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Research Article

Evaluation of Adult Vaccination Status in a University Hospital

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Abstract

Objectives: Vaccination of adults has an important role in the management of vaccine preventable diseases. Especially, the aging of the population in the world and the increase in deaths due to infections in the elderly have led to the increase in the awareness about adult vaccination and the increase in the need for effective vaccination. It was aimed to evaluate the awareness of the patients about adult vaccination in this study.

Methods: We evaluated the awareness of the patients who applied to the internal medicine and family medicine outpatient clinics of our hospital for 1 month with a questionnaire that we created. The questionnaire was composed of 16 questions. The study was carried out with 168 people over 18 years of age who applied to general internal medicine and family medicine outpatient clinics in Eskişehir Osmangazi University Medical Faculty Hospital and accepted to be informed and to participate in our survey.

Results: About 35.1% (n=59) of the respondents were recommended to be vaccinated during adulthood, while 64.9% (n=109) were not vaccinated. 78.3% (n=36) of the 46 respondents to our question "Would you get vaccinated if it was recommended?" marked yes, and 21.7% (n=10) said no ($p<0.001$) In our study, it was seen that the majority of unvaccinated patients did not receive vaccination recommendations.

Conclusion: Not only primary care physicians, but all physicians dealing with adult health should frequently remind their patients about adult vaccination, which is an important step of preventive health services, increase the patient's knowledge, and awareness based on scientific evidence, and address their concerns.

Keywords: Adult vaccination, awareness, vaccine recommendation

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Vaccination of adults in the management of vaccine-preventable diseases has an important role in preventive medicine practices.[1] Both the aging of the population throughout the world and wars and related migration and asylum movements have changed the epidemiology of diseases and opened a door to the spread of infectious diseases.[2] With these changes, many countries have to struggle with the common infections of childhood, which have been cleared with vaccines many years ago, in the adult age group.

Today, as a result of the development in medicine, the average life expectancy is prolonged and as a result, an increase in the elderly population is observed in the world. The World Health Organization (WHO) stated that the population over the age of 80 will increase from 12% to 22% between the years 2015 and 2050; the population over the age of 60 will reach 2 billion by 2050, which was 900 million in 2015. It is also estimated that 80% of the elderly population will be living in underdeveloped or developing countries by 2050.[3] According to the 2016 data of the Turkish Statistical Institute, the average life expectancy at birth is

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80.7 years for women and 75.3 years for men in our country.[4] As a result of aging, the incidence of multiple chronic diseases increases. With advancing age, immune aging decreases the response of the immune system and older people become more susceptible to infections. Therefore, individuals over the age of 65 have become a priority and important target population for protection from vaccine-preventable diseases. Vaccination practices are gaining more and more importance in this age group to prevent frequent applications to outpatient clinics and emergency services, hospitalizations, and morbidity and mortality due to infections.

Although its importance in protecting public health is well known, adult vaccination practices have not been as successful as childhood vaccinations. The WHO has drawn attention to the issue of vaccination of not only children but also adults in its 2020 global vaccine action plan.[5] Today, awareness-raising of priority groups that need to be vaccinated and the application of adult vaccines within the possibilities in our health system is realized with the sensitivity and superior effort of physicians. In our country, there is no vaccination calendar follow-up system like childhood vaccinations, for advanced age groups yet. Vaccination of pregnant women has been carried out successfully in the family medicine system with the help of the registry systems but vaccination applications in other risk groups are left to the discretion of physicians.

We wanted to evaluate the patients' knowledge about vaccines used in older ages, their thoughts on vaccines, and their attitudes if adult vaccines are recommended, by conducting an initial study on the subject for 1 day during the national vaccination week. There is a need for larger-scale research on this subject, studies to increase awareness in the society, and standard practices covering the whole country.

Methods

One hundred and sixty-eight people over the age of 18 who applied to the outpatient clinics of General Internal Medicine and Family Medicine, in Eskisehir Osmangazi University Faculty of Medicine are included in our study. Approval was obtained from Osmangazi University Ethics Committee with decision no: 18 dated May 28, 2019. Our study is a descriptive study. Our questionnaire prepared by the researchers was asked to the participants face to face. In our questionnaire, there are questions that will evaluate the application status of vaccines that can be made throughout adulthood and the knowledge and attitudes of individuals about vaccines. Relatives of the patients and those who could not answer our questions (such as hearing and vision loss and cognitive disorders) were excluded from the study. A total of 168 people agreed to participate in our study. Descriptive statistics and Chi-square test were used in statistical analysis.

Results

Our study was carried out with 168 individuals between the ages of 18 and 80. The average age was 45.5. 63.1% of the participants were women, and 36.9% of them were men. 75.5% of our participants stated that they were married and 24.5% of them were single. When the occupational distributions were examined; 34.5% of the participants were housewives, 22.6% were retired, 10.7% were students and 32.2% were from other occupational groups. Of the participants, 29.8% were primary school graduates, 11.3% were secondary school graduates, 25.6% were high school graduates, 28.6% were university graduates, and 4.8% had a master's degree (Table 1). When the participants were evaluated according to their education level, no statistically significant difference was found between their vaccination status (Table 2).

About 86.9% (n=146) of the participants gave the answer yes to the question of whether it is necessary to be vaccinated for adults, and 13.1% (n=22) answered the opposite. It was determined that 35.1% of 168 people (n=59) were recommended to be vaccinated after the age of 18, and 64.9% (n=109) were not offered any vaccine in the same

Table 1. Sociodemographic characteristics of the participants

	Number	Percent (%)
Gender		
Female	106	63.1
Male	62	36.9
Occupation		
Housewife	58	34.5
Retired	38	22.6
Student	18	10.7
Others	54	32.2
Education		
Primary school	50	29.8
Secondary school	19	11.3
High school	43	25.6
Universty	48	28.6
Master degree	8	4.8
Living area		
Urban	156	92.9
Rural	12	7.1
Marital status		
Married	126	75.4
Living alone	41	24.6

Table 2. The relationship between the education levels of the participants and the vaccination rates

	Primary school	Secondary school	High school	Universty	Master degree	Total
Number of vaccinations	31 (27.9%)	14 (12.6%)	29 (26.1%)	33 (29.7%)	4 (3.6%)	111
Number of unvaccinated	19 (33.3%)	5 (8.8%)	14 (24.6%)	15 (26.3%)	4 (7%)	57

P value >0.05.

Table 3. The relationship between the presence of chronic diseases and vaccination rates of the participants

	Chronic disease +	Chronic disease -
Vaccinated	55 (62.5%)	56 (70%)
Unvaccinated	33 (37.5%)	24 (30%)
Total	88	80

p>0.05

period. About 78.3% (n=36) of the 46 respondents to our question "Would you get vaccinated if it was recommended?" marked yes, and 21.7% (n=10) said no (p<0.001) (Figs. 1 and 2). It was learned that 40.7% (n=24) of 59 people who were recommended the vaccine were recommended by their family doctor, 33.9% (n=20) by doctors in secondary or tertiary health institutions, 20.3% (n=12) were recommended by their friends, and 5.1% (n=3) by their pharmacists. It was determined that the recommended vaccines ranged as 54.2% (n=32) for influenza, 20.3% (n=12) for pneumococci, 20.3% (n=12) for tetanus, 18.6% (n=11) for hepatitis B, 5.1% (n=3) for measles, 5.1% (n=3) for meningococci, 1.7% (n=1) for diphtheria tetanus pertussis (DTP), and 22% (n=13) for other vaccines.

While 66.1% (n=111) of the participants in our study stated that they were vaccinated at least once after the age of 18, 33.9% (n=57) stated that they were never vaccinated in the same period. Of 111 people who have been vaccinated in adulthood; 54.1% (n=60) had tetanus, 36.9% (n=41) had influenza, 23.4% (n=26) had hepatitis B, 9% (n=10) had measles, 5%, 4 (n=6) had pneumococcal, 4.5% (n=5) had DTP, 1.8% (n=2) had meningococcal, and 11.7% (n=13) had other vaccines. When asked why they did not have any vaccines those who were not vaccinated in the same period; 33.3% (n=19) stated that they were asked for a fee, 7% (n=4)

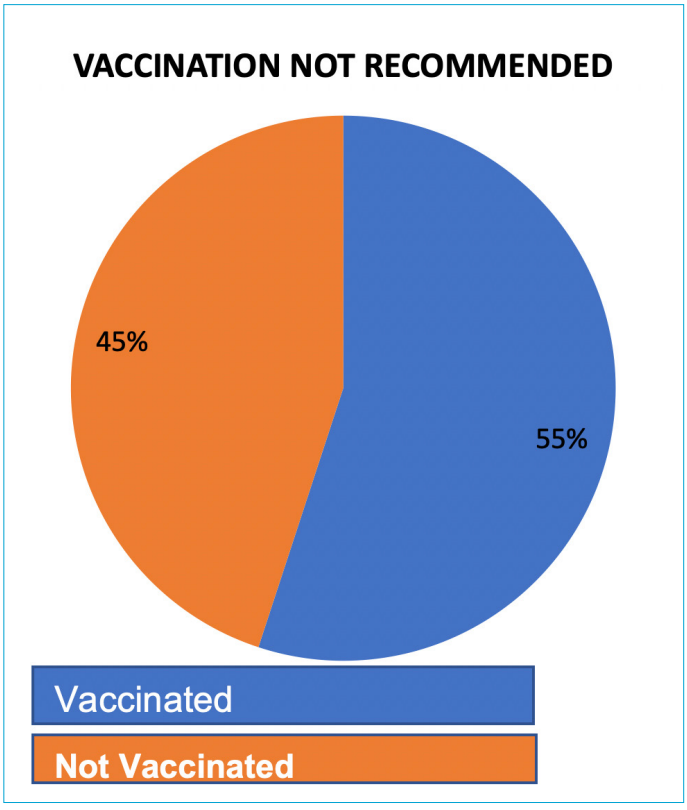

Figure 1. Participants who were not offered vaccination.

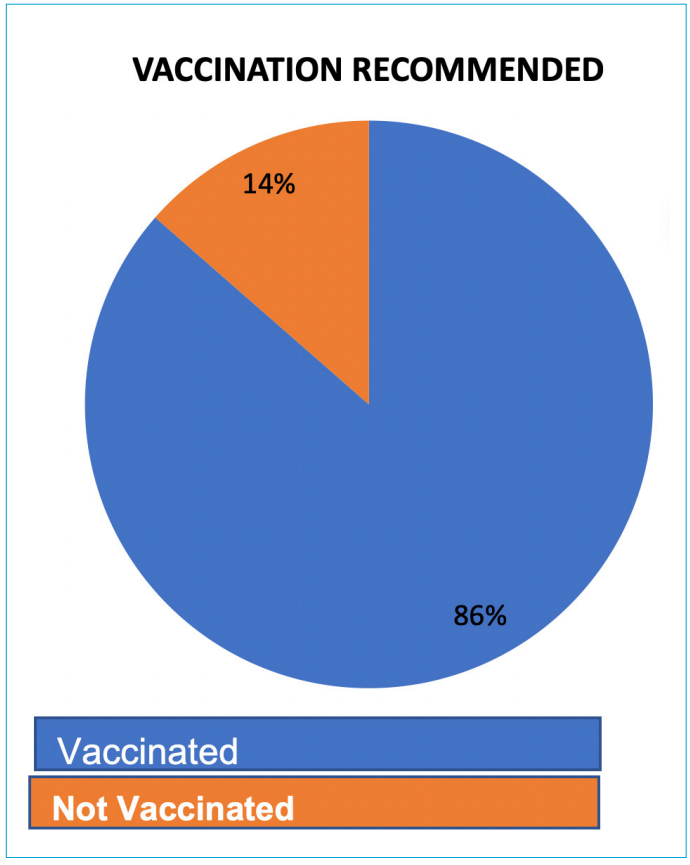

Figure 2. Participants who were offered vaccination.

thought that the vaccines were ineffective, 5.3% (n=3) stated that they were afraid of possible side effects, and 54.4% (n=31) chose the other reasons option. While 89.5% (n=17) of the people who stated the high fee as the reason for not getting the vaccine, stated that they could get the vaccines if they were within the scope of reimbursement, 10.5% (n=2) said that they would not have it done even if there was a reimbursement.

Among our survey participants, 52.4% (n=88) had any kind of chronic disease, 29.8% (n=50) stated that they had a chronic disease with vaccination indication, 47.6% (n=80) stated that they did not have a chronic disease. It was seen that 62.5% (n=55) of the participants with chronic diseases were vaccinated and 37,5% (n=33) were not. There was no statistically significant difference when the vaccinations of those with and without chronic disease were evaluated (Table 3). While 22.8% (n=38) of the participants had contact with children under the age of 1 in their daily life, 77.2% (n=129) stated that they did not come into contact with children under the age of 1. 12.5% (n=21) of the participants were active healthcare employees, 87.5% (n=147) did not work in the field of health. About 32.7% (n=55) answered "yes" to the question "Do you smoke?" and 67.3% (n=113) answered "no."

While 57.7% of the participants (n=97) answered yes to our question "Have you heard of families who do not want to have their children vaccinated lately?," 42.3% (n=71) answered no. 84.4% (n=141) stated that they did not approve of this view, whereas 15.6% (n=26) approved the opinion of the families who did not want to have their children vaccinated.

Discussion

Considering the causes of death worldwide, infectious diseases have left the first place to the cardiovascular diseases and cancers after the discovery of vaccines and antibiotics. This situation was clearly reflected in the death statistics until the 2000s. However, when carefully evaluated, the role of infections in acute attacks of chronic diseases, hospitalizations, and even deaths is of great importance. When we look at the causes of mortality in our country, circulatory system diseases are in the first place with 38.45% in 2018, followed by cancers (19.75%) and respiratory system diseases (12.48%). Although infections are in the lower ranks, especially respiratory tract infections in people with chronic diseases can increase the need for acute care and intensive care and cause mortality.[6] Primarily, the WHO, but all health authorities worldwide, and the Ministry of Health in our country continue to work on increasing awareness in adult vaccination, both in the society and in health-care professionals. Despite all efforts, adult vaccination cannot reach the desired rates. In this study, we applied a self-created questionnaire on adult vaccination awareness to patients who applied to the Internal Medicine and Family Medicine outpatient clinics in our institution for different reasons.

The role of health education in the protection of general body health is indisputable, and from this point of view, it is expected that especially sociocultural status and education level will be important in adult vaccination awareness. As the level of education increases, it can be predicted that the level of awareness about vaccination of adults for both themselves and their close circles will also increase. Among the participants in our study, 25.6% were high school graduates. The total rate of university graduates or master's degree graduates was 33.4%. In the 2018 data of the Turkish Statistical Institute, the rate of high school graduates in Turkey was determined as 24.1%, while the total rate of university graduates and postgraduates was 17.5%.[7] From this point of view, the level of education in our participant group was high. However, we could not find a significant difference between the education level of the participants and their vaccination relationships. Similarly, no significant difference was found when the education level was compared with the attitudes of participants towards some families' vaccination rejection for their children. The fact that there is no difference between the education level and the vaccination rate suggests that there is not enough information in our education system on basic issues such as preventive medicine, adult vaccination, and health literacy and that more comprehensive information is needed in the curriculum. Individuals who have not received adequate health education in school life may experience problems when they apply to non-scientific sources on health issues in their adulthood. We believe that health education and especially a high level of health literacy are important factors in the protection of public health.

Among our participants, the number of people who believed that vaccination is necessary for adulthood was 146 (86.9%), and the number of people who had been vaccinated in the same group was 111 (66.1%). The same rate was determined as 57.9% in the study of Uzuner et al.[8] conducted in Maltepe, Istanbul, and published in 2018; and 59% in another study conducted by Aşık et al.[9] in Antalya in 2013. In a technical report presenting the vaccination recommendations of European countries for the 2012–2013 influenza season, 24 different countries were evaluated, and the average vaccination rate of all participating countries was 44.7%. In the same study, when countries were examined one by one, the lowest rate was 1%, while the highest rate was 77.4%. The countries with the highest averages were

the Netherlands and the United Kingdom.[10] In a study that evaluated the awareness and status of adult vaccination in European Union countries published by Ozisik et al.[11] in 2016, it was emphasized that the differences in vaccination rates were caused by differences in practice between countries and that it was necessary to create common practice guidelines first. The differences in belief among physicians and differences in implementation in vaccination practices between institutions are among the important reasons for the lagging behind in vaccination rates. The fact that the rate of vaccination among the participants of our study is higher than in the previous studies in our country shows that progress has been made in this regard, but it is clear that hard work should be continued to increase this rate even higher.

It was observed that the adult vaccination rate of our participants over 65 years of age was 68%. In a study by Mutlu et al.[12] published in 2018, the rate of vaccination in adulthood in the same age group was 35.58%. In another article by Bal et al.[13] published in 2016, the vaccination rate of patients over the age of 65 was 30.4%. Both studies were conducted in the primary care patient population. Our study group consisted of patients with multiple morbidities who came to a tertiary healthcare institution, and therefore, we believe that vaccination rates are higher. In fact, considering that this patient group also applies to primary care facilities for controls and treatment follow-ups, raising adult vaccination awareness among physicians and health workers in those facilities is very important in preventing morbidity and mortality.

Recently, the importance of the topic has been emphasized by the Ministry of Health and many specialty associations related to adult vaccination. In our hospital, vaccination recommendations are made to people in the risk group for adult vaccinations in all polyclinics that provide adult patient service, especially in family medicine and internal diseases outpatient clinics.

When we asked the question "If it was recommended, would you have been vaccinated?" to those who were not vaccinated in adulthood, 78.3% of them stated that they can get vaccinated in line with the recommendation. The rate of vaccination of people who received a recommendation for vaccination from anyone was 86.4%, and a significant difference was found when compared to those who did not receive advice (55%) ($p<0.001$) (Figs. 1 and 2). This outcome gives great responsibility to us, health-care professionals, especially in increasing adult vaccination awareness and rates.

In our study, it was determined as 33.3% to be asked for a fee among the reasons for not being vaccinated. When asked if they would be vaccinated if they were covered by adult vaccination reimbursement, 89.5% stated that they would do so. Recently, recommendations for pneumococcal and influenza vaccination of people in the risk group due to the COVID-19 pandemic are being maintained effectively. On the other hand, pneumococcal vaccination is provided free of charge to the risk group in family medicine clinics and vaccination outpatient clinics of hospitals. In this way, we have achieved vaccination rates that we have not been able to achieve for a long time. This showed us that when vaccination is recommended to adult patients, and especially when it is emphasized that it reduces morbidity and mortality, they comply with the recommendations. We believe that adult immunization rates will increase if it is done free of charge in government institutions and its necessity is clearly emphasized by physicians.

In the group of physicians who recommended vaccination to the participants in our study, the highest percentage belonged to family physicians (40%). If we add secondary or tertiary care physicians to this ratio, the share of physicians among those who recommend vaccination increases to 73.9%. In the study of Ünal et al.,[14] published in 2015 and conducted with 80,000 people; the pneumococcal vaccination rate over 65 years of age increased from 11.6% to 33.9% after a 6-month training given to family physicians, and 59.5% after an 8-month training. All health-care professionals (in particular, such as pharmacists and allied health personnel, who are in close contact with many patients) guidance about vaccination recommendations will increase the rate of adult vaccination in society.

Conclusion

Vaccination is the most effective and cheapest method known after clean water among preventive medicine practices. As a matter of fact, the COVID-19 pandemic in the world today has once again revealed that the most important rule to reduce the mortality rate of infectious diseases is immunization. Health authorities globally should encourage countries to adopt permanent, definitive, and controllable national systems instead of optional practices of adult vaccination. In this way, deaths and morbidity from vaccine-preventable infectious diseases could be avoided to a large extent.

Disclosures

Ethics Committee Approval: The study was approved by Eskişehir Osmangazi University Noninterventional Clinical Research Ethical Committee (Number: 18, Date: 28.05.2019)

Peer-review: Externally peer-reviewed.

Conflict of Interest: This study has been presented as a poster presentation at the 18th Eastern Mediterranean Family Medicine

Congress, in April 2019. The authors have no conflicts of interest to declare.

Authorship Contributions: Concept – P.Y., M.A.; Design – P.Y.,M.A.; Supervision – P.Y., H.B.; Materials – P.Y., M.A.; Data collection &/or processing – P.Y., M.A.; Analysis and/or interpretation – P.Y., M.Y., M.S.T.; Literature search – M.A., P.Y.; Writing – P.Y., M.A., M.S.T.; Critical review – P.Y., M.S.T., H.B.

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