The Relationship Between Midwifery Students' Perceptions of COVID-19 Control and Attitudes Towards COVID-19 Vaccine

Ebelik Öğrencilerinin COVID-19 Kontrolüne İlişkin Algıları ile COVID-19 Aşısına Yönelik Tutumları Arasındaki İlişki

Reyhan Aydin Doğan[1], Ayşe Çuvadar[2],Roza Narzullayeva[3]

ÖZ

Amaç: Bu araştırma, ebelik öğrencilerinin COVID-19 kontrolü algıları ile COVID-19 aşısına yönelik tutumları arasındaki ilişkiyi belirlemek amacıyla yapılmıştır.

Gereç ve Yöntem: Toplam 225 öğrenci katılmıştır. Kişisel bilgi formu ile COVID-19 kontrolü algısı ve COVID-19 aşısına yönelik tutum ölçekleri kullanıldı. Çalışma 06 Ekim – 6 Kasım 2022 tarihleri arasında toplandı.

Bulgular: Araştırmaya katılan öğrencilerin COVID-19 ile ilgili en yüksek bilgiyi %39,6 ile sağlık bakanlığı ve resmi kurumlardan aldıkları, %37,8'inin COVID-19 ile enfekte olduğu ve %92'sinin COVID-19 aşısını yaptırdığı saptandı. Öğrencilerin COVID-19 kontrolü algısının ve COVID-19 aşısına yönelik tutumlarının sınıf ve COVID-19 aşısı olma durumundan etkilendiği ve aralarında anlamlı bir ilişki olduğu görülmüştür ($p<0,05$). Ayrıca COVID-19 aşısına yönelik tutumun COVID-19 aşısından korkma ile ilişkili olduğu tespit edilmiştir ($p<0,05$).

Sonuç: COVID-19 aşısından korkmayan öğrencilerin aşıya karşı olumlu tutum sergiledikleri görülmüştür. Yaptığımız araştırmada aşılanma oranının yüksek olduğu gözlemlendi. Aşıdan korkmayan öğrencilerin olumlu tutuma sahip olduğu ve aşıya karşı tutumlarının yüksek olduğu dikkat görüldü. COVID-19 aşısının yeni bir aşı olduğu ve etkilerinin anlaşılmasının zaman aldığı düşünüldüğünde bu sonuçlar literatürle uyumludur.

Anahtar Kelimeler: COVID-19, Algı, COVID-19 Aşısı, Kontrol Algısı, Ebelik Öğrencileri, Kesitsel Çalışma

ABSTRACT

Aims: This research was carried out to determine the relationship between midwifery students' perception of COVID-19 control and attitudes toward the COVID-19 vaccine.

Methods: A total of 225 students participated. Perception of COVID-19 control and attitude scales towards COVID-19 vaccine were used with the their personal information form. The study was collected between 06 October – 6 November 2022.

Results: It was determined that the students participating in the research received the highest information about COVID-19 from the ministry of health and official institutions with 39.6%, 37.8% were infected with COVID-19 and 92% had the COVID-19 vaccine. It has been observed that the perception of people and their attitudes towards the COVID-19 vaccine are affected by the class and the status of being vaccinated

Geliş Tarihi/Recieved:07.03.2023 **Kabul Tarihi/Accepted**:18.09.2023 **Çevrimiçi Yayın Tarihi/Avaliable Online Date**:30.10.2023 **DOI:** 10.57224/jhpr.1261722

[1] Dr. Öğr. Üyesi, Karabük Üniversitesi Sağlık Bilimleri Fakültesi Ebelik Bölümü, reyhanaydin@karabuk.edu.tr, 0000-0003-4950-3699

[2] Dr. Öğr. Üyesi, Karabük Üniversitesi Sağlık Bilimleri Fakültesi Ebelik Bölümü, aysecuvadar@karabuk.edu.tr, 0000-0002-7917-0576

[3] Yüksek Lisans Öğrencisi, Karabük Üniversitesi Lisansüstü Eğitim Enstitüsü, roznarzullayeva@gmail.com, 0000-0003-1334-3873

Sorumlu yazar/Correspondence: Reyhan Aydın Doğan

Cite this article as: Aydın Doğan R., Çuvadar A, Narzullayeva R. The Relationship Between Midwifery Students' Perceptions of COVID-19 Control and Attitudes Towards COVID-19 Vaccine. J Health Pro Res 2023;5(3): 167-177.

against COVID-19, and there is a significant relationship between them ($p<0.05$). In addition, it was determined that the attitude towards the COVID-19 vaccine was related to the fear of the COVID-19 vaccine ($p<0.05$).

Conclusion: It has been observed that students who are not afraid of the COVID-19 vaccine have a positive attitude towards the vaccine. In our study, it was observed that the vaccination rate was high. It was observed that the students who were not afraid of the vaccine had a positive attitude and had a high attitude towards the vaccine. Considering that the COVID-19 vaccine is a new vaccine and it takes time to understand its effects, these results are in line with the literature.

Keywords: COVID-19, Perception, COVID-19 Vaccine, Control Perception, Midwifery Students, Cross-Sectional Study

Introduction

Severe acute respiratory syndrome coronavirus, or shortly SARS-CoV, a type of coronaviruses, Covid-19 (SARS-CoV 2), first appeared in Wuhan, China towards the end of 2019, and due to the spread and severity of the virus, it was known worldwide on March 11. It has been declared a pandemic by the Health Organization (WHO) (1). Precautions against this global epidemic in Turkey has been taken on January 22, and these measures were increased with the first case being seen in March 2020 and the severity of the contagiousness (2). In order to keep the infection under control, WHO has determined a series of measures to protect the public, such as washing of hands frequently, maintaining social distance, avoiding crowded environments and closed areas, using personal protective equipment such as masks and glasses (3).

However, due to the negative effects of this virus, which has become the most important health problem of the 21st century, on the health system of all countries of the world, many countries have tried to develop an effective and reliable vaccine against the disease (4). Soon, COVID-19 vaccines (Johnson&Johnson, Moderna,Oxford/AstraZeneca, Pfizer/BioNTech, Sinopharm/Beijing, Sinopharm/Wuhan, Sinovac, Sputnik V) became available in December 2020 (5). To ensure the success of the COVID-19 vaccine, public authorities must have the support of the entire population and build vaccine trust. Identifying and understanding the determinants of vaccine acceptance is one of the essential foundations for executing the vaccine strategy (6). Vaccination of healthcare students and staff against viral diseases helps protect themselves and patients from these diseases. Healthcare students are an essential group whose attitudes and habits toward viral vaccines may affect future behaviors (7). Therefore, university students' perceptions and behaviors have a major effect on the spread of a pandemic (8).

The direct participation of midwifery students in patient care in health service, combined with the high contagiousness of COVID-19 that causes epidemics, adds this subpopulation in a higher-risk group in terms of contracting and transmitting the disease (2). Due to the fact that students do not have enough information about the disease, vaccine rejection and false beliefs about vaccines can create stress and anxiety on them (9). Vaccine directives are practical but must be supported by easy accessibility, adequate addressing of efficacy and safety concerns, and the promotion of voluntary acceptance and trust (7). When students' opposition to vaccination in the world was examined, it was seen that students in the field of health were examined together and midwifery students did not leave. It has been observed that the prevalence of COVID-19 vaccine refusal of students in the health field in the world is 25.8% (10). There are few studies on the COVID-19 vaccine refusal status of midwifery students (11–13). In our country, it was observed that the rate of vaccine rejection, in which the COVID-19 vaccine rejection status of midwifery students was examined, varied between 65.7-97,8% (11–13). This study was planned to determine the relationship between midwifery students' perception of COVID-19 control and their attitudes toward the COVID-19 vaccine.

Methods

Type and Sample of the Study

The research was done in a cross-sectional type.

The universe of the study consisted of 489 students studying in the Department of Midwifery, Faculty of Health Sciences, Karabuk University. The sample of the study consisted of 225 midwifery students as a result of the population-specific sample analysis, which was made by taking the confidence interval of 95% and the margin of error of 5%. The data of the study were collected by face-to-face interview method. 46% of the students in the universe participated in the study. The data of the research were collected between 06 October – 6 November 2022. Ethics committee approval of the research was obtained from Karabuk University Social and Human Sciences Research Ethics Committee (Date: 20.05.2022 Number: 2022/4).

Data Collection Tools

The data is a descriptive form; the COVID-19 Perception of Control of COVID-19 [PCo-COVID-19] and Attitudes Towards the COVID-19 Vaccine [ATV-COVID-19]) was collected with a form consisting of 3 parts.

Introductory Information Form: In the Information Collection Forum prepared by the researchers in coordination with the literature, There are 16 questions regarding their socio-demographic characteristics and information about COVID-19.

Perception of Control of COVID-19 [PCo-COVID-19]: The Perception of Control of COVID-19 Scale consists of twelve items. The scale is in a five-point Likert structure. The expressions found are evaluated as "I strongly disagree (1)", "I do not agree (2)", "I am undecided (3)", "I agree (4)", and "I strongly agree (5)". It consists of three sub-dimensions: macro control, personal (micro) control, and controllability.

Macro control; It concerns beliefs about the effectiveness of precautions taken at the institutional, national or global level. The second sub-dimension, called personal control, is related to the effectiveness of personal precautions taken to avoid the disease. The last sub-dimension is the dimension that evaluates the perception of the controllability of the disease.

• Macro Control Dimension; [1-4] questions,
• Personal (Micro) Control Dimension; [5-8] questions,
• Controllability Dimension; [9-12] questions.
• Positive Attitude Dimension; [1-4] questions,
• Negative Attitude Dimension; [5-9] questions.

Items in the controllability sub-dimension are scored inversely. A value between 1-5 is obtained by dividing the total score obtained by summing the item scores in the scale sub-dimension by the number of items in that sub-dimension.

High scores in the macro control sub-dimension reflect the belief that the measures taken are sufficient, high scores in the personal control sub-dimension reflect the belief that the disease can be well controlled with personal measures, and high scores in the controllability sub-dimension reflect the belief that the disease can be controlled. The Cronbach Alpha value of the scale was found to be 0.79 (14). In our study, the total Cronbach Alpha value of the scale was 0.70; Macro Control Size was 0.91; the Personal (Micro) Control Dimension was 0.87 and the Controllability Dimension was 0.81.

Attitudes Towards the COVID-19 Vaccine [ATV-COVID-19]: Vaccine Scale has nine items and two sub-dimensions (positive and negative attitudes). The statements in the scale are evaluated as “Strongly disagree (1)”, “Disagree (2)”, “Undecided (3)”, “Agree (4)”, and “Strongly agree (5)”.

Items in the negative attitude sub-dimensions are scored inversely. A value between 1-5 is obtained by dividing the total score obtained by summing the item scores in the scale sub-dimension by the number of items in that sub-dimension.

High scores obtained from the positive attitude sub-dimension indicate that the attitude towards the vaccine is positive. It is calculated after the items in the negative attitude sub-dimension are reversed, and the high scores in this sub-dimension indicate that the negative attitude towards the vaccine is less. The Cronbach Alpha value of the scale was found to be 0.80 (14). In our study, the Cronbach Alpha value of the total score of the scale was 0.73; Positive Attitude Dimension was 0.94, and the Negative Attitude Dimension was 0.89.

Data Analysis

Data were analyzed with IBM SPSS v20 (Chicago, USA). Since the Skewness and

Kurtosis values of the data remained within the +2.0/-2.0 limit range, it was observed that the data showed a normal distribution (15). Socio-demographic characteristics were analyzed as percentage and frequency. The effects of class and COVID-19 vaccination status on the Attitudes Towards COVID-19 Vaccine Scale and the COVID-19 Perception of Control Scale were examined with a 2-way MANOVA. Multiple comparisons were evaluated with Bonferroni. Analysis results were presented as arithmetic mean ± s. deviation. The relationship between the scales was examined by Pearson correlation analysis. The relationship between binary variables and scale scores was analyzed with the Independent sample T test. The data obtained were evaluated at the 95% confidence interval and the significance level of $p<0.05$.

Results

The mean age of the students participating in the study was determined as 20.47±2.14. 37.8% of the students are in the 1st year, 80% have a nuclear family, 56% reside in the province, 66.2% have income equal to their expenses and 79.1% report the pandemic's income status. reported that it had a negative effect (Table 1).

Table 1. Socio-Demographic Characteristics of The Students (N=225)

Variable	**Category**	**Mean±Sd**	**Min-Max (Mediaan)**
Age		20,47±2,14	17- 36 (20)
		n	**%**
Class	1st	85	37,8
	2nd	65	28,9
	3rd	41	18,2
	4th	34	15,1
Family Type	Nuclear family	180	80,0
	Extended family	45	20,0
The effect of the pandemic process on family income	positively impacted	47	20,9
	adversely affected	178	79,1
Family income status	Income less than expense	56	24,9
	More than income	20	8,9
	Equivalent to income expense	149	66,2
Place of residence	Province	126	56,0
	District	76	33,8
	Village	23	10,2
Total		**225**	**100,0**

When the COVID-19 characteristics of the students were examined, 39.6% of them received information about COVID-19 from the Ministry of Health and Official Institutions, 37.8% of them were diagnosed with COVID-19, and any of their families caught 68.4% of them, It was seen that 80.4% were afraid of COVID-19, 92% had COVID-19 vaccine, and the highest rate of not getting vaccinated was 3.1% thinking that substances harmful to health. Although most of the students had the COVID-19 vaccine, it was determined that 34.7% of the students were afraid of the COVID-19 vaccine. It was observed that 62.2% of the participants experienced side effects from the Covid-19 vaccine, and the most common side effect was pain at the injection site, with 26.2% (Table 2).

Table 2. COVID-19 Characteristics of Students

Variable	Category	n	%
Information Resource on the COVID-19 Outbreak	Scientific Research results	12	5,3
	Ministry of Health and Official Institutions	89	39,6
	social environment	7	3,1
	Social media	62	27,6
	TV	55	24,4
Sickness of COVID-19 Disease	Yes	85	37,8
	No	140	62,2
Any family member contracting the COVID-19 outbreak	Yes	154	68,4
	No	71	31,6
Fear during the COVID-19 Pandemic	Yes	181	80,4
	No	44	19,6
COVID-19 vaccination status	Yes	207	92,0
	No	18	8,0
If no, the reason for not getting vaccinated or being undecided.	I got vaccinated	207	92,0
	I think it contains harmful substances	7	3,1
	I don't trust your protection	6	2,7
	Negative media about the vaccine	2	0,9
	I don't trust the country of origin	3	1,3
Your fear of the COVID-19 vaccine	Yes	78	34,7
	No	147	65,3
The situation of experiencing side effects in the Covid-19 vaccine	Yes	140	62,2
	No	85	37,8
Most affecting side effect	Fire	23	10,2
	Headache	19	8,4
	Other	45	20,0
	pain at the injection site	59	26,2
	Weakness	50	22,2
	muscle pain	24	10,7
	chill	5	2,2
Don't think about how Covid-19 will end	with the vaccine	46	20,4
	with drugs	4	1,8
	Spontaneously	79	35,1
	With protection and rules	96	42,7
	Total	**225**	**100,0**

The average score of the students' attitude towards the Covid-19 Vaccine was 3.24±0.59; It was found that the Positive Attitude Sub-Dimension score was 3.26±0.97, and the Negative Attitude Sub-Dimension score was 3.23±0.87. Perception of Control Total Scores Mean was 2.77±0.40, and its sub-dimensions were respectively 2.92±0.97 for Macro Control Sub-Dimension; The Personal (Micro) Control Sub-Dimension was 2.95±0.93, and the Controllability Sub-Dimension was 3.17±0.89.

The relationship between the student's attitudes towards the vaccine and the Perception of Control scores, and the status of their class and being vaccinated against COVID-19 were examined with the MANOVA test. As a result of

the analysis, it was observed that there was a difference between the perception of control and the class (p=0.00). It was seen that this significant difference was due to the 2nd and 4th-grade students, and the control perception scores of the 4th-grade students were higher than the 2nd-grade students. A significant relationship was discovered between attitude towards vaccination and being vaccinated against COVID-19 (p=0.00). It was realized that the significant difference was due to the students who had been vaccinated. It has been observed that the students who have been vaccinated have higher attitudes toward the vaccine. The interaction of class and being vaccinated against COVID-19 has a significant effect only on the attitude toward the vaccine (p=0.02) (Tables 3 and 4).

Table 3. Multiple Comparison Results (MANOVA) of The Attitudes Towards the Covid-19 Vaccine And Control Perception Scale Scores of Students' Class And Their Status of Getting The COVID-19 Vaccine

Factor	Parameter	F*	p	Partial Eta Square
Class	Attitudes Towards Class COVID-19 Vaccine	4,81	0,07	0,06
	COVID-19 Perception of Control Scale	2,40	**0,00**	0,03
	COVID-19 Attitudes Towards COVID-19	0,01	**0,00**	0,00
	COVID-19 Perception of Control Scale	12,33	0,92	0,05
Class* COVID-19 vaccination	COVID-19 Perception of Control Scale	2,57	**0,02**	0,02
	COVID-19 Perception of Control Scale	4,00	0,08	0,04

*MANOVA

Table 4. Descriptive Statistics of Students' Class and COVID-19 Vaccination Status, Their Attitudes Towards Covid-19 Vaccine and Control Perception Scale Scores

Class	COVID-19 vaccination	Attitudes Towards COVID-19 Vaccination Scale	COVID-19 Control Perception Scale
1st class	Yes (n=70)	3,16 ± 0,51	2,72 ± 0,46
	No (n=15)	2,97 ± 0,67	2,84 ± 0,44
	Total(n=85)	3,13 ± 0,54	2,74 ± 0,45
2nd class	Yes (n=63)	3,21 ± 0,51	2,66 ± 0,49
	No (n=2)	2,72 ± 0,39	2 ± 0,12
	Total (n=65)	3,19 ± 0,51	2,64 ± 0,49
3rd class	Yes (n=40)	3,42 ± 0,54	2,85 ± 0,57
	No (n=1)	1,56 ± 0	3,33 ± 0
	Total (n=41)	3,37 ± 0,61	2,86 ± 0,57
4th class	Yes (n=34)	3,46 ± 0,75	2,98 ± 0,46

Table 4.(cont.) Descriptive Statistics of Students' Class and COVID-19 Vaccination Status, Their Attitudes Towards Covid-19 Vaccine and Control Perception Scale Scores

	No (n=0)	3,46 ± 0,75	2,98 ± 0,46
	Tota (34)	3,28 ± 0,57	2,77 ± 0,5
Total	Yes (n=207)	2,86 ± 0,7	2,77 ± 0,51
	No (n=18)	3,24 ± 0,59	2,77 ± 0,5
	Total (n=225)	3,16 ± 0,51	2,72 ± 0,46

When the relation between the scale scores of the COVID-19 vaccine characteristics of the students was examined, it was observed that there was a significant relationship between the total score of fear of the COVID-19 vaccine and the positive attitude sub-dimension score (p values 0.00; 0.00, respectively). It was observed that the students who were afraid of the COVID-19 vaccine had lower attitudes towards the vaccine. A significant relationship was found between the state of having COVID-19 and only the negative attitude score (p=0.04). It was observed that students who had COVID-19 infection had higher negative attitude scores (Table 5).

Table 5. Relationship Between COVID-19 Vaccine Characteristics and Scale Scores

Quality		**Scale of Attitudes Towards COVID-19 Vaccine**	**Positive Attitude Dimension**	**Negative Attitude Dimension**	**COVID-19 Control Perception Scale**	**Macro Control Size**	**Personal (Micro) size**	**Control Size**
Fear of the	Yes	3,05 ± 0,47	2,99 ± 0,98	3,1 ± 0,85	2,68 ± 0,5	2,76 ± 1,05	2,88 ± 0,99	3,15 ± 1,01
COVID-19	No	3,35 ± 0,62	3,4 ± 0,95	3,3 ± 0,88	2,82 ± 0,49	3,01 ± 0,92	2,99 ± 0,91	3,19 ± 0,84
vaccine	Test Request.*	-4,00	-3,11	-1,65	-1,95	-1,85	-0,85	-0,27
	p	**0,00**	**0,00**	0,10	0,05	0,07	0,40	0,79
COVID-19	Yes	3,32 ± 0,61	3,25 ± 0,98	3,38 ± 0,85	2,71 ± 0,49	2,85 ± 1,03	2,85 ± 0,88	3,21 ± 0,8
status	No	3,19 ± 0,58	3,26 ± 0,98	3,14 ± 0,87	2,8 ± 0,5	2,97 ± 0,94	3,02 ± 0,97	3,15 ± 0,95
	Test Request	1,62	-0,08	2,07	-1,31	-0,84	-1,34	0,47
	p	0,11	0,93	**0,04**	0,19	-0,84	0,18	0,64

*Analyzed by Independent Sample T test

The relationship between the scale scores of the students was examined with the Pearson correlation. As a result of the analysis, there was a significant relationship between the scores and sub-dimensions of the scale, except for the Total Attitude Towards COVID-19 Vaccine Score. It was observed that this significant relationship was negative in the Controllability sub-dimension and the Negative Attitude sub-dimension (Table 6).

Table 6. Correlation Between Students' Scale Scores and Sub-Dimensions

Scales N:225	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. COVID-19 Perception of Control Scale Total Score	1						
2. Macro Control Size	,824**	1					
3. Personal (Micro) Control Size	,809**	,603**	1				
4. Controllability Dimension	-,133*	-,450**	-,470**	1			
5. Attitudes Towards COVID-19 Vaccine Scale Total Score	0,12	0,12	0,00	0,07	1		
6. Positive Attitude Dimension	,316**	,399**	,309**	-,319**	,593**	1	
7. Negative Attitude Dimension	-,142*	-,210**	-,274**	,369**	,690**	-,174**	1

* Significant at 0.05 level, ** Significant at 0.01 level, Pearson correlation analysis was used.

Discussion

Despite the availability of a safe and effective vaccine, which is considered a critical tool to avert the COVID-19 pandemic, many people continue to hesitate for a variety of reasons (16). Health science students are an important group whose attitudes and habits towards viral vaccines may influence future behavior (7), and college students' perceptions and behaviors can have a major impact on the spread of the COVID-19 pandemic (8). Therefore, this study was planned to determine the relationship between the perception of COVID-19 control and their attitudes towards the COVID-19 vaccine in midwifery students.

In this research, it was realized that the mean scores of the Students' Attitudes Towards Covid-19 Vaccine scale and the Perception of Control Total Scores were high. It was observed that there was a significant difference between the students' perception of control and their grade level (p=0.00), and the control perception scores of the 4th grade students were higher than the 2nd grade students. This situation can be explained by the fact that the awareness levels of the 4th grade students about the COVID-19 vaccine are higher.

When the literature is examined; In a study by Thorneloe et al. (2020) searching for the willingness of individuals to be vaccinated; it was determined that the vast majority (76.9%) were willing to be vaccinated against COVID-19 (17). In the findings of another study (18), in which attitudes towards vaccines were evaluated, it was determined that 63.5% of individuals were positive about getting a COVID-19 vaccine. In their online study, which included 1600 students, Wotrin et al. examined the COVID-19 vaccination intention and behavior of university students in the USA, and it was found that 50% of the students paid for vaccination, 49% did not think about getting vaccinated, and 22% were undecided (19). In the study of Lo moro et al., in which they examined Vaccine Hesitancy and Fear of COVID-19 among Italian Medical Students, and they included 929 medical students, it was reported that vaccine hesitancy was 6.7% (20). In a study by Kecojevic et al., in which they examined COVID-19 Vaccination and Intention to Vaccinate among their students at a university in New Jersey, including 457 university students, it was reported that 23% (n = 105) of the students were already vaccinated (21). In our country, Gökdemir et al., in their study in which they examined the COVID-19 vaccine opposition in university students and examined 1238 students, showed that the vaccination rejection rate of 462

midwifery and nursing students included in the study was 97.8%. It was observed that the students did not trust the vaccine and therefore did not want to be vaccinated (13). In the study of Turan et al., which included 172 midwifery students in which they examined COVID-19 vaccine refusal in midwifery students, it was observed that 118 (68%) of the students were hesitant to get vaccinated (12). In the study of Alantekin-Özçoban et al., which included 1892 midwifery students in which they examined COVID-19 vaccine refusal in midwifery students, it was determined that 65.7% (1235) of the students did not want to be vaccinated against COVID-19 (11). When the findings of the current study were examined, it was seen that it was compatible with the world literature, contrary to the studies conducted in our country, midwifery students had a positive attitude towards the COVID-19 vaccine, the vaccination rate was 92% and the vaccine rejection rate was 2%.

When the reasons for students not getting the Covid-19 vaccine were examined, it was observed that most (38.75%) thought that there was a harmful substance in the vaccine. In another study conducted to determine the relationship between the Perception of Covid-19 Control and Attitudes towards the Covid-19 Vaccine in individuals, it was determined that individuals (34.1%) did not trust the protection of the vaccine and did not look positively to getting vaccinated (22). Tutku et al. (2020), as a result of the study they carried out to compare the Health Anxiety Levels of Individuals with the Perception of Control of the COVID-19 Epidemic, it was determined that the level of health anxiety affected the perception of control of the COVID-19 epidemic negatively (23).

In this study, it was determined that the students who were afraid of the COVID-19 vaccine had lower attitudes towards the vaccine. It is understood that the findings of both studies overlap with each other. In this case, it can be said that as individuals' awareness levels increase, their attitudes towards the vaccine and their belief in the protection of the vaccine increase. These results were compatible with our study.

It has been determined that there is a positive and significant relationship between the COVID-19 Perception of Control Scale and the Positive Attitude Dimension of the Attitudes towards the COVID-19 Vaccine Scale, and a weak relationship with the Negative Attitudes Dimension in the negative direction. Elmaoglu et al. (2021), it was seen that there was a negative correlation between the negativity sub-dimension of the Attitudes towards COVID-19 Vaccine Scale and the total score of the COVID-19 Control Perception Scale, but there was no significant correlation (22). It was determined that there was a strong positive correlation between the COVID-19 Control Perception Scale total score of the students and the Macro sub-dimension and the Micro (personal) sub-dimension. It was determined that there was a weak negative correlation with the Controllability sub-dimension. In another study, it was found that the total score of the Attitudes Towards COVID-19 Vaccine Scale and the Macro sub-dimension of the COVID-19 Control Perception Scale and the Micro (personal) sub-dimension were positive, but the relationship was not significant (22).

In our research, it was determined that the students who were afraid of the COVID-19 vaccine had lower attitudes towards the vaccine. People may experience hesitations about getting the vaccine, especially with regard to the acceptance of newly released vaccines, considering that adequate testing is not carried out or that a new vaccine is not needed. The fact that people have a newly produced vaccine may be associated with a high risk of vaccine-preventable disease. and in favor of vaccination (24).

Limitations of the Study: This study was conducted in a single-center university, so the sample size is small.

Conclusion

In our study, it was realized that the vaccination rate of the students was high with 92%. It was observed that the majority of students who refused to be vaccinated refused because they did not trust the content of the vaccines. It was determined as an important result of the study that students' COVID-19 vaccination attitude and their perception of COVID-19 control were affected by their class and vaccination status. This

result, which increases the perception of control as the grade increases, suggests that it is due to the health awareness of the students. In addition, it is seen that as the perception of control increases, the vaccination attitude also increases. It may be suggested to health sciences faculties to organize trainings, symposiums and panels on immunization so that students become aware of COVID-19 vaccine in earlier grades and increase the rate of vaccination. Since there are not enough studies examining the COVID-19 vaccine attitude and the perception of COVID-19 control of midwifery students, it is an important contribution of the study that this study can guide the literature, lay the groundwork for other studies and is a reference to other studies. Further studies are needed to examine the COVID-19 vaccine attitude and the perception of COVID-19 control of health sciences and midwifery students.

Statements and declarations

Competing interests The authors have no relevant financial or nonfinancial interests to disclose.

References

1. Yüksekol ÖD, Orhan İ, Yılmaz AN. Midwifery and Nursing Students' Information about the Covid 19 Epidemic and the Precautions They Take for Protection. Acıbadem University Journal of Health Sciences. 2021;12(2):487–95.

2. Çelebi E. Midwifery Students' Protective Behaviors Related to COVID-19 Infection, Risk Perceptions and COVID-19 Vaccine Acceptance. KTO Karatay University Journal of Health Sciences. 2022;3(1):31–42.

3. WHO. Coronavirus disease (COVID-19) advice fort he public [Internet]. 2022 [cited 2022 Nov 7]. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

4. Yavuz E. COVID-19 vaccines. Turkish Journal of Family Medicine. 2020;24(4):223–34.

5. Abohelwa M, Elmassry M, Abdelmalek J, Payne D, Nugent K. 2019 novel coronavirus vaccination among post-graduate residents and fellows. Journal of Primary Care & Community Health. 2021;12:21501327211022976.

6. Gautier S, Luyt D, Davido B, Herr M, Cardot T, Rousseau A, et al. Cross-sectional study on COVID-19 vaccine hesitancy and determinants in healthcare students: interdisciplinary trainings on vaccination are needed. BMC medical education. 2022;22(1):1–12.

7. Willis GA, Bloomfield L, Berry M, Bulsara C, Bulsara M, Chaney G, et al. The impact of a vaccine mandate and the COVID-19 pandemic on influenza vaccination uptake in Western Australian health care students. Vaccine. 2022;40(39):5651–6.

8. Peng Y, Pei C, Zheng Y, Wang J, Zhang K, Zheng Z, et al. A cross-sectional survey of knowledge, attitude and practice associated with COVID-19 among undergraduate students in China. 2020;20(1):1–8.

9. Kim JS, Choi JS. Middle East respiratory syndrome–related knowledge, preventive behaviours and risk perception among nursing students during outbreak. Journal of clinical nursing. 2016;25(17–18):2542–9.

10. Patwary MM, Bardhan M, Haque MZ, Sultana R, Alam MA, Browning MH. COVID-19 vaccine acceptance rate and its factors among healthcare students: A systematic review with meta-analysis. Vaccines. 2022;10(5):806.

11. Aslantekin-Özçoban F, Uluşen M, Yalnız-Dilcen H, Çilesiz E. Are midwifery students ready for the COVID-19 vaccine? The decision to vaccinate and affecting factors. Human Vaccines & Immunotherapeutics. 2021;17(12):4896–903.

12. Turan A, Kaya C, Gençtürk N. Inactivated COVID-19 vaccine hesitancy among midwifery students: a prospective online survey. Journal of Obstetrics and Gynaecology. 2022;1–6.

13. Gokdemir O, Yoruk S, Koca B, Acikgoz A. Vaccine hesitancy among university students of healthcare. Medicine. 2022;11(4):1581–7.

14. Geniş B, Gürhan N, Koç M, Geniş Ç, Şirin B, Çırakoğlu OC, et al. Development of perception and attitude scales related with

COVID-19 pandemia. Pearson journal of social sciences-humanities. 2020;5(7):306–28.

15. George D. SPSS for windows step by step: A simple study guide and reference, 17.0 update, 10/e. Pearson Education India; 2011.

16. Li H. To vaccinate or not: The relationship between conscientiousness and individual attitudes toward vaccination in real-life contexts. Scandinavian Journal of Psychology. 2022;63(4):376–82.

17. Thorneloe R, Wilcockson H, Lamb M, Jordan CH, Arden M. Willingness to receive a COVID-19 vaccine among adults at high-risk of COVID-19: a UK-wide survey [Internet]. PsyArXiv; 2020. Available from: https://psyarxiv.com/fs9wk/

18. Paul E, Steptoe A, Fancourt D. The Lancet Regional Health—Europe Attitudes towards vaccines and intention to vaccinate against COVID-19: Implications for public health communications. Lancet Reg Health Eur. 2021;1.

19. Wotring AJ, Hutchins M, Johnson MK, Ferng SF, Strawser C, Pfrank H, et al. COVID-19 vaccine uptake among college students at a midwest university. Journal of Community Health. 2022;47(2):292–7.

20. Lo Moro G, Cugudda E, Bert F, Raco I, Siliquini R. Vaccine Hesitancy and Fear of COVID-19 Among Italian Medical Students: A Cross-Sectional Study. Journal of Community Health. 2022;1–9.

21. Kecojevic A, Basch CH, Sullivan M, Chen YT, Davi NK. COVID-19 vaccination and intention to vaccinate among a sample of college students in New Jersey. Journal of community health. 2021;46(6):1059–68.

22. Elmaoğlu E, Sungur M, Yavaş Çelik M, Öztürk Çopur E. The Relationship Between Perception of Covid-19 Control and Attitudes Towards Covid-19 Vaccine in Individuals. Journal of Society & Social Work. 2021;32(5).

23. Ekiz T, Ilıman E, Dönmez E. Comparison of Individuals' Health Anxiety Levels and Covid-19 Epidemic Control Perception. International Journal of Health Management and Strategies Research. 2020;6(1):139–54.

24. Argüt N, Yetim A, Gökçay G. Factors affecting vaccine acceptance. Children's Magazine. 2016;16(1):16–24.