to actively participate in the health promotion process. In order to achieve physical, mental and social well-being, the individual or group must be able to express and fulfill their wishes, meet their needs, cope with their environment or change their environment if necessary [3]. The inability of school-age adolescents and young people to meet the recommendations for health behaviors, healthy eating, and activity levels creates great concern, especially during the COVID-19 process [4].

With the improvement of health, it is ensured that diseases decrease, life expectancy increases, and quality of life increases. This development contributes to the formation of a healthy society. Risk factors that may impair health are identified, healthy behaviors are developed, lifestyles are regulated, and a healthy environment is created through initiatives taken to improve health. Evaluating the causes of death in countries, WHO states that 70-80% of deaths in developed countries; stated that 40-50% of deaths in underdeveloped countries are due to lifestyle behaviors [5, 6]. It is necessary to know these behavioral factors in order to improve health. It is important for individuals to be aware of these risk factors from an early age and to protect themselves against these risks.

Many epidemics have been prevented by vaccination, and some epidemics have been completely eradicated [7, 8]. At the same time, providing herd immunity with vaccination also contributes to the improvement of the health of individuals. In the COVID-19 process, which we live at a global level and still continues, the importance of vaccination comes to the fore even more in order to ensure social immunity and improve health. Generation Z, which represents approximately 21 million of the 83 million population of Turkey, between the ages of 7-24, not only has great importance in social immunization, but also lays the foundation of healthy lifestyle behaviors in their lives [9]. The habits acquired in this

*Corresponding Author: Esra Sabanci Baransel, Midwifery, Malatya, Turkey
E-mail: esra.sabancii@gmail.com

process also guide the next life and are reflected in all health behaviors [10]. Lifestyle may have an effect on the formation of the perspective on vaccination during epidemic periods. At this point, determining the healthy lifestyle behaviors and thoughts of the Z generation, which constitutes an important part of the Turkish society, with COVID-19 vaccination has a key role in order to control and eradicate the pandemic.

In the light of this information, in this study, it was aimed to determine the relationship between healthy lifestyle behaviors and vaccination attitudes of young people between the ages of 15-24 in the Z generation.

Research questions

1. What are the COVID-19 vaccine attitudes of the Z generation?
2. Is there a relationship between the healthy lifestyle behaviors of the Z generation and their vaccination attitudes?

Materials and Methods

The research, which was designed as cross-sectional and comparative, was conducted with women and men in the Z generation. The sample size was calculated by performing power analysis in OpenEpi, version 3, publicly available statistical software. The population of the research of individuals between the ages of 15-24, who are within the age limits of Generation Z, which are included in Facebook groups and Instagram groups. The sample size was calculated as at least 384 people with 5% error level, 95% confidence level at bidirectional significance level, and 80% power. The research was conducted using a web-based online survey (<https://docs.google.com/forms>) through women's groups on social media (such as WhatsApp, Facebook Messenger, Instagram). The survey, which was prepared through the Google Forms platform, was sent to women via social media tools (such as WhatsApp, Facebook Messenger, Instagram). Participants with missing data were excluded from the study. The study was completed with 510 volunteer participants.

Ethical approval was obtained from the Non-Interventional Research Ethics Committee of public university before starting the research (Decision No: 2021/15-01 date: 10.11.2021).

Men and women in generation Z who would participate in the study were informed about the study. They were informed that their personal information would be protected, and they would be able to withdraw from the study whenever they wanted. Individuals who volunteered to participate in the study and could read and understand Turkish were included in the study.

Data collection tools

The data of the study were collected using the Personal Information Form and the Healthy Lifestyle Behaviors Scale, which were prepared by the researcher after a literature review.

Personal information form: The personal information form consisting of 19 questions by scanning the literature, socio-demographic (age, family type, income level, place of residence, education level of parents, health perception level, etc.) characteristics, COVID-19 vaccination status and COVID-19

questions to determine the attitude towards the vaccine (COVID-19 vaccination status, number of doses, believing that the vaccines are safe, believing that the vaccine is more beneficial than harming, believing that the COVID-19 vaccines prevent the diseases from being severe, trusting the information received from the health personnel about the COVID-19 vaccines.) [11, 12].

Healthy lifestyle behaviors scale-II (HLBS-II): Healthy Lifestyle Behaviors Scale-II was created by Walker and Hill-Polerecky (1996) to determine healthy lifestyle behaviors [13]. The scale consists of 52 items and six factors. These; spiritual development, interpersonal relationships, nutrition, physical activity, health responsibility and stress management. The lowest score that can be obtained from the scale is 52, and the highest score is 208. High scores obtained from the scale indicate healthy living behaviors of the individual. The Turkish validity and reliability of the scale was determined by Bahar et al. (2008), and the Alpha reliability coefficient of the scale was found to be 0.92 [12]. In our study, the reliability coefficient of the scale was found to be 0.91.

Data analysis

SPSS 25.0 for Windows software (SPSS, Chicago, IL, USA) was used for statistical analysis of the obtained data. Numbers, percentages, mean scores, standard deviations, independent samples t tests, one way analysis of variance and Kruskal Wallis tests were used in the statistical analysis of the data. The results were evaluated in a confidence interval of 95% and at a significance level of $p < 0.05$.

Limitations of the study

When the limitations of the research are examined, it is the limitation of the research that the participants could not ask the questions they wanted to ask about the survey, since it was conducted with an online survey. The fact that the research is online and not conducted in a single center constitutes a strong aspect of the study. Strength of our study is that there is no study in the literature that determines the rate of the Z generation population vaccinated during the pandemic process, and it has formed the basis for future studies.

Results

The comparison of the descriptive characteristics of the participants and their HLBS mean scores is presented in Table 1. 510 people, including 348 women and 162 men, participated in the study and it was determined that the mean age of the participants was 24.00 ± 20.25 for women and 24.00 ± 20.51 for men. Those with a nuclear family structure of women compared to those with an extended family structure, those with a high income level compared to those with low and medium income, those who live in the province compared to those who live in a town, village or town, and those whose parents have a high school or higher education have less than high school education. It was determined that the mean scores of those who defined their health as good and those who defined their health as bad or moderate from the HLBS-II were higher and the difference between the groups was statistically significant ($p < 0.05$). Those who have a nuclear family structure of men compared to those with an extended family structure, those with a high income level compared to those with low and middle

income, those who live in the province compared to those who live in a town, village or town, and those whose parents have a high school or higher education have less than high school education. It was determined that the average score of those who defined their health as good and those who defined their health as bad or moderate in HLBS-II was higher. It was determined that there was a statistically significant difference between the groups in terms of men's income levels, their parents' education levels and their perception of their health, and the total mean score of HLBS-II ($p<0.05$), but the difference between the groups in terms of family type and place of residence and the total mean score of HLBS-II was statistically significant. It was determined that it was not ($p>0.05$) (Table 1).

The comparison of the COVID-19 vaccine attitudes of the participants with the mean scores of HLBS is presented in Table 2. It was determined that 89.4% of the women participating in the study and 85.8% of the men had the COVID-19 vaccine. It was determined that 84.2% of the women who had the COVID-19 vaccine received the second dose, while 76.3% of the men had the second dose. It was found that women who had the COVID-19 vaccine, had the third dose of the vaccine, found the COVID-19 vaccines safe, believed that it had more benefits than harm, that it prevented the disease from having a severe course, and were undecided about trusting the information received from the health personnel, had higher mean scores in the HLBS, and The difference between the groups was found to be statistically significant ($p<0.05$).

Table 1. Comparison of the descriptive characteristics of the participants and their HLBS-II mean scores (n=510)

Variables	n	Women(n=348)		Test and p value	n	Men (n=162)		Test and p value
		%	(mean ± SD)			%	(mean ± SD)	
Age (years)		24.00±20.25				24.00±20.51		
Family type								
Nuclear family	287	82.5	125.11±20.26	t=2.418	126	77.8	127.37±21.37	t=1.194
Extended family	61	17.5	118.73±18.35	p=0.018	36	22.2	122.33±22.60	p=0.238
Level of income								
Low ^a	68	19.5	116.69±18.67	KW=12.615	43	26.5	124.30±19.55	KW=8.157
Medium ^b	273	78.4	125.19±19.42	p=0.002	107	66.0	124.62±20.41	p=0.017
High ^c	7	2.1	148.28±30.54	c>b>a	12	7.5	147.75±29.40	c>b>a
Place of live								
Province ^a	219	62.9	126.41±19.81	F=5.962	112	69.1	127.26±21.13	KW=1.209
District ^b	97	27.9	121.67±19.38	p=0.003	36	22.2	123.55±22.54	p=0.546
Villages/towns ^c	32	9.2	114.53±20.75	a>b,c	14	8.6	125.07±24.75	
Mother's education level								
< High school	277	79.6	122.98±20.39	t=-1.864	104	64.2	122.92±20.58	t=-2.666
≥ High school	71	20.4	127.94±18.32	p=0.049	58	30.8	132.22±22.50	p=0.011
Father's education level								
< High school	212	60.9	120.54±18.30	t=-3.954	84	51.9	121.42±19.76	t=-2.996
≥ High school	136	39.1	129.37±21.52	p=0.000	78	48.1	131.44±22.57	p=0.003
Health perception level*								
Bad	23	6	106.47±21.37	KW=19.972	27	16.7	114.37±27.63	KW=8.670
Middle	128	36.8	122.49±17.38	p=0.000	36	22.2	127.83±24.57	p=0.013
Good	197	56.6	127.02±20.47	c>a,b	99	61.1	128.91±17.53	c>a,b

[*Determined according to the statements of the participants]

It was determined that the mean scores of the men who had the COVID-19 vaccine, who found the COVID-19 vaccines safe, and who believed that it was more beneficial than harm, had higher mean scores in HLBS, and the difference between the groups was statistically significant ($p < 0.05$). However, it was determined that the mean scores of the men who had the second dose of the

COVID-19 vaccine, who did not believe that the COVID-19 vaccines prevented the severe course of the diseases, and who trusted the information received from the health personnel, were higher in the HLBS, while the difference between the groups was not statistically significant ($p > 0.05$) (Table 1).

Table 2. Comparison of the COVID-19 vaccine attitudes of the participants and the mean scores of HLBS-II (n=510)

Variables	n	Women		Test and p value	n	Men		Test and p value
		%	(mean $\pm$ SD)			%	(mean $\pm$ SD)	
HLBS-II			123.99 $\pm$ 20.06				126.25 $\pm$ 21.68	
COVID-19 vaccination status								
Yes	311	89.4	124.74 $\pm$ 19.07	t=2.018	139	85.8	128.95 $\pm$ 20.66	t=4.086
No	37	10.6	117.72 $\pm$ 26.49	p=0.044	23	14.2	109.91 $\pm$ 20.90	p=0.000
Number of doses of COVID-19 vaccine								
1	26	8.4	107.46 $\pm$ 12.58	KW=25.138	13	9.4	122.15 $\pm$ 20.03	KW=4.482
2	262	84.2	126.16 $\pm$ 17.91	p=0.000	106	76.3	127.45 $\pm$ 16.82	p=0.106
3	23	7.4	128.13 $\pm$ 27.42	c>b>a	20	14.4	141.35 $\pm$ 32.83	
Believing that COVID-19 vaccines are safe								
Yes ^a	160	46.0	127.66 $\pm$ 20.11	F=5.082	82	50.6	131.62 $\pm$ 22.41	F=8.415
No ^b	32	9.2	121.28 $\pm$ 26.21	p=0.007	31	19.1	113.77 $\pm$ 21.86	p=0.000
Undecided ^c	156	44.8	120.78 $\pm$ 17.98	a>b,c	49	30.2	125.16 $\pm$ 16.73	a>b,c
Believing that COVID-19 vaccines do more good than harm								
Yes ^a	182	52.3	127.04 $\pm$ 21.45	KW=11.224	92	56.8	129.55 $\pm$ 19.22	KW=7.481
No ^b	26	7.5	122.34 $\pm$ 16.41	p=0.004	16	9.9	117.56 $\pm$ 17.24	p=0.024
Undecided ^c	140	40.2	120.34 $\pm$ 18.19	a>c	54	33.3	123.20 $\pm$ 25.66	a>c
Believing that COVID-19 vaccines prevent serious illness								
Yes ^a	167	48.0	127.05 $\pm$ 21.19	F=4.454	64	39.5	125.26 $\pm$ 22.20	KW=1.596
No ^b	44	12.6	124.15 $\pm$ 17.37	p=0.012	11	6.8	132.63 $\pm$ 24.94	p=0.450
Undecided ^c	137	39.4	120.21 $\pm$ 18.91		87	53.7	126.17 $\pm$ 21.00	
Relying on information from healthcare professionals about COVID-19 vaccines								
Yes ^a	197	56.6	126.14 $\pm$ 20.98	KW=9.538	89	54.9	126.93 $\pm$ 20.51	KW=0.161
No ^b	128	36.8	120.00 $\pm$ 16.95	p=0.008	52	32.1	125.50 $\pm$ 24.92	p=0.923
Undecided ^c	23	6.6	127.86 $\pm$ 24.84	a>c	21	13.0	125.23 $\pm$ 18.60	

Discussion

Community immunity; in a society where the vaccination percentage reaches a certain level, it means that the probability of unvaccinated individuals to encounter the disease due to vaccinated individuals is reduced. The World Health Organization (WHO) emphasizes that community immunization is the best way to reduce morbidity and mortality rates and to control the epidemic [1, 2].

As of January 13, 2021, the vaccination process started in Turkey, and according to the data of December 1, 2021, the number of those who had the first dose of vaccine was 56,447,245, the number of those who had the second dose of vaccine was 50,784,173, and the number of those who had the third dose was 12,489,939. At the same time, the number of those who have not received the first dose of vaccine has been reported as 22,344,407 [14]. Considering the numerical data, it is noteworthy that we, as a country, are still far behind in community immunization, and it has gained great importance to determine the factors that negatively affect vaccination rates.

This study, in which we examined the relationship between healthy lifestyle behaviors and COVID-19 vaccination attitudes of young people between the ages of 15-24 in the Z generation, 89% of the female participants. It was determined that 4 of them and 85.5% of the male participants had at least two doses of vaccine (84.2% female, 76.3% male). In the study, the vaccination rate in the Z generation is higher than in the country in general. We think that this is due to the fact that vaccination policies are kept strictly so that this age group is generally of school age and continues to attend school.

Some sociodemographic characteristics have a significant impact on the development of healthy lifestyle behaviors. In our study, the difference between the groups was found to be statistically significant when comparing the family structure, income level, place of residence, education level of their parents and their definition of good health and the mean scores they got from the HLBS in our study (Table 1, $p<0.05$). At the same time, the difference between the groups was found to be statistically significant when comparing the variables of income level of male participants, education level of their parents and their definition of health level as good, and the mean scores they got from HLBS (Table 1, $p<0.05$). Our study results show parallelism with the results of studies conducted in similar groups in the literature. In a study evaluating the factors affecting healthy lifestyles with 1672 students, it was reported that individual variables such as having a nuclear family, defining the income level as good [1,2], and having parents with a high education level positively affect healthy eating behavior [10,15-18]. In a systematic review evaluating the effectiveness of sociodemographic characteristics in the development of healthy eating behaviors, it is stated that as income level and parent education level increase, healthy lifestyle behaviors increase [10, 18]. The results of this study show parallelism with our results.

An important finding in the study is that women and men who believe that COVID-19 vaccines are safe; those who believe that the vaccine is more beneficial than harmful; It was determined that he had a higher healthy lifestyle behavior mean score (Table 2,

$p<0.01$). Although there is no study in the literature comparing trust and distrust in the COVID-19 vaccine and the mean scores of HLBS, there are several studies in which the trust in the COVID-19 vaccine is questioned [19, 20, 23]. The mistrust created against the COVID-19 vaccine adversely affects the level of community immunization. In a study conducted with medical school students regarding COVID-19 vaccine rejection in our country, it was determined that individuals who are negative role models in the society negatively affect vaccination, and the bad comments of some scientists about vaccines negatively affect the attitude towards the vaccine [17]. In the study conducted by Kateeb et al. with university students, it was stated that the way of thinking of the participants who wanted to be vaccinated because they believed that the vaccines were beneficial was significantly related to vaccination has been expressed [21]. It was determined that 48% of the women participating in the study thought that the COVID-19 vaccines prevented the severe course of the diseases, and the average score they got from the HLBS was higher and the difference between them was significant (Table 2, $p<0.05$). CDC (Centers for Disease Control and Prevention) reports state that COVID-19 vaccines can be used safely and effectively to prevent COVID-19, including serious illness and death. In the same report, it was stated that even if vaccinated people encountered the COVID-19 virus, including the Delta variant, they either did not carry the disease or completed the process with a mild course. No study was found in the literature that evaluated the relationship between the safety of the vaccine and the HLBS. We think that this finding in our study results is due to the fact that people who find the vaccine safe also take into account the guidance of authorized and knowledgeable institutions and organizations that conduct research in the field of health. Another striking finding of the study was that 56.6% of the female participants trusted the information received from the health personnel about the COVID-19 vaccines, and the mean HLBS score was found to be higher and significant (Table 2, $p<0.01$). In the study conducted by Saied et al. with Egyptian medical students, it was reported that the participants obtained data on COVID-19 and vaccine information from many sources, and one of these sources was health personnel, and they trusted their knowledge on this subject [19]. Studies have reported that medical students who agree to be vaccinated are more likely to trust public health professionals [21-24]. These results not only show parallelism with the findings in our study, but also support that there is a positive relationship between COVID-19 vaccination and healthy lifestyle behaviors. Many sources, including social media, media, health professionals, country and world health policies have an impact on individuals to obtain information about COVID-19 vaccines. In particular, sharing of accurate and reliable information about vaccines will positively affect the immunization thoughts of the society and will contribute to the management of the pandemic process. In line with these results, it is important to direct the information about COVID-19 vaccines, including health managers and personnel, and to ensure that people gain healthy lifestyle behaviors that positively affect their thoughts.

Conclusion

As a result of this study, it was determined that the healthy lifestyle behavior levels of the Z generation have an effective role on the COVID-19 vaccine attitudes during the COVID-19 pandemic process. Health policies, recommendations and warnings

determined by WHO and governments should be taken into account in preventing the COVID-19 epidemic at the global level. In this context, possible protection can be provided by providing personal hygiene, adequate and balanced nutrition, physical activity, maintaining mental well-being and immunization, which are among the healthy lifestyle behaviors that are especially emphasized. During the pandemic period, methods of protection from diseases and healthy lifestyle behaviors are affected by the process. For this reason, it can be recommended to develop healthy lifestyle behavior scales suitable for the pandemic period. In order to control the epidemic in Turkey and strengthen health management and strategies, health professionals should be informed about the relationship between healthy lifestyle behaviors and vaccination attitudes. Especially in primary health care institutions, midwives and other health professionals play an important role in raising public awareness on this issue and informing people about healthy lifestyle behaviors in line with their sociodemographic information.

This research was presented as an oral presentation at the "5th International Academic Student Studies Congress", 17-18 December 2021, Online.

Conflict of interests

The authors declare that they have no competing interests.

Financial Disclosure

All authors declare no financial support.

Ethical approval

The study was approved by the Non-Interventional Research Ethics Committee of public university before starting the research (Decision No: 2021/15-01 date: 10.11.2021).

References

1. WHO. Coronavirusdisease (COVID-19): Herd immunity, lock downs and COVID-19. <https://www.who.int/newsroom/q-a-detail/herd-immunity-lockdowns-and-covid-19> access date 08.11.2021
2. Çöl M. Importance of vaccination and anti-vaccination. <http://hastane.ankara.edu.tr> access date 08.11.2021
3. Attepe-Özden S, Pak MD, İçağasıoğlu-Çoban A. Well-Being concept in social work. *Turkish J Social Work*. 2017;1:87-104.
4. Guelfi KJ, Ong MJ, Peeling P. Health-focused course content is associated with altered health behaviours in under graduate university students. *Health Educ J*. 2018;77:598-605.
5. Regmi K, Jones L. A systematic review of the factors—enablers and barriers—affecting e-learning in health sciences education. *BMC Med Educ*. 2020;20:1-18.
6. WHO. Quantifying selected major risks to health. http://www.who.int/whr/2002/en/whr02_ch4.pdf. access date 08.11.2021
7. Tüzün H, Demirköse H, Özkan S, et al. Risk communication in the Covid-19 pandemic. *Gazi J Health Sci*.2020;1-8.
8. Yıldız Z, Gencer E, Gezezen NF. Evaluation of individuals' attitudes towards vaccines developed in the COVID-19 pandemic process. *Gümüşhane University Social Sci Institute Electronic J*. 2021;12:877-89.
9. Özakgöl AA, Aştı TA, Ataç M, et al. Do senior high school students have health-promoting lifestyles?. *Florence Nightingale J Nurs*. 2016;24:16-23.
10. Gömleksiz M, Yakar B, Pirinççi E. Healthy life style behaviours of medical faculty students and related factors. *Dicle Med J*. 2020;47:347-58.
11. Ceylan SS, Erdoğan Ç, Turan T, et al. Validity and reliability of the Turkish form of the vaccine attitudes scale. *Turkey Clinics J Pediatr*. 2021;30:31-7.
12. Bahar Z, Beşer A, Gördes N, et al. Healthy life style behavior scale II: A reliability and validity study. *C.U. J School Nurs*. 2008;12:1-13.
13. Walker SN, Hill-Polerecky DM. Psychometric valuation of the health-promoting life style profile II. Unpublished manuscript. University of Nebraska Medical Center. 1996; 13: 120-6.
14. T.R. Ministry of Health. COVID-19 vaccine information platform. https://covid19asi.saglik.gov.tr/?gclid=EAIaIQobChMIm-Db44PE9AIVw-J3Ch0ofwB8EAAYASAAEgJ-4PD_BwE access date 08.11.2021
15. Sonkaya Zİ, Günay O. The impact of education given to obese and preobese university students according to the health promotion model on nutrition and physical activities. *Cukurova Med J*. 2020;45:795-806.
16. Johnson RL. Gender differences in health promoting lifestyles of African Americans. *Public Health Nurs*. 2005;22:130-7.
17. Günay İ, Tatar M, Saygılı M, et al. The opinions of senior medical students about vaccination rejection in our country. *J General Med*. 2020;30:133-9.
18. Bozhüyük A, Özcan S. Healthy life behaviors of the health science students of Cukurova University. *Cukurova Med J*. 2016;41:664-74.
19. Saied SM, Saied EM, Kabbash IA, et al. Vaccine hesitancy: Beliefs and barriers associated with COVID-19 vaccination among Egyptian medical students. *J Med Virology*. 2021;93:4280-91.
20. Kateeb E, Danadneh M, Pokorná A, et al. Predictors of willingness to receive COVID-19 vaccine: cross-sectional study of Palestini an dental students. *Vaccines*. 2021;9:954.
21. GÖK G, Güzel Ü. Evaluation of Covid-19 vaccination and protection from Covid-19 in the context of health belief model. *IBAD J Social Sci*. 2022.12:231-8.
22. Salmon DA, Dudley MZ, Brewer J, et al. COVID-19 vaccination attitudes, values and intention samong United States adults priorto emergency use aut horization. *Vaccine*. 2021;39:2698–711.
23. Kelekar A, Afonso N, Lucia V, et al. Covid-19 vaccine hesitancy among medical and dental students. *J General Internal Med*. 2021;104-5.
24. Gökbulut N, Bal Z. The relationship of mental well-being with healthy living awareness. *Anatolian J Health Res*. 2021;2:51-6..