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Hemşirelik Öğrencilerinin COVID-19 Aşısına İlişkin Görüşleri: Tanımlayıcı, Kesitsel Bir Çalışma

Nursing Students' Opinions About the COVID-19 Vaccine: A Descriptive, Cross-Sectional Study

[1]Selmin KÖSE, [2]Zeynep ERKUT, [3]Müjde ÇALIKUŞU İNCEKAR, [4]Sevim SAVAŞER

[1]Department of Nursing, Faculty of Health Sciences, Biruni University, Istanbul, Turkey
[2]School of Nursing, Maltepe University, Istanbul, Turkey
[3]Department of Nursing, Faculty of Health Sciences, Yüksek İhtisas University, Ankara, Turkey
[4]Faculty of Health Sciences, Biruni University, Istanbul, Turkey

Selmin Köse: https://orcid.org/0000-0003-4958-6228
Zeynep Erkut: https://orcid.org/0000-0002-7299-787X
Müjde Çalıkuşu İncekar: https://orcid.org/0000-0002-4472-2406

ÖZ

Amaç: Bu araştırmanın amacı hemşirelik öğrencilerinin COVID-19 aşısına ilişkin görüşlerini belirlemektir.

Materyal ve Metot: Tanımlayıcı, kesitsel tasarımda olan bu araştırma İstanbul'da bulunan dört üniversitenin hemşirelik bölümünde öğrenim gören 1008 öğrenci ile gerçekleştirildi. Veriler "Bilgi Formu'' aracılığıyla online olarak toplandı.

Bulgular: Araştırmada öğrencilerin %85,7'sinin COVID-19 aşısı olmadığı, aşı olmayan öğrencilerin ise %44,8'inin aşı yaptırmayı düşünmediği veya karasız olduğu bulundu. Öğrencilerin COVID-19 aşısı yaptırmayı düşünmeme veya kararsızlık nedenleri arasında en sık; aşının çok hızlı sürede üretilmiş olması, aşının koruyuculuğuna veya içeriğine güvenmeme, aşı hakkında yeterli bilgi sahibi olmama olduğu belirlendi. Öğrencilerin sınıf düzeyi (p= 0,000), üniversite türü (p= 0,000), COVID-19 hastalığı (p = 0,028) ve aşısı (p= 0,000) ile ilgili bilgi düzeyleri ile aşı yaptırmayı düşünme durumları arasında anlamlı fark olduğu belirlendi.

Sonuç: Öğrencilerin çok az bir bölümünün aşı olduğu, aşı olmayan öğrencilerin yarısına yakınının aşı olmayı düşünmediği veya kararsız oldukları belirlendi. Öğrencilerin COVID-19 aşısına bakış açısını belirlemek çok disiplinli eğitim stratejilerinin planlanmasında yardımcı olabilir.

Anahtar Kelimeler: Aşılama, COVID-19 aşıları, hemşirelik, immünizasyon

ABSTRACT

Objective: This study aims to identify the nursing students' opinions about the COVID-19 vaccine.

Materials and Methods: This descriptive, cross-sectional study was realized with 1008 students enrolled in the nursing departments of four universities located in Istanbul. Data were collected online with Information Form.

Results: 85.7% of the students did not get a COVID-19 vaccine, and 44.8% of the unvaccinated students did not think about getting a vaccine or were indecisive. The reasons for the students' not thinking about getting the vaccine or their indecisiveness about it were most frequently the vaccine having been produced in a very short time, not trusting the protection or content of the vaccine, not having enough information about the vaccine. A significant difference was found between the students' grade (p= 0.000), type of university (p= 0.000), knowledge level about the COVID-19 illness (p= 0.028) and vaccine (p= 0.000) and their thinking about getting vaccinated.

Conclusion: It was found that a tiny part of the students was vaccinated; almost half of the unvaccinated students did not think about getting vaccinated or were indecisive. Understanding the student's perspective on the COVID-19 vaccine can be helpful in planning multidisciplinary education strategies.

Keywords: COVID-19 vaccines, immunization, nursing, vaccination

Sorumlu Yazar / Corresponding Author:
Zeynep Erkut
School of Nursing, Maltepe University, Istanbul, Turkey. Büyükbakkalköy, Marmara Eğitim Köyü, 34857 Maltepe/Istanbul, Turkey
Tel: +90535 361 00 75
E-mail: erkutzeynep@hotmail.com

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INTRODUCTION

The new type of coronavirus (COVID-19, 2019-nCoV) was first reported in Wuhan, China and rapidly spread to the entire world, leading to a pandemic.[1] Behaviors that are preventive for contracting the COVID-19, such as masks, social distance, and hygiene, prevent the virus from spreading effectively. Immunization, however, is important for the long-term control of the pandemic.[2] Vaccination is a safe, efficient, and cost-effective method in preventing epidemics at every age.[3] It is reported that it is possible to take the pandemic under control by creating herd immunity if 67% of the population is vaccinated.[4]

It is known that situations caused by the pandemic, such as common anxiety, death, social isolation, psychological exhaustion, despair, and burn-out, positively affect the opinions of people about the vaccine,[5] while there are individuals who are hesitant about or completely refuse the vaccine.[5,6] In an international study, it was found that the ratio of individuals who are not willing to get a COVID-19 vaccine in the society ranges between 2% and 55% (China: 2-6%, Egypt: 3%, Czechia: 43%, Turkey: 44%, Russia: 55%).[4] In a questionnaire conducted in the USA in May 2020, 20% of the participants did not plan to get vaccine, and 31% were indecisive.[7] In a study made in European states (Denmark, France, Germany, Italy, Portugal, Netherlands, England), it was reported that 18.9% of the participants were indecisive about having a vaccine, and 7.2% did not want to get a vaccine.[8] The reasons for negative opinions about the COVID-19 vaccine were reported to include the disease being very new, the vaccine having been developed in a very short time, its side effects not being known entirely yet, and distrust in scientists who developed the vaccine.[2,5,9-12]

States and elected authorities, academia, vaccine producers, global agencies, media, and the private sector should cooperate to improve vaccination rates.[13] Practices such as improving the credibility and reliability of healthcare institutions and specialists, sharing accurate information about the vaccine with the entire world, fairly distributing vaccines, and using the media to increase educational programs about the importance of vaccination can positively affect the society's preference for vaccination.[5,14]

In line with all this information, identifying the opinions about vaccination and tendencies of getting vaccinated of candidate nurses holds an important position for increasing vaccination rates in society. For this reason, this study was conducted to identify the nursing students' opinions about the COVID-19 vaccine.

MATERIALS AND METHODS

Ethics Committee Approval: The ethical approval for the study was obtained from Biruni University, Non-Invasive Clinical Trials Ethical Board (Date: 19/03/2021, decision no: 2021/49-04). All procedures have been carried out in accordance with the Helsinki Declaration.

Study Design and Participants: A descriptive, cross-sectional design was used in this study. The study population comprised the students enrolled in the nursing departments of 4 universities (2 state and 2 private) in total located in Istanbul (N: 1.976). In determining the number of participants to be involved in the study, using the sampling method with a known population, within 99% confidence interval, taking p (probability of an event happening) = 0.5; and q (probability of an event not happening) = 0.5; with a sampling error of ±5%, the number of samples was determined as 497 students as a minimum. 1008 students who complied with the study criteria and accepted to be involved in the study created the sample. Criteria of inclusion in the study were volunteering for the study, being a student in the nursing department, and filling out the items in the information form in full.

Data Collection: Study data was collected with the "Information Form" prepared as a result of the literature review by the researchers.[2,10-12,14] The information form included multiple-choice and open-ended 22 questions which ask about the students' socio-demographics and opinions about the COVID-19 vaccine. Necessary permissions were obtained from the chanceries of universities where the study was collected in the first stage. The Information Form was shared online (via Google Forms) with a nursing department lecturer from each university. They were asked to share this form with the students in the nursing department, and a question form link was sent to the participants via Google Forms. The question form was only accessible by the participants who received the link. Google Forms requires an IP address or e-mail of the user when it is desired to change the answer provided by the user. However, as no change was required on the answers provided in this study, no personal information was asked from the participants. The students were able

to access the question form between March 20 – May 30, 2021. During this period, the students were sent a reminder e-mail two times 15 days apart. In this period, 1008 students answered the question form. Data was only accessible by the researchers after the participant approved. Data that was converted into an Excel file was transferred to SPSS for statistical analysis.

Statistical Analysis: While evaluating the study's findings, IBM SPSS (statistical package for social sciences) V20.0 was used for statistical analysis. Mean, and standard deviation was used for quantitative data and frequency distribution for qualitative data. Among the parametric methods, the chi-square test was used for the comparison of data by groups. The results were evaluated in a 95% confidence interval and at a $p<0.05$ level of significance.

RESULTS

Table 1. Students' socio-demographics and their knowledge about COVID-19.

Characteristics	**Mean ± SD**
Age (years) (n=1008)	21.08 ± 2.35
	n (%)
Gender (n=1008)	
Female	832 (82.5)
Male	176 (17.5)
Grade in school (n=1008)	
1st grade	240 (23.8)
2nd grade	334 (33.1)
3rd grade	267 (26.5)
4th grade	167 (16.6)
Type of university (n=1008)	
Private	560 (55.6)
State	448 (44.4)
Chronic disease (n=1008)	
Yes	90 (8.9)
No	918 (91.1)
COVID-19 test done (n=1008)	
Yes	508 (50.4)
No	500 (49.6)
COVID-19 test result (n=508)	
Positive	131 (25.8)
Negative	377 (74.2)
Trust in the test result (n=1008)	
I do not trust at all	39 (3.9)
I trust a little	657 (65.1)
I completely trust	312 (31.0)
A relative diagnosed with COVID-19 (n=1008)	
Yes	752 (74.6)
No	256 (25.4)
A relative lost due to COVID-19 (n=1008)	
Yes	231 (22.9)
No	777 (77.1)
I think I have enough knowledge about COVID-19 (n=1008)	
Yes	488 (48.4)
No	520 (51.6)

SD: Standard deviation.

It was established that the students' mean age was 21.08±2.35 (years), 82.5% of them were female, 33.1% were in the second grade, 55.6% were enrolled in a private university, 91.1% did not have a chronic disease, 50.4% got a COVID-19 test and 74.2% of those who got a test had negative results. 65.1% of the students slightly relied on the test results, 74.6% had one of their relatives diagnosed with COVID-19, 22.9% lost one of their relatives due to COVID-19, and 51.6% stated they did not have sufficient information about COVID-19 (Table 1).

85.7% of the students did not get a COVID-19 vaccine, and if they were able to choose, 61.3% would prefer an mRNA vaccine. Only 14.3% of the participants got a COVID-19 vaccine, 54.2% of those who got a vaccine did not experience any side effects, while 45.8% did so. Among those who experienced a side effect, 24.0% expressed pain in the administration area, 5.6% headache, 4.9% symptoms of

Table 2. Students' opinions about the COVID-19 vaccine.

Characteristics	**n (%)**
COVID-19 vaccination status (n=1008)	
Yes	144 (14.3)
No	864 (85.7)
Which vaccine to prefer if there is an option (n=1008)	
mRNA	618 (61.3)
Inactive	286 (28.4)
Viral vector	104 (10.3)
Experienced side effects (n=144)	
Yes	66 (45.8)
No	78 (54.2)
Thinking about getting a COVID-19 vaccine (n=864)	
Yes	477 (55.2)
No	101 (11.6)
Indecisive	286 (33.2)
I think I have enough knowledge about the COVID-19 vaccine (n=1008)	
Yes	436 (43.3)
No	572 (56.7)
I follow scientific studies about the COVID-19 vaccine (n=1008)	
Yes	693 (68.8)
No	315 (31.2)
I recommend my relatives get a COVID-19 vaccine (n=1008)	
Yes	783 (77.7)
No	225 (22.3)
I use social media (n=1008)	
Yes	948 (94.0)
No	60 (6.0)
I have seen a comment about anti-vaccination on social media (n=948)	
Yes	720 (75.9)
No	228 (24.1)
Do you think the COVID-19 vaccine should be compulsory? (n=1008)	
Yes	545 (54.1)
No	463 (45.9)

cold, 4.2% mild fever, 3.5% nausea. Among the students who did not have a COVID-19 vaccine, 55.2% stated they thought about getting the vaccine, 56.7% stated they did not have enough knowledge about the COVID-19 vaccine, and 68.8% stated they were following scientific studies about the COVID-19 vaccine. 77.7% of the participants stated they could recommend their relatives to get a COVID-19 vaccine, and 54.1% stated that the COVID-19 vaccine should be compulsory. 94% of the students stated they used social media, and among those who used social media, 75.9% stated they saw a comment about anti-vaccination on social media (Table 2).

Comparing some variables with the students' thinking about getting vaccinated; there was no statistically significant difference between gender, chronic disease, loss of a relative due to COVID-19, following scientific publications about COVID-19 and the preferred type of vaccine of those who were thinking about getting vaccinated and the status of thinking about getting vaccinated ($p>0.05$). Comparing the grade in school ($p = 0.000$), type of university ($p = 0.000$), level of knowledge about the COVID-19 disease ($p = 0.028$) and vaccine ($p = 0.000$) with the status of thinking about getting vaccinated, there was a significant difference between them (Table 3).

Table 3. Comparison of the students' thinking about getting vaccinated and some variables.

Variables	**Thinking about getting vaccinated**			
	Yes n (%)	**No n (%)**	**Indecisive n (%)**	**χ^2 p**
Gender (n=864)				
Female	395 (55.8)	83 (11.7)	230 (32.5)	$\chi^2 = 0.694$
Male	82 (52.6)	18 (11.5)	56 (35.9)	$p = 0.707$
Grade in school (n=864)				
1st grade	135 (56.5)	19 (7.9)	85 (35.6)	
2nd grade	200 (61.9)	38 (11.8)	85 (26.3)	**$\chi^2 = 47.863$**
3rd grade	129 (53.3)	25 (10.3)	88 (36.4)	**$p = 0.000$**
4th grade	13 (21.7)	19 (31.7)	28 (46.7)	
Type of university (n=864)				
State	245 (67.1)	27 (7.4)	93 (25.5)	**$\chi^2 = 37.306$**
Private	232 (46.5)	74 (14.8)	193 (38.7)	**$p = 0.000$**
I think I have enough knowledge about COVID-19 (n=864)				
Yes	241 (59.5)	48 (11.9)	116 (28.6)	**$\chi^2 = 7.149$**
No	236 (51.4)	53 (11.5)	170 (37.0)	**$p = 0.028$**
I think I have enough knowledge about the COVID-19 vaccine (n=864)				
Yes	237 (64.8)	36 (9.8)	93 (25.4)	**$\chi^2 = 23.697$**
No	240 (48.1)	65 (13.1)	193 (38.8)	**$p = 0.000$**
Chronic disease (n=864)				
Yes	35 (46.1)	9 (11.8)	32 (42.1)	$\chi^2 = 3.308$
No	442 (56.1)	92 (11.7)	254 (32.2)	$p = 0.191$
A relative lost due to COVID-19 (n=864)				
Yes	118 (57.0)	21 (10.1)	68 (32.9)	$\chi^2 = 0.720$
No	359 (54.6)	80 (12.2)	218 (33.2)	$p = 0.698$
I follow scientific publications about COVID-19 (n=864)				
Yes	344 (57.7)	62 (10.4)	190 (31.9)	$\chi^2 = 5.783$
No	133 (49.6)	39 (14.6)	96 (35.8)	$p = 0.055$
Preferred vaccine type of those who are thinking about getting a COVID-19 vaccine (n=864)				
mRNA	296 (55.6)	61 (11.5)	175 (32.9)	
Inactive	130 (54.6)	28 (11.8)	80 (33.6)	$\chi^2 = 0.191$ $p = 0.996$
Viral vector	51 (54.2)	12 (12.8)	31 (33.0)	

χ^2: Chi-square test.

Table 4. Reasons for the students who did not think about getting a COVID-19 vaccine or were indecisive for not getting a vaccine.

Reasons*	**n (%)**
The vaccine was developed too fast	214 (37.9)
I do not trust its protectiveness	192 (34.0)
I do not trust its content	179 (31.7)
I do not have enough knowledge about the vaccine	172 (30.5)
I think there are too many side effects	153 (27.1)
I have heard/read negative things about the vaccine	138 (24.5)
I think authorities have approved the vaccine too early	128 (22.7)
There are deaths due to the vaccine	128 (22.7)
I believe refusal of vaccination is an individual right	94 (16.7)
I think the vaccine will bring profits to its producers rather than preventing the disease	92 (16.3)
I do not think it will produce enough antibodies	84 (14.9)
I have negative opinions about the vaccine and pharmaceutical companies	71 (12.6)
I am waiting for the vaccine to be developed in our country	60 (10.6)
The explanations of anti-vaxxers have negatively influenced me	52 (9.2)
It was developed with newer technologies than routinely administered vaccines	41 (7.3)
I do not trust the healthcare system	39 (6.9)
I am afraid of injection	12 (2.1)
Due to my beliefs/religion	11 (2.0)
I do not think it is stored in suitable conditions	10 (1.8)

*: Multiple choices were marked.

When students were asked about their reasons for not considering or undecided about getting a COVID-19 vaccine; 37.9% of them stated the vaccine was developed in a very short time, 34% did not trust the protectiveness of the vaccine, 31.7% did not trust its content, 30.5% stated they did not have enough knowledge about the vaccine, 27.1% thought the side effects were too many, 24.5% heard/read negative things about the vaccine, 22.7% due to vaccine mortalities, 22.7% thought the state authorities approved the vaccine too early, 16.7% considered refusal of vaccination was an individual right (Table 4).

DISCUSSION AND CONCLUSION

This study identified the opinions of nursing students about the COVID-19 virus that impacted the entire world and the vaccines developed for this virus. Our study reported that %50.4 of the students had a COVID-19 test and tested negative, and they did not trust much in the COVID-19 test result due to the high probability of a false outcome. Identification of COVID-19 cases is realized by determining the nucleic acid strands of the virus, such as real-time reverse transcription-polymerase chain reaction (RRT-PCR), verified with the nucleic acid strand.[15] A study reported an RRT-PCR sensitivity of 72% in phlegm, 63% in the nasal swab, and 32% in the throat swab.[16] The difference in the sensitivity of the PCR test might have caused hesitation in the students towards the tests.

Our study found out that most of the students had one of their relatives diagnosed by COVID-19, and 22.9% of the students lost a relative. According to the WHO data, more than 250 million people caught the COVID-19 virus, and more than five million lost their lives.[17] According to the Republic of Turkey, Ministry of Health data, it was reported that the total cases of COVID-19 were more than 9 million, and up to 78 thousand people lost their lives.[18] It is of utmost importance to take protective and therapeutic measures against the COVID-19 pandemic that has been profoundly impacting the world population since December 2019.

In our study, the students stated that there was not enough scientific proof about the COVID-19 pandemic; similarly, they did not find their knowledge about the COVID-19 vaccine enough despite following the literature about the vaccine. A study reported that nursing students' knowledge level about the vaccine development process was low,[19] and their knowledge level could be improved about the disease and the vaccines developed for the disease with regular and efficient training.

Our study determined that almost all of the students (94%) used social media, and they saw comments about anti-vaccination in social media. A study reported that of the students in medicine and health sciences, 65.17% got information about COVID-19 from social media (Facebook, WhatsApp, YouTube,

and Instagram).[20] Another study examined more than 78 million tweets about the vaccine on Twitter. As a result of this examination, it was determined that misinformation about the disease and the vaccine was common. Furthermore, questions about wearing a mark, reaching herd immunity, and the disease itself were more common at the beginning of the pandemic, and later on, issues such as ensuring the safety of the family with vaccination and struggling with online disinformation campaigns became more common.[21]

Our study stated that they recommended their relatives to get a COVID-19 vaccine (77.7%), and the vaccine should be compulsory (54.1%). Manning et al.[19] found out in their study that the students stated the vaccine could be compulsory after guaranteeing the vaccine's safety, and they emphasized the importance of organizing training programs about the safety and benefits of the vaccine. 14.3% of the students in our study stated they were vaccinated and 45.8% of the vaccinated students reported experiencing side effects. Since most of the vaccinated students were in the 4th grade and used to be in the hospital environment for administration, they got the vaccine. Most of the students stated they would prefer the vaccine developed with the mRNA technique. The first COVID-19 vaccine started to be administered as an mRNA vaccine in December 2020.[22] As of December 22, 2021, 8.649.057.088 doses of vaccine in total were administered across the world.[17] have been administered with vaccines developed with mRNA, inactive, and viral vector techniques.[23]

In Turkey, the vaccination process began in January 2021, and up to 128 million doses of vaccine have been administered[18] with vaccines developed with mRNA and inactive techniques so far.[23] Furthermore, the WHO reports that as of December 2021, 137 vaccines are in clinical development, and 194 vaccines are in pre-clinical development worldwide.[24]

Our study found out that 55.2% of the students were willing to get vaccinated. A study made in the USA reported that the rate of willingness to be vaccinated in nursing students was 45.3%;[19] and a study made with nursing students in 7 universities in Greece, Albania, Cyprus, Spain, Italy, Czechia, and Kosovo reported that the rate of wholly or partially willing to get vaccinated among the students was 43.8%.[25] Compared to the literature,[19,25] the rate of willingness to get vaccinated was higher in our students. The rate of willingness for the vaccine was reported to be 51.1% among the healthcare employees in Greece,[26] 26.7% among Arab healthcare employees,[27] 48.3% among the healthcare employees working in Greece and the Republic of Cyprus,[28] 61% in nurses and 78% in doctors in Israel[9] and 63% in nurses in China.[11] Vaccine hesitancy is a significant obstacle to eradicating epidemics that are preventable with vaccination.[29] Possible hesitations include reduced safety, low-risk perception about getting sick, belief that it could leave a sequel in the long term, and different moral values.[9,30] Nurses have a unique position to increase the COVID-19 vaccine uptake for their essential roles undertaken in the care of COVID-19 patients.[11,29] Developing vaccine policies, organizing campaigns for raising awareness among students, and offering free vaccines will increase vaccination rates.[25]

Our study stated that they were hesitant about the vaccine and did not plan to get vaccinated because the vaccine was developed too fast, tests were insufficient, and they did not trust its protectiveness. Many other studies yielded outcomes that support ours.[9,19,26] In a study made with nursing students in seven European states, the reasons for students not wanting to get vaccinated were listed as their concerns about its safety, efficiency, and effectiveness and their belief that nothing bad will happen even if they are infected, and vaccines are not necessary.[26]

In conclusion, according to the results of this study made with one thousand eight nursing students; about half of the students stated that they did not think about getting a COVID-19 vaccine or they were indecisive, more than half of them think they did not have enough knowledge about the COVID-19 vaccine despite following scientific publications, most of them had a relative who was diagnosed with COVID-19, and they frequently encountered statements about anti-vaccination on social media in this process. However, they recommended to their relatives to get a COVID-19 vaccine. Understanding the student's perspective on the COVID-19 vaccine and promoting health participation and awareness can be helpful in planning adequate response and multidisciplinary education strategies in the post-pandemic period. In the light of these findings, considering the fact that global pandemics occur every ten years, developing vaccination policies and campaigning for improving awareness in public, involving university administrations into vaccination campaigns for improving the knowledge and awareness of university students in this field and creating peer training programs for vaccine awareness involved with students

can increase the rates of vaccination.

Ethics Committee Approval: This study was approved by the Non-Invasive Clinical Trials Ethical Board at the Biruni University, Turkey (Date: 19/03/2021, decision no: 2021/49-04).

Conflict of Interest: No conflict of interest was declared by the authors.

Author Contributions: Concept – SK, ZE, SS; Supervision – SK, SS; Materials – SK, ZE; Data Collection and/or Processing – SK, ZE; Analysis and/or Interpretation – SK, ZE, MÇİ; Writing – SK, ZE, MÇİ, SS.

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