Original Article / Orijinal Araştırma

Barriers Associated with Seasonal Influenza Vaccination Uptake Among Nurses: A Cross-Sectional Study

Hemşirelerin Mevsimsel Grip Aşısı Yaptırma ile İlgili Engelleri: Kesitsel Bir Çalışma

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Abstract

Aim: The aim of this study is to evaluate the barriers associated with seasonal influenza vaccination uptake among nurses

Material and Method: This web-based survey conducted in Turkey, from November to December 2021. A cross-sectional study included 390 nurses. The data were collected online by the researchers through a survey form that prepared in line with the literature. Descriptive statistics and chi-square analysis were used to evaluate the data (p<0.05).

Results: A total of 69% (n=269) of the nurses had never received an influenza vaccine, and 10.3% (n=40) had received an influenza vaccine in the last year. Most common barrier to vaccination was the thought that the vaccine was ineffective (21.6%) and most encouraging factor was COVID-19 for nurses to be vaccinated. A significant relationship was observed between the work experience (in years), geographical region, education level, the institution of employment, perception of income status, alcohol consumption, presence of chronic disease, and vaccination (p<0.05).

Conclusion: The results of this study showed that more than half of the nurses did not get the influenza vaccine, and there are some barriers and against to getting vaccinated.

Keywords: Influenza vaccine, nurse, barrier

Öz

Amaç: Bu çalışmanın amacı, hemşirelerin mevsimsel grip aşısı yaptırma önündeki engellerinin belirlenmesidir.

Gereç ve Yöntem: Bu web tabanlı anket, Kasım-Aralık 2021 tarihleri arasında Türkiye'de yapıldı. Kesitsel türde olan çalışmaya 390 hemşire dahil edildi. Veriler, araştırmacılar tarafından literatür doğrultusunda hazırlanan anket formu aracılığıyla çevrimiçi olarak toplandı. Verilerin değerlendirilmesinde tanımlayıcı istatistikler ve ki-kare analizi kullanıldı (p<0.05).

Bulgular: Hemşirelerin toplam %69'unun (n=269) hiç influenza aşısı yaptırmadığı ve %10,3'ünün (n=40) son bir yıl içinde influenza aşısı yaptırdığı belirlendi. Aşılamanın önündeki en yaygın engel aşının etkisiz olduğunu düşünme idi (%21,6). Hemşireleri aşı olmaya teşvik eden en önemli faktör ise COVID-19 idi. İş deneyimi (yıl olarak), coğrafi bölge, eğitim düzeyi, çalışılan kurum, gelir durumu algısı, alkol tüketimi, kronik hastalık varlığı ve aşı yaptırma arasında anlamlı ilişki gözlendi (p<0.05).

Sonuç: Bu çalışmanın sonuçları, hemşirelerin yarısından fazlasının grip aşısı olmadığını ve aşı yaptırmanın önünde bazı engellerin olduğunu göstermiştir.

Anahtar Kelimeler: Grip aşısı, hemşire, bariyer

INTRODUCTION

Seasonal influenza is a serious acute respiratory disease owing to its complications and high mortality rate, especially in at-risk patients.[1] It is estimated that there are approximately 1 billion influenza cases worldwide each year, of which approximately 3 to 5 million cases are severe, and approximately 290,000 to 650,000 cases result in death. [2,3] The most effective way to prevent and control influenza is vaccination.[4] One of the priority groups for vaccination is healthcare employees. The World Health Organization and the American Advisory Committee on Immunization Practices recommend that healthcare employees receive an annual influenza vaccine not only to protect themselves and maintain their basic healthcare but also to protect patients they come into contact with.[5-7] In a systematic review, the effects of healthcare employee vaccination on patient morbidity and mortality were examined, and a decrease in all-cause mortality and flu-like diseases was reported.[8]

Nurses, who constitute the largest group of healthcare employees, are primary providers of patient care. At the same time, nurses play the role of health educators regarding the efficacy and safety of vaccines.[9,10] However, studies have reported that nurses have a low influenza vaccination rate. [11-16] Nurses who are not vaccinated are less likely to have knowledge about the vaccine and be effective in increasing its acceptance by the community.[5] Thus, in a study, it was reported that nurses who were not vaccinated were less likely to recommend their patients to receive vaccination.[16] It is important to identify the barriers to vaccination to determine strategies for increasing the rate of nurses receiving influenza vaccination. In this context, the study was carried out to determine the barriers to influenza vaccination among nurses.

MATERIAL AND METHOD

Research Design and Setting

A cross-sectional online self-administered survey was conducted among nurses in Turkey, from November to December 2021. Employees working as nurses in any institution (hospital, health center, clinic, etc.) in Turkey were included in the study.

Sample Size and Sampling Procedure

A total of 204,969 nurses are working in Turkey. Using Epi info 7.2 software, the required sample size was estimated as 383, taking a 5% margin of error, 95% confidence interval (CI), and a p-value of 0.05. When the 95% confidence interval was set as P=0.05 in the sample selection, it was determined that 383 nurses should be included in the study. Finally, 390 nurses were included in the study. Nurses who were 18 years of age or older and had 1 year or more professional experience were included in the study. Those who did not meet the inclusion criteria were excluded from the study.

Data Collection Tools and Procedure

Data were collected using a survey form developed by the researchers based on previous studies.[17-19] The questionnaire included questions about socio-demographic characteristics such as age, marital status, gender (13 questions), health and healthy lifestyle behaviors such as presence of chronic disease, smoking, alcohol use (seven questions), and vaccination (five questions). The independent variables were age, years of employment, sex, geographical region, marital status, presence of children, educational status, institution, service, income perception, smoking status, alcohol consumption, regular physical activity, and the presence of chronic disease. Before starting the study, a small pilot study was conducted to test the intelligibility and applicability of all items of the questionnaire. The prepared online survey forms shared on Facebook, Telegram, and WhatsApp. Additionally, snowball sampling was used to ask participants to share the study link with their peers. The nurses were informed about the purpose of the study through an informed, voluntary consent form at the beginning of the survey form, and they could answer the survey questions if they agreed to participate in the study. It took approximately 10 min to complete the survey.

Data Analyses

Data obtained in this study were analyzed using the Statistical Package for the Social Sciences (version 27) for Windows. Chi-square analysis and the Kruskal–Wallis test were used to evaluate the data between the independent variables indicated by the descriptive statistical methods (number, percentage) and vaccination status (P<0.05).

Ethical Consideration

The study was carried out with the permission of Çanakkale Onsekiz Mart University School of Graduate Studies Scientific Researches Ethics Committee (Date: 04.11.2021, Decision No: 19/43). In addition, pre-approval consent was obtained from the nurses through an informed, voluntary consent form describing the study content. No identifying information was included in the online survey form to maintain participant confidentiality.

RESULTS

Descriptive Characteristics of Nurses

The mean age of the nurses was 28.86 ± 6.9 years, 81.5% (n=318) of the nurses were females, 59.7% (n=233) were single, and 73.1% (n=285) did not have children. A total of 62.3% (n=243) of the nurses lived in the Marmara region, and 94.9% (n=370) lived in urban areas. A total of 67.2% (n=262) of the nurses had a bachelor's degree. The average experience was 6.6 ± 7.12 years, and 44.9% (n=175) of the nurses worked in state hospitals, and 34.6% (n=135) worked in intensive care units. A total of 45.6% (n=178) of the nurses defined their income as equivalent to their expenses. In addition, 27.7% (n=108) were smokers, 21.3% (n=83) consumed alcohol, and 25.9% (n=101) engaged in regular physical activity. Of the nurses, 13.1% (n=51) had a chronic disease, and 67.2% (n=262) described their health as either good or very good.

Characteristics of the Nurses Regarding Influenza Vaccination

A total of 69% (n=269) of the nurses had never received an influenza vaccine, and 10.3% (n=40) had received an influenza vaccine in the last year. The three most common factors that encouraged vaccination were the risk status (28.9%), coronavirus disease 2019 (COVID-19) (22.9%), and the need to protect their family (17.9%). The three most common barriers to vaccination (69% (n=269) of the nurses who had never received influenza vaccination) were as follows: the thought that the vaccine was ineffective (21.6%), the thought that the vaccine was not necessary (17.9%), and the thought that they were not at risk (16.2%) (**Table 1**).

Table 1. Rates of nurses getting influenza vaccination and some of their characteristics about vaccination

Variables	n	%
Getting a influenza vaccine regularly (n=390)		
Never been get vaccinated	269	69
Once in a two or three years	14	3.6
Once or twice	97	24.9
Every year	10	2.6
Have get a influenza vaccine in the last year (n=390)		
Yes	40	10.3
No	350	89.7
Have had the influenza in the last year (n=390)		
Yes	258	53.3
No	182	46.7
Factors that encourage the vaccination (n=201)*		
Risk status	58	28.9
COVID-19	46	22.9
Presence of the chronic disease	11	5.5
Result of their researches	23	11.4
Need to protect their family	36	17.9
Need to protect patients	20	9.9
Other	7	3.5
Barriers against to vaccination (n=463)*		
Not knowing vaccination is necessary	24	5.2
the thought that "whatever will be will be"	10	2.2
the thought that the vaccine was ineffective	100	21.6
the thought that the vaccine was not safe	44	9.5
the thought that they were not at risk	75	16.2
Worry about side effects	46	9.9
Presence of chronic disease	6	1.3
Lack of time	27	5.8
Its cost	10	2.2
the thought that there are non-halal substances in the vaccine	4	0.9
Fear to get vaccinated	15	3.2
the thought that the vaccine was not necessary	83	17.9
Not to get vaccinated because of negative news from the media	9	1.9
Fear that the vaccine will cause infertility	4	0.9
Other (not getting sick, the thought that the it's a minor illness)	6	1.3

Factors Associated with Receiving the Influenza Vaccine

The factors associated with regular influenza vaccination among the nurses are presented in **Table 2**. Accordingly, a significant relationship was observed between the work experience (in years), geographical region, education level, the institution of employment, perception of income status, alcohol consumption, presence of chronic disease, and vaccination.

Table 2. Factors associated with nurses getting regular influenza vaccination

Variables	Regular		Sometimes		Never		p
	X±SS		X±SS		X±SS		
Age	29.5±5.7		30.1±7.6		28.29±6.5		0.126*
Work exprerience	7.5±5.31		8.1±7.3		5.9±6.9		0.002**
	n	%	n	%	n	%	
Gender							
Female	9	2.8	84	26.4	225	70.8	0.149**
Male	1	1.4	27	37.5	44	61.1	
Geographical region							
Mediterranean region	1	5.0	4	20.0	15	75.0	
Eastern anatolia region	2	18.2	3	27.3	6	54.5	
Aegean region	1	2.6	12	31.6	25	65.8	
Southeastern anatolia region	1	12.5	2	25.0	5	62.5	0.029**
Central anatolia region	1	2.6	5	12.8	33	84.6	
Black sea region	-	-	8	25.8	23	74.2	
Marmara region	4	1.6	77	31.7	162	66.7	
Marital status							
Married	5	3.4	43	29.7	97	66.9	0.391**
Single	5	2.1	62	26.6	166	71.2	
Divorced-widow	-	-	6	50.0	6	50.0	
Presence of children							
Yes	3	2.9	35	33.3	67	63.8	0.406**
No	7	2.5	76	26.7	202	70.9	
Education level							
Highschool	-	-	15	55.6	12	44.4	
Associate degree	1	2.9	11	32.4	22	64.7	0.046**
Bachelor degree	6	2.3	66	25.2	190	72.5	
Postgraduate degree	3	4.5	19	28.4	45	67.2	
Institution of employment							
State hospital	4	2.3	41	23.4	130	74.3	
Private hospital	1	2.1	17	35.4	30	62.5	0.010**
University hospital	3	1.9	50	31.8	104	66.2	
Family health center	2	20.0	3	30.0	5	50.0	
Service that is the nurse worked in							
Surgical units	2	2.3	25	28.7	60	69.0	
Internal units	3	2.5	29	24.6	86	72.9	0.859**
Intensive care units	3	2.2	40	29.6	92	68.1	
Other	2	4.1	17	34.7	30	61.2	
Perception of income							
Income less than expense	6	3.6	59	35.3	102	61.1	
Income more than expense	2	4.4	9	20.0	34	75.6	0.033**
Income equal to expense	2	1.1	43	24.2	133	74.7	
Smoking status							
Yes	2	1.9	36	33.3	70	64.8	0.384**
No	8	2.8	75	26.6	199	70.6	
Alcohol consumption							
Yes	3	3.6	33	39.8	47	56.6	0.023**
No	7	2.3	78	25.4	222	72.3	
Regular physical activity							
Yes	2	2.0	33	32.7	66	65.3	0.524**
No	8	2.8	78	27.0	203	70.2	
Presence of chronic disease							
Yes	4	7.8	16	31.4	31	60.8	0.028**
No	6	1.8	95	28.0	238	70.2	

* Kruskal Wallis test ** Chi-square analysis

DISCUSSION

In this study carried out to determine the barriers to receiving influenza vaccination among nurses, it was observed that 69% of the nurses had never received the influenza vaccine, and 10.3% had received the influenza vaccine in the last year (2020-2021). In addition, vaccination rates were reported as 33.5%, 35.6%, and 69.5% in Brunei, Hong Kong, and Singapore, respectively.[17] In studies conducted in Turkey, vaccination rates have been reported to vary between 4.3 and 31.8%.[14,15] According to these results, it draws attention that vaccination rates are quite low compared with those in other countries. This may be due to differences in the immunization schedules of countries. Therefore, it is important to develop strategies that encourage vaccination. In this study, the three most common factors that encourage vaccination are being a part of the risk group, COVID-19, and the need to protect the family. Studies in the literature have reported that self-protection is the most encouraging factor for vaccination.[16,19,20] In addition, COVID-19 was one of the most encouraging factors for nurses to be vaccinated. A study reported that COVID-19 increased the rate of influenza vaccination among nurses by approximately 50%.[21] It is desirable for them to be vaccinated due to COVID-19. Studies have shown that the influenza vaccine can be effective in managing COVID-19.[22,23] These results prove that nurses prioritize protecting themselves and their families, and this should be considered when determining strategies to increase vaccination.

It is important to understand the barriers to vaccination among nurses to develop effective strategies for increasing vaccination rates. The most reported barriers to influenza vaccination in this study were the thought that the vaccine was ineffective, that the vaccine was unnecessary, and that the individual was not at risk. Similarly, in the study by Pavlic et al. (2020) in Slovenia, the main barriers to vaccination were thinking that the vaccine was ineffective, the concern that there may be side effects, and the belief that young healthcare employees were not at risk.[24] In another study, the thought that vaccines were unsafe and ineffective, the fear of side effects, and uncertainty about long-term results were reported as barriers to vaccination.[25] In a systematic review, it was reported that concerns about post-vaccination side effects were the biggest barriers to vaccination.[13] In a study conducted in Turkey, the main barriers were reported as not believing in the vaccine's effectiveness, fear of its side effects, and lack of awareness of whether the individual was at risk. [14] The literature largely supports the results of the present study. Concerns about the effectiveness of vaccination are also seen as the biggest barrier to vaccination. Therefore, there is a need for studies with a high level of evidence to demonstrate the effectiveness of the vaccine. Additionally, sharing this evidence with nurses working in appropriate environments is an important strategy. In fact, a systematic review reported that campaigns based on education and promotion or on-site vaccination caused a 40% increase in vaccination rates. In addition, in the same study, it was reported that multifaceted campaigns, including mandatory vaccination policies or the "vaccinate or wear a mask" policy, could increase vaccination coverage by more than 90%.[26]

Table 2 presents some results thought to be related to the vaccination of nurses. These included the nurses' experience (in years), geographical region, educational status, the institution of employment, perception of income status, alcohol consumption, and presence of chronic disease. In similar studies, the years of employment,[16,27] geographic region,[16,28] educational status,[29] the institution of employment,[16,30] the perception of income status,[28] and the presence of chronic diseases[21] are among the factors associated with vaccination. In addition, in this study, no significant relationship was found between age, sex, marital status, the presence of children, service that the nurses worked in, and regular vaccination (P>0.05). However, studies in the literature have indicated that there is a statistically significant relationship between age,[16,21,28] sex,[28,29] the presence of children,[28] service that is the nurse worked in,[14] smoking status,[28] regular physical activity,[28] and regular vaccination. The reason for these differences may be the characteristics of the samples.

The inclusion of nurses working in different health institutions in seven geographical regions across Turkey was one of the strengths of this study. However, this study has some limitations. First, because the study was cross-sectional, causal relationships between the analyzed variables could not be determined. Second, the nurses may not have provided the correct answer while answering the survey questions as they may have forgotten certain details. However, our findings can be used to plan future initiatives to increase vaccination rates among nurses.

CONCLUSION

The results of this study showed that the rate of influenza vaccination among nurses in Turkey is quite low, and some variables, such as the years of employment, geographical region, educational status, the institution of employment, perception of income, alcohol consumption, and the presence of chronic disease may be associated with regular vaccination. In addition, some factors encourage and prevent nurses from being vaccinated. Encouraging factors included protecting oneself and one's family. Barriers, on the other hand, were mostly related to trust issues and ignorance regarding vaccine efficacy. In this context, it can be recommended to organize in-service training for nurses, comprising evidence-based information about the influenza vaccine and its importance, display awareness posters about the importance of the influenza vaccine in health institutions, and establish units that follow up on the vaccination of healthcare employees. In addition, future researchers should focus on studies that demonstrate the effectiveness of initiatives to increase vaccination rates.

ETHICAL DECLARATIONS

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