ISSN: 2717-8161 RESEARCH ARTICLE

New Trend Med Sci 2023; 4(3):126-130. https://dergipark.org.tr/tr/pub/ntms

Evaluation of Knowledge and Attitudes Concerning Adult Immunization in University Students Enrolled in Health-Related Departments: A Cross-Sectional Study

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Article History
Received 14 Apr Nov 2023
Accepted 10 Aug 2023
Published Online 21 Sep 2023

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Doi: *10.56766/ntms.1283194*

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Abstract: Immunization is the most effective and reliable method of protection from infectious diseases in both children and adults. This research aims at evaluating the knowledge and attitudes concerning adult immunization of students in health-related fields. A descriptive cross-sectional study was conducted among all final-year students studying health at the Erzincan Binali Yıldırım University using a questionnaire including sociodemographic data as well as knowledge and attitudes about adult vaccination. The statistical data were analyzed by number and percentage using Statistical Package for the Social Sciences, version 21.0. A total of 379 students took part in the study, and 19% of the students reported having sufficient knowledge about adult immunization. It was observed that for the participants, among the vaccines administered in adulthood, the hepatitis B and the meningococcus vaccines were the most and least familiar, respectively. When asked about knowledge and attitudes concerning vaccines administered in adulthood, the respondents proved uninformed about many vaccination practices. It was observed that the students participating in the study did not have sufficient knowledge and sensitivity about adult vaccination. In order to increase adult immunization rates, it would be appropriate to eliminate the deficiencies in this subject in pre-graduate education.

Keywords: Adult Immunization; Attitude; Knowledge; University Students.

1. Introduction

Immunization is one of the most effective and safest health services provided to prevent and protect individuals against infectious diseases through the artificial stimulation of their immune systems [1]. Life expectancy at birth and the percentage of the elderly in the population have been steadily increasing worldwide owing to the efforts to combat infectious diseases alongside improved environmental conditions and protective health services [2, 3].

Although adulthood is the healthiest period of life, the risks of infectious diseases persist. The protection of childhood vaccines in adult and old age does not last a lifetime, and the immunity provided by primary immunization decreases with age. Infections tend to be more severe with age, and the susceptibility of people who were not fully immunized in childhood to infectious diseases increases. Therefore, there is a need to continue providing immunization services for both adults and children [1].

Cite this article as: Salcan S and Kavuncuoğlu D. Evaluation of Knowledge and Attitudes Concerning Adult Immunization in University Students Enrolled in Health-Related Departments: A Cross-Sectional Study. *New Trend Med Sci.* 2023; 4(3):126-130. Doi: 10.56766/ntms.1283194

Students enrolled in health-related departments at universities are expected to play an active role in the health services of the future. As they are the group that require, apply, and recommend immunization in the community, their knowledge of and attitude toward adult immunization are particularly important. However, in many studies conducted with health department students, it has been observed that the lack of knowledge and practice about adult immunization and the education they receive before graduation is insufficient [4, 5].

Health workers have a considerably higher risk of exposure to vaccine-preventable diseases and a higher risk of infecting their patients; thus, shaping their attitudes toward vaccination is critical [6, 7].

This research is aimed at evaluating the knowledge and attitude concerning adult immunization among the students in health-related fields at Erzincan Binali Yıldırım University, Turkey.

2. Material and Methods

This descriptive study involved students enrolled in the health-related departments at Erzincan Binali Yıldırım University. All students were informed about the research and consented to take part in it. Thus, all final-year students in the Medicine, Pharmacy, and Health Sciences Faculties and Health Sciences Vocational School were included in the study. After obtaining the necessary permissions, a questionnaire was applied to the students between November and December 2019 by using the face-to-face interview technique. The questionnaire response time was approximately 20 minutes.

There is no validated scale that measures immunization knowledge level and attitude in adults. The questionnaire form, which is the data collection tool used in the research, was prepared by the researchers by searching the relevant literature [4, 5]. In the questionnaire used, there are 28 questions in total that determine sociodemographic information (age, gender, faculty), general information about vaccines, attitudes and behaviors. In the knowledge and perception section about vaccines, the participants were asked about known vaccines related to adult vaccination (flu, hepatitis B, hepatitis A, tetanus, human papilloma virus, pneumococcus, measles-mumps-rubella, meningococcus, varicella, herpes zoster vaccines),whether the vaccines useful in protection against disease, whether immunization is necessary for adults, whether there is an up-to-date vaccination guide for adults, and whether they find their knowledge about vaccination sufficient. In the attitudes towards vaccination section, it was asked which of the vaccines included in adult immunization they had/would have, would have performed on their family, or would recommend for their patients. Finally, 16 questions related to knowledge and attitude prepared by evaluating the previous studies and the literature were asked.

Approval for the study was granted by the Erzincan Binali Yıldırım University Human Research Ethical Committee (07.11.2019-11/13). The obtained data were analyzed using SPSS 21, expressed as numbers and percentages.

3. Results

A total of 379 students took part in the study. The students' mean age was 21.8±1.8 years (18-37), and 64.4% were women.

The students' knowledge and attitudes concerning adult immunization are shown in Table 1. The analysis revealed that 96.3% of the students regarded vaccination as useful for protection against diseases, and 93.9% described adult immunization as necessary; 17.2% of the participants acknowledged the existence of adult immunization guidelines, and 19% of the students confirmed possessing sufficient knowledge on adult immunization.

When asked which of the vaccines administered in adulthood they were familiar with, 241 participants (65.6%) reported awareness of the flu vaccine, 323 (85.2%) mentioned hepatitis B, 218 (57.5%) hepatitis A, 211 (55.7%) tetanus, 209 (55.1%) human papilloma virus (HPV), 114 (30.1%) pneumococcus, 108 (28.5%) measles-mumps-rubella (MMR), 72 (19%) meningococcus, 82 (21.6%) varicella, and 91 (24%) herpes zoster vaccines (Figure 1).

The students' attitudes and behaviors toward adult immunization are summarized in Table 2. When the students were asked about the vaccines they had or will do, it was seen that hepatitis B was 78% and tetanus was 77%. When the vaccines recommended by the students for their patients were examined, 68% were recommended for hepatitis B and 66% for tetanus.

Table 3 reflects the students' knowledge and attitudes concerning adult immunization. Based on the results, approximately 40% of the students described annual seasonal flu vaccination as necessary; the respondents' knowledge of HPV and pneumococcus vaccinations proved inadequate; approximately 60% of students stated that tetanus vaccination should be performed once every ten years; 50% of the students were unsure about recommending HPV vaccination for individuals aged over 60; and 89.7% of the students stated that it was necessary to inquire about the immunization status of individuals in risk groups and pregnant women.

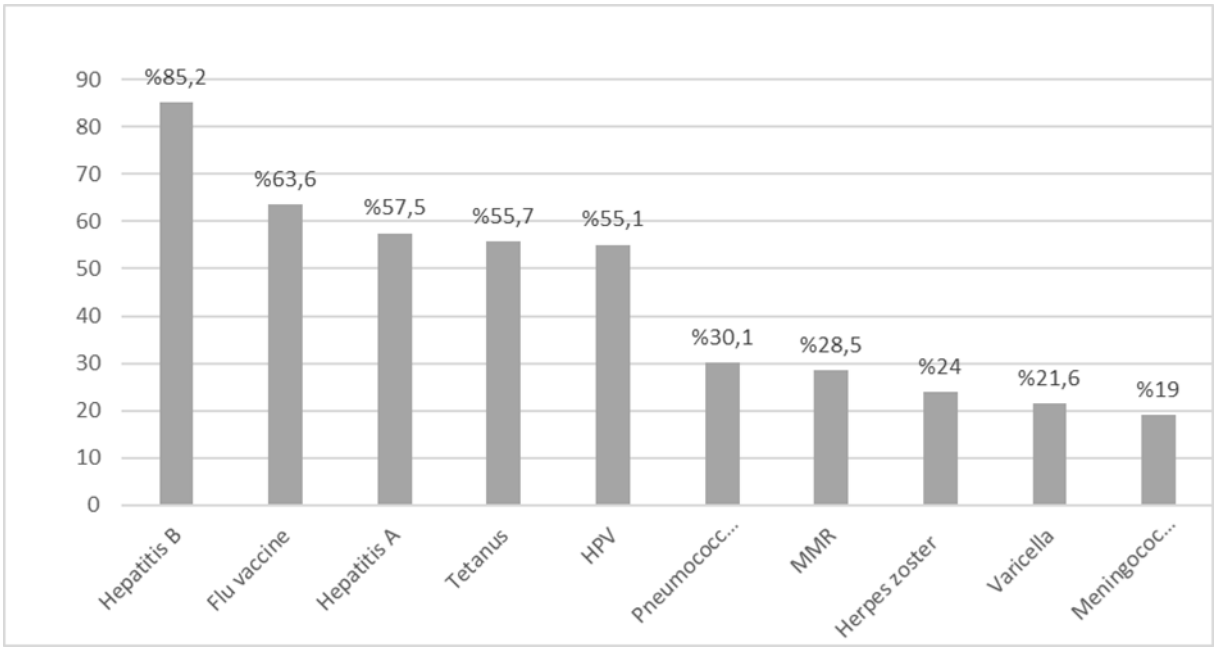

Figure 1: Distribution of known vaccines.
More than one answer was given; the percentages were calculated based on the number of responses.

Table 1: Students' knowledge and perceptions of adult immunization.

	Yes (n/%)	No (n/%)	Unsure (n/%)
Are vaccines useful in protection against disease?	365(96.3)	3(0.8)	11(2.9)
Is immunization necessary for adults?	356(93.9)	9(2.4)	14(3.7)
Is there a guideline for adult immunization?	65(17.2)	45(11.9)	269(71.0)
Do you possess sufficient knowledge concerning adult immunization?	72(19)	233(61.5)	74(19.5)

Table 2: Students' attitudes and behaviors concerning adult immunization.

Vaccines	I have had it/I would have it (%)	I would have it performed on my family (%)	I would recommend it for my patients (%)
Influenza	52	41.4	59.9
Hepatitis B	78.9	60.9	68.1
Pneumococcus	36.1	33.5	52
Tetanus	77.8	57.8	66.2
HPV	43	42	59.6

More than one answer was given to the question; the percentages were calculated based on the number of responses.

4. Discussion

Immunization continues to be a health service provided worldwide, primarily in childhood, and no sufficient importance is attached to adult immunization, which is defined as a continuation of immunization schedules [8]. This evaluation of the knowledge, attitudes, and practices concerning adult immunization among health students produced several significant findings. Although the students described immunization as necessary and beneficial, 61% regarded their knowledge of adult immunization as insufficient. Bolatkaya et al. reported that 63.7% of the participants considered their knowledge of adult vaccines deficient [8]. Similarly, Aksakal et al. reported that 62.5% of the participants acknowledged a lack of sufficient information on adult vaccines [9].

The students participating in this study were asked about vaccines administered in adulthood, and not even every third student was aware of pneumococcus, MMR, zona, varicella, and zona meningococcal vaccinations. Existing studies report low awareness rates concerning the application of these vaccines in adulthood [9-11]. When the students' attitudes and behaviors concerning adult immunization were examined, the most prominent vaccine was the vaccine against pneumococcus. Although half of the students reported that they would recommend this vaccine to their patients, less than one-third stated that they would have it administered to themselves and their families.

Table 3: Students' knowledge and attitudes concerning adult immunization.

	I agree	No idea	I disagree
	N/%	N/%	N/%
Vaccination should only be administered to particular individuals on the basis of specific factors such as age, occupation, disease etc.	169 (44.6)	33 (8.7)	177 (46.7)
Adult immunization is a means of protection	356 (93.9)	20 (5.3)	3 (0.8)
A vaccination program must be established for adulthood, similarly to childhood	324 (85.5)	42 (11.1)	13 (3.4)
It is important for all adults to be fully immunized	334 (88.1)	30 (7.9)	15 (4.0)
Vaccination is more important in children than in adults	274 (72.3)	55 (14.5)	50 (13.2)
It is important for immunization rates to be increased	307 (81)	51 (13.5)	21 (5.5)
Seasonal flu vaccination must be performed every year	147 (38.8)	109 (28.8)	123 (32.5)
HPV vaccination performed on girls aged 9-13 is the most cost-effect means of preventing cervical cancer	95 (25.1)	260 (68.6)	24 (6.3)
HPV vaccination can also be performed on boys	77 (20.3)	253 (66.8)	49 (12.9)
For adult immunization, a Td booster is recommended every 10 years, with at least one dose of tetanus	218 (57.5)	135 (35.6)	26 (6.9)
Pneumococcus vaccination must be administered in case of a splenia and hematological disease	116 (30.6)	238 (62.8)	25 (6.6)
Adults must be immunized against hepatitis B infection	336 (88.7)	32 (8.4)	11 (2.9)
Herpes zoster (Zona) immunization must be recommended to all individuals aged over 60 and with chronic disease	164 (43.3)	196 (51.7)	19 (5.0)
The immunization status of individuals aged 65 or over must be investigated	261 (68.9)	100 (26.4)	18 (4.7)
The immunization status of individuals in the risk group (occupation, disease) must be investigated	361 (95.3)	14 (3.7)	4 (1.1)
The immunization status of pregnant women must be investigated	340 (89.7)	33 (8.7)	6 (1.6)

The rates for the HPV and flu vaccines' administration to the students themselves and their families were also low. Although the US Advisory Committee on Immunization Practices recommends flu vaccination to reduce the spread of influenza among US health workers, the scale of flu vaccination among health workers is less than 50% [12]. In a study conducted with family practitioners, Baykan et al. reported low rates of practitioners having HPV vaccines administered to themselves or recommending them to their families [13]. In a study of health workers in South Korea, Yoon et al.[14] reported the pneumococcus vaccine administration rate of 1%. In contrast, in a survey study from Ankara, Turkey, Çiftçi et al.[15] reported a pneumococcus vaccination rate of 3.4% among health workers.

Another significant finding from the present study was that the students appeared uninformed about certain vaccination practices. For instance, only 40% of the surveyed group knew that seasonal flu vaccination should be performed every year. Only one in four students knew that HPV vaccination in girls is effective for preventing cervical cancer, and one in five stated that it can also be administered to boys. Fewer than half of the students stated that the Pneumococcal vaccine should be administered to various groups and that the zona vaccine should be recommended to individuals over 60. In the health-worker study conducted by Karacaer et al., 58.4% of participants stated that the seasonal flu vaccination did not have to be repeated every year [16]. Similarly, in Taştan's thesis study involving medical faculty students, approximately half of the participants stated that seasonal flu vaccination should be performed annually, and, in contrast, one in four stated that HPV vaccination was effective against cervical cancer in girls and boys [17].

5. Conclusions

The students involved in this study lacked a sufficient level of knowledge and sensitivity about adult immunization. More attention must be given to adult immunization alongside childhood immunization to improve protective health services and general health in Turkey by educating health personnel on adulthood vaccination, which is a highly effective method of raising immunization rates. Remedying this lack of

awareness before students' graduation can increase adult immunization rates in the public. In particular, the adult immunization schedule, currently available in guideline form, should be implemented in the same manner as childhood immunization and should be included in health education programs.

Limitations of the Study

Our study has some limitations. First of all, the research was conducted with the final year students of the faculties stated in the study, which does not represent all health-related departments' students. The questionnaire form, which is the data collection tool used in the research, was prepared by the researchers after searching the literature. It is not a scale whose validity and reliability have been proven.

Acknowledgement

None.

Conflict of Interests

The authors declared no conflict of interest.

Financial Support

No funding was received to produce this article.

Author Contributions

Design of the study: SS. Data collection: SS, DK. Data analysis and interpretation: SS, DK. Literature search and writing the article: SS, DK. Critical revision of the article: SS. Final approval of the version to be published: SS, DK.

Ethical Approval

Ethical permission for the study has been obtained Erzincan Binali Yıldırım University Human Research Ethical Committee. (Date: 07.11.2019 Number: 11/13). The research was conducted in accordance with the principles of the Helsinki Declaration.

Data sharing statement

None.

Consent to participate

Informed consent was obtained from all participants.

Informed Statement

Informed consent was obtained from all the participitions.

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