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ORIGINAL ARTICLE

Evaluation of Factors Affecting Adult Immunization

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Abstract

Introduction: Vaccination is the most effective application in preventing from infections. In recent years, vaccination is still inadequate in adults despite the fact that there is a great deal of effort in childhood vaccination. We aimed to evaluate the vaccination status of adults and the factors that affected them.

Methods: In this descriptive study, a questionnaire consisting of 15 items exploring sociodemographic variables, the status of vacciniation and the factors influencing the vaccination was applied to adult individuals who admitted to family medicine clinics of Sisli Hamidiye Etfal Training and Research Hospital. The data were entered into the statistical program and analyzed.

Results: The average age of participants was 61.40±13.43. The proportion of participants who had adult vaccinations was 49.1% (n=108), average age of them were 60.68±13.47 and 66.7% were female. There was no significant relationship between age, sex, and education status of the adult vaccination's. The most important factor affecting the vaccination was physician 's recommendation (73%; n=86). the second factor was the effect of the media. Among the reasons for not having the vaccine, physician recommendation (70%; n=80) was found to be the first important factor also, the second factor was disbelief of need of vaccine.

Discussion and Conclusion: In our study, it was determined that adult vaccination was inadequate and mostly influenza vaccine was used in adults. It was found that the physician's recommendation was the most common cause of the decision to get or not to get vaccinated. Since most frequently vaccinations were performed in family medicine units, physicians' mainly family physicians' recommendations will increase the rate of vaccination in adulthood. Thus, effort should be given to increase the awareness of physicians. We believe that raising the awareness of the community within the scope of health literacy will also positively affect adulthood vaccination.

Keywords: Adulthood vaccination; awareness; family medicine; health literacy; physician's recommendation.

Vaccination is the most effective method of protection against infections. Infections that can be prevented by vaccination cause more than 30 thousand deaths per year in many developed countries [1, 2]. Expanded Immunization Program (EIP) is being carried out in our country and immunization against 13 diseases in childhood is done free of charge mainly by family physicians. With in the frame of EIP program, tree-doses of combination vaccine (five componenet) was applied in 78 % of the children in 2002 which raised up to 98% in 2016 [3].

Family medicine encompasses preventive health care in both concept and duty definition [4]. For this reason the role of family physicians service is great in increasing the vaccinations. Considering the cases where the main branch specialist (family medicine, internal medicine) and the specialists of the side branches propose influenza and pneumococcal vaccination to the patients, the vaccination of influenza vaccine is more often preferred than the vac-

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cination of pneumococcus. It has been seen that female physicians and the physicians who were vaccinated, recommended vaccination more frequently [5].

Since the family medicine implemantation started in 2010, the rate of childhood immunization has increased significantly in Turkey. Although vaccination is considered childhood vaccination, adult vaccination is as important as childhood vaccination [6]. Vaccination in adults include different goroups like healthy adults and special case (pregnancy, immunosuppression or insufficiency, chronic diseases, travel, military service, health workers etc.) [7].

Today, advances in healthcare and technology have increased the life expectancy estimated at birth, leading to an increase in the elderly population. In our country, the elderly population doubled from 2000 to 2016 [8]. Increased incidence of chronic diseases with aging and weakening of the immune system and diminished protection of childhood vaccinations have brought adult vaccination to the fore [9]. Adult vaccination reduces infections by 60% and death by 80% [10].

Although adult vaccination is so important, it has not been performed adequately both in our country and in the world [11]. In this study, it has been emphasized that having adequate information about the vaccine, informing the people about vaccination safety, providing vaccination opportunity free of charge, expansion of general immunization programs and physicians' recommendations would increase adult vaccination rates [12].

We also aimed to propose solutions by evaluating the vaccination status of the adults and the factors affecting the vaccination.

Materials and Methods

The study was a cross-sectional, descriptive study which was conducted on individuals aged over 18 years who were referred to the University of Health Scinences Sisli Hamidiye Etfal Training and Resaarch Hospital (TRH) Family Medicine outpatient clinic for any reason, between 19 June -02 July 2018. Sisli Hamidiye Etfal TRH Ethics Board approved the study (2018/2025).

Using a face-to-face survey method a 15-item information form including the socio-demographic data, vaccination status and factors influencing vaccination of the participants was directed to the participants after their consent was obtained. It was stated that they could mark more than one choice for the vaccines and factors influencing their immunization or non-immunization status.

The data were entered into the statistics program. In descriptive statistics, numerical variables were expressed as numbers and percentages, and categorical variables were indicated as mean, standard deviation, minimum and maximum. Mann- Whitney U test was used for the comparison between two independent groups of numerical variables with non-normal distribution.The rates of categorical variables between groups were compared with chi-square analysis. Statistical significance level of alpha was accepted as $p<0.05$.

Results

A total of 220 participants including 140 (63.6%) female and 80 (36.4%) male individuals were included in the study. The mean age of the participants was 61.40±13.43 years. Of the participants, 15% (n=33) were illiterate, 66.8% (n=147) were high school and lower educated, and 18.2% (40) had university education. 49.1% (n=108) of adult participants had any one of the adult vaccinations. The mean age of the adult vaccinated was 60.68±13.47 years, most of them were high school and lower educated (64.8%).

As seen in Table 1, no statistically significant relation was found between age, gender and educational status of any of

Table 1. The relation between sociodemographic data and adult vaccination status

	Vaccinated (n=108)		Non-vaccinated (n=112)		p
	N	%	N	%	
Age					
18-64	59	49.17	61	50.83	p>0.05
≥65	49	49	51	51	
Gender					
Female	73	52.1	67	47.9	p>0.05
Male	36	45	44	55	
Educational level					
Illiterate	15	14	18	16	p>0.05
High School and lower educated	70	65	77	69	
University	23	21	17	15	

the adult vaccinees (p>0.05). When the data were examined, it was determined that most frequently influenza (44.5%; n=98) then tetanus, pneumococcal and hepatitis vaccines were applied in order of decreasing frequency (Fig. 1).

People over the age of 65 (n=100) have been specifically investigated as they are risk groups. In this group, 45.37% (n=49) proportion of the vaccinated was not statistically significant with gender although they were higher in women. (50% in women, n=29, 47,61% in men, n=20, p>0.05). All of the vaccine recipients in this group had received flu vaccination (n=49), followed by pneumococcal (6%), tetanus (3%), and hepatitis B vaccines (3%). The rate of influenza vaccination was statistically significantly higher (p<0.05) in all age groups and over 65 years of age compared to immunization rate of other vaccines.

Although participants could mark more than one item in the questionnaire, when the answers were examined, the physician's recommendation was the most frequently reason that positively effected the vaccination rate (73%, n=86). This is followed by, though at a lower rate, information gathered from media, and believing in the protection role of the vaccine (Fig. 2). Besides, the most frequent reason for not participating in the vaccination was lack of physician's recommendation. (70%, n=85). The other justifications of the participants for not being vaccinated were as follows: the participants thought that they did not need to be vaccinated (27%; n=22), they were not convinced about the reliability of the vaccine, disbelieved in the benefit of the vaccine, or thought that vaccination was expensive (Fig. 3).

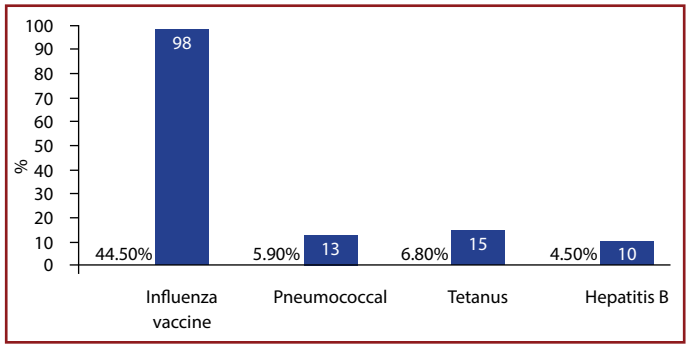

Figure 1. Adult vaccination status of the participants.

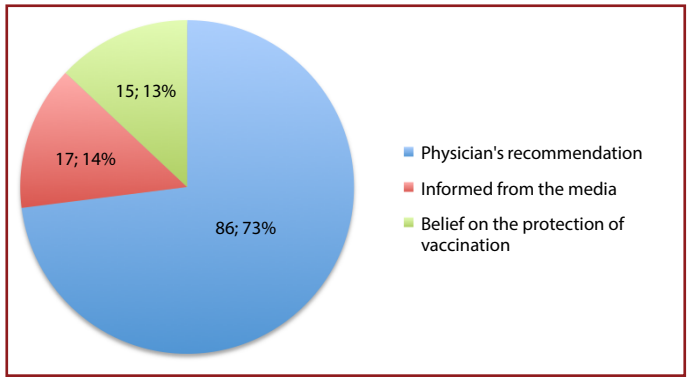

Figure 2. Factors that have positive influence on vaccination in participants.

Discussion

As in childhood vaccination programs, adult vaccination schedules and vaccination protocols are available according to age and special circumstances. Adult vaccination is grouped by the Centers for Disease Control and Prevention (CDC) according to age groups (19-26, and over 50 years of age), special health conditions, pregnancy, travel and immigrant vaccination [13]. An adult immunization guide was published in 2016 by Turkey Infectious Diseases and Clinical Microbiology Specialty Society, and similar vaccination recipient groups were examined.

In a study conducted in adults aged 18 years and elderly in our country, it has been stated that indicated percentages of the patients had not seropositivity to diphtheria (65%), tetanus (69%), whooping cough (90%), and respective percentages of patients required immunization against tetanus (78%), whooping cough (90%), and diphtheria (96%) [14]. As seen in this study, although the need for adult immunization is high, the vaccination coverages are still not at desired levels.

As a result of the study conducted with 100 participants in five family health centers in Antalya Province in 2012, it was determined that 41% of adult participants were not vaccinated at any time of their life and 59% had vaccinated at least once [11]. In our study, 49.1% of participants had received at least one adult vaccination.

In a study conducted with individuals (women, 56.42%) over 65 years of age (mean age, 71.36±5.3 years) whose

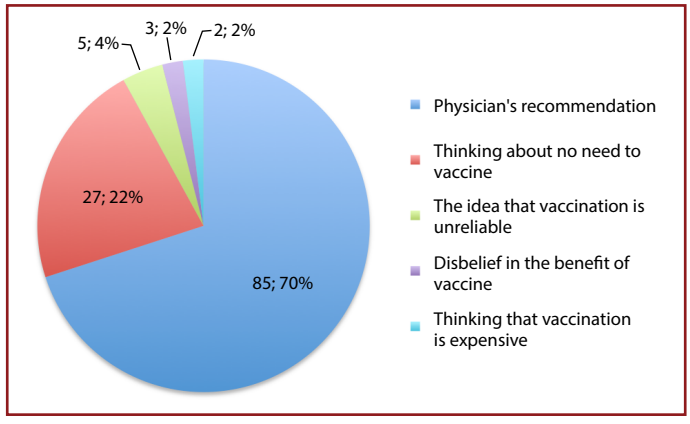

Figure 3. The factors that effect the choose not to vaccinate of the participants.

results were published in 2018, 35.62% of the participants had been vaccinated at least once, and 64.42% of them had not been vaccinated excepting childhood vaccinations [15].

In our study, rate of vaccination among participants of both sex over 65 years of age was 45.37% with a statistically insignificant higher rate among female participants In some studies, higher vaccination rates among women may be due to higher female population in the age group and this issue should be examined in more detail [16].

Although there is an indication for vaccination for all individuals in this age group irrespective of the presence of a chronic disease, vaccination rate is low. In another study, the reasons for the vaccination levels below the desired levels in the elderly population were listed as follows; lack of information, misconceptions and beliefs of the physicians about the subject, and giving priority to treatment services rather than vaccination in the advanced age group [17]. According to the USA data for the year 2013, adults above the age of 65 were most frequently vaccinated against pneumococci [18] with a rate of 60%. However in our study, we found that adults above 65 years of age, most frequently vaccinated against influenza, while only 6% of them received pneumococcal vaccine. In another study carried out in Mersin, influenza vaccine was found to be the most frequently used vaccine type [9].

According to 2008 data of Aegean Region Working Group of Turkish Society of Internal Medicine, diabetics were immunized against pneumococcus (0.1%) and influenza (9.1%). In this study, it is noteworthy that the rate of pneumococcal vaccination is low [19]. This may be due to the fact that the influenza vaccination is cheap and easily available, but also because of the increasing level of awareness about flu epidemics every year due to relevant news released by media.

Thus; in a study conducted in 5 different European countries (Germany, Italy, Spain, the United Kingdom and France), vaccination rates and causes of influenza over the age of 14 were investigated, and 55.8% of vaccinated persons reportedly thought that influenza is a serious disease [20]. In another study it was found that levels of awareness about influenza vaccination were higher when compared with other vaccinations [21].

When we looked at studies that investigated the reasons of vaccination and nonvaccination, only 68.2% of those who had received pneumococcal vaccination stated that they were vaccinated upon physician's recommendation and 31.8% of them were vaccinated by their own will or according to their children's recommendation [22]. In a study performed in 1988, physician's recommendation was indicated as the most common determinative factor for vaccination, or nonvaccination [23].

In another study, also similar to our study, physician's recommendation was found to be the most important factor effecting the vaccination rates [24]. In a study published in 2016, the first justification for vaccination was penetrating stab wounds followed by the physician's recommendation. The reasons for nonvaccination in decreasing order of frequency were lack of knowledge, and physician's recommendation, and disbleief in its benefit.

Higher frequency of lack of knowledge, and disbelief in the beneficial effects of vaccination in some studies, and, thinking of vaccination as an unnecessary procedure in our study(the 2nd most frequent cause of nonvaccination) overlap with the thought that an important part of the adult population in Turkey has insufficient health literacy [25].

The low rate of thinking that the vaccine is expensive indicates that the cause of nonvaccination is not economic. It has been thought that the institutions concerned should try hard to increase the awareness of the community about vaccination, and the adult vaccination should occupy much more space in the education curriculum in order for the physician's recommendations to come to a sufficient level.

Conclusion

In our study, it was determined that adult vaccination was inadequate and the most frequently applied adult vaccine was influenza vaccine. We also found that the physician's recommendation was the most common cause of the decision to get vaccinated or not. Since vaccinations are performed most frequently in family medicine units, the recommendations of all physicians, predominantly family physicians will increase adult vaccination rates.

It is important to perform studies to increase the awareness of physicians. However, we believe that the immunization program should be expanded and followed, and that the related institutions, especially the Ministry of Health, should inform the individuals properly within the scope of health literacy and also their efforts to raise their awareness will affect vaccination in adults favourably.

Limitations of the Study

Limitations of the study can be summarized as follows: The study was performed in a tertiary hospital, and in a population more needs vaccination. Besides, the questionnaire form contained closed-end questions.

Ethics Committee Approval: The study was approved by Ethics Committee of University of Health Sciences, Şişli Hamidiye Etfal Training and Research Hospital (19.06.2018 - 2025).

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Conflict of Interest: None declared.

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