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Physicians' Perspectives on Vaccinations

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Abstract

Protective vaccinations are crucial for preventing infectious diseases and their complications, offering a high safety profile and minimal adverse effects. However, vaccine hesitancy has emerged as a public health concern, leading to outbreaks of communicable diseases. This study aims to investigate the attitudes towards vaccinations among doctors and nurses, as well as their knowledge level and vaccination frequency. The research employed a cross-sectional design and collected data using an anonymous questionnaire. The study was conducted in southern Poland, involving Primary Healthcare Centers and hospitals. A total of 878 paper surveys were collected among 542 doctors and 336 nurses.

Keywords: vaccination, influenza, medicalprofessionals, vaccinationattitude

Introduction:

Protective vaccinations represent the most effective and safest approach for safeguarding against infectious diseases and their complications. Diseases preventable through vaccination constitute significant contributors to morbidity and mortality [1]. According to conducted research, vaccinations exhibit a high safety profile and have minimal adverse effects [2].

In recent decades, vaccine hesitancy has emerged as a significant public health issue, contributing to the occurrence of outbreaks of communicable diseases. The factors behind vaccine refusal are multifaceted and vary based on geographical and cultural factors. Doubts regarding the necessity of vaccinations are primarily fueled by the activities of anti-vaccine movements, which propagate their alleged lack of safety and harmfulness [3]. The growing distrust towards vaccines is affecting a decline in population immunity among Poles. Misinformation about vaccinations is widely propagated through social media and television, leading to negative attitudes towards vaccines within society. Additionally, factors contributing to vaccine hesitancy include the popularity of homeopathic medicine and a decreased trust in public health authorities and the healthcare system. In Europe, as well as in other regions worldwide, the number of parents and individuals who hesitate or refuse vaccinations is increasing [4]. During vaccination visits, healthcare professionals increasingly encounter numerous questions from parents regarding vaccinations and must persuade them about their necessity and safety [5]. According to the literature, promoting vaccinations and advocating for their importance influences the decisions made by society. Smith et al. investigated, that healthcare workers are the most trusted sources of vaccine information and positively influence patients to receive recommended vaccines [6].

As medical professionals are the first line of information for patients about vaccinations and has an impact on shaping the attitudes of society, we want to investigate the attitudes towards vaccinations among doctors and nurses. Moreover, in our research work we also want to check the level of knowledge about vaccinations among medical professionals and the frequency of vaccination.

Methods:

In the cross-sectional study described below, data for analysis was collected using an anonymous author-designed questionnaire consisting of seven questions related to demographic information and fifteen multiple-choice questions regarding vaccinations. The study included healthcare workers.

The study was conducted from July 2022 to January 2023 at randomly selected locations in southern Poland, including Primary Healthcare Centers and Hospitals in Rzeszów, as well as medical conferences.

The questionnaire:

The questionnaire was anonymous and consisted of two sections: 7 questions about demographic data and 15 substantive questions that were developed based on a review of specialized literature and directed towards the overall purpose of the study. The section regarding the demographic information of the respondents included questions about gender, age (categorized into 4 groups: 18-25, 26-35, 36-45, >45 years), education, occupation (nurse/doctor), workplace (hospital, primary healthcare center, other clinic, hospital and primary healthcare center), family's financial situation (poor, average, good), and whether they had children (yes/no).

The second section contained substantive questions assessing the respondents' engagement in vaccination implementation, evaluation of sources providing information about vaccinations as well as sources of negative attitudes towards vaccinations, knowledge questions, questions about the frequency of vaccination, and attitudes guiding the respondents in choosing additional preventive measures. The attitudes of the respondents towards mandatory and recommended vaccinations were also examined. One question was specifically directed at respondents who considered vaccinations to be harmful.

	NURSES	PHYSICIANS
AGE		
18-25	22	28
26-35	59	341
36-45	80	45
>45	175	128
GENDER		
Female	331	444
Male	5	98

EDUCATION		
Secondary	118	0
Higher	218	542
EMPLOYMENT		
Hospital	182	293
Primary Health Care	109	98
Other	25	15
Hospital and Primary Health Care	20	136
FINANCIAL SITUATION		
Bad	8	5
Average	127	82
Good	201	455
OFFSPRING		
Yes	257	283
No	79	259
EMPLOYMENT IN VACCINATION IMPLEMENTATION		
Yes	138	192
No	198	350
		n=659

Table 1

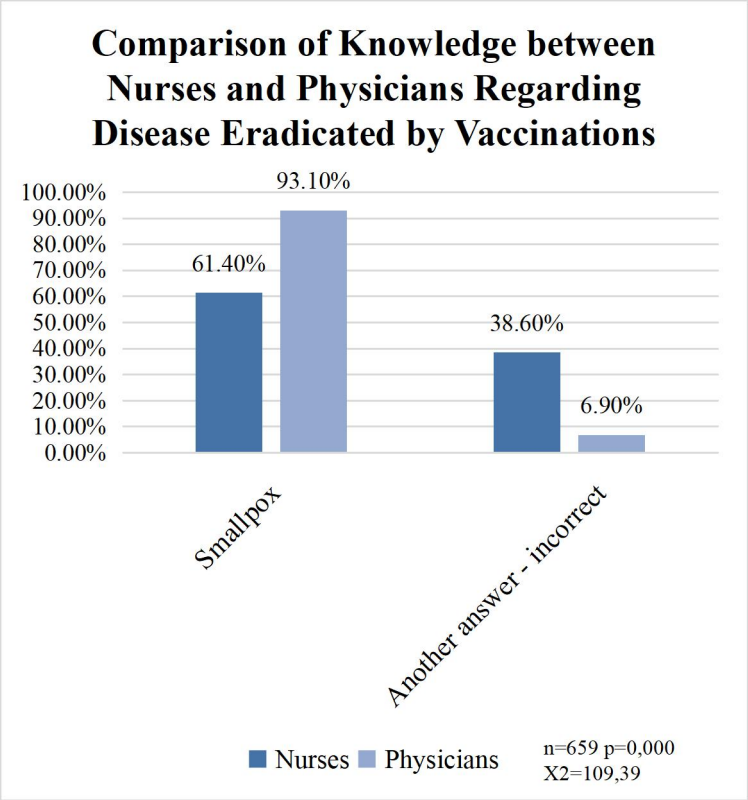
The statistical analysis:

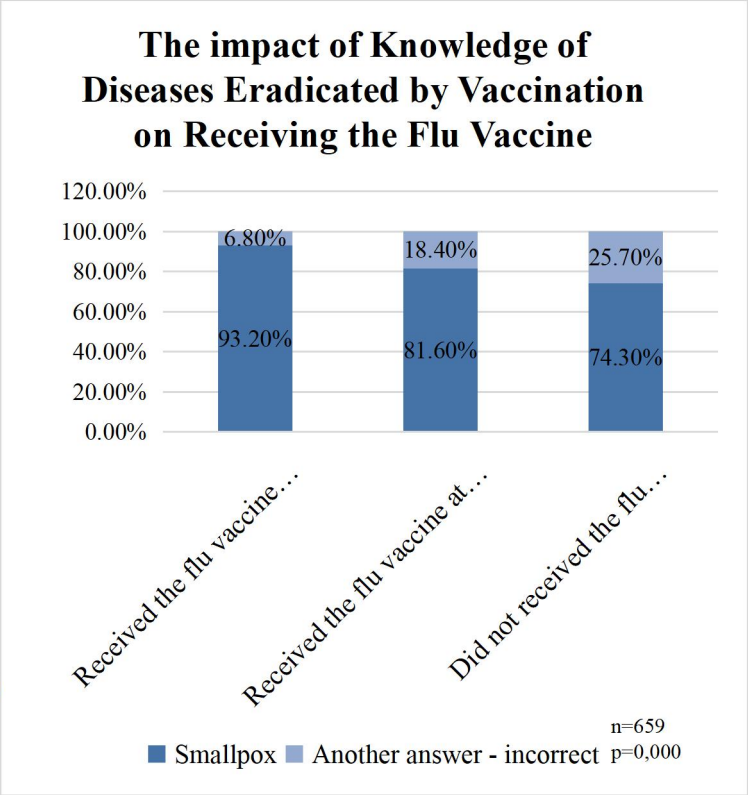
The statistical analysis was conducted using the Statistica ver. 13 software, employing the Pearson's Chi-square test. The level of statistical significance was set at $p < 0.05$.

Results:

A total of 878 paper surveys were collected among 542 doctors and 336 nurses. However, after further analysis, 219 surveys were excluded due to errors made during the completion process. These errors could include missing or incomplete responses, inconsistencies, or other mistakes that affected the validity or reliability of the data. The exclusion of these surveys ensures the integrity and accuracy of the remaining data for the subsequent analysis.

At the beginning, we examined whether doctors and nurses were aware of which disease had been eradicated thanks to vaccination (*Figure 1*). Among nurses, 38.6% selected the incorrect answer. On the other hand, among physicians, 6.9% of the respondents were not aware of the correct answer to this question. We investigated the level of knowledge about vaccines among healthcare workers, both those who receive annual influenza vaccinations and those who do not. The highest percentage of correct answers was observed among individuals who received the flu vaccine every year, with 93% providing accurate responses. Among those who received the influenza vaccine within the past 3 years, 82% provided correct answers regarding vaccine-related knowledge. The lowest percentage of correct answers was among medical personnel who did not receive the flu vaccine at all, with 74% providing accurate responses (*Figure 2*).





We then analyzed whether the age of healthcare workers influences their compliance with influenza vaccination. Healthcare workers aged 18-25 constituted the largest proportion of individuals who did not get vaccinated against influenza at all. The group of doctors and nurses between the ages of 26 and 35 exhibited the highest influenza vaccination rate in the past 3 years. Annual influenza vaccination rates were highest among the age group above 45 years old, while they represented the lowest percentage of individuals receiving vaccinations in the past 3 years (*Figure 3*).

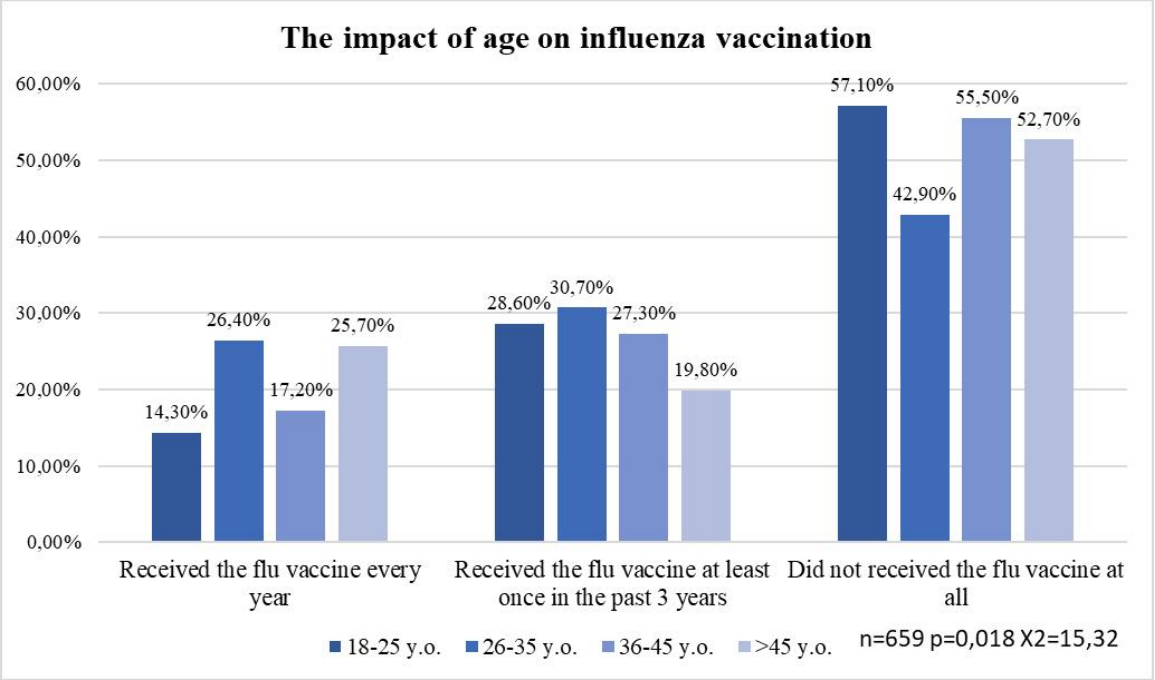


Figure 3

We examined the vaccination attitudes among healthcare workers involved in vaccine administration and compared them to those not professionally engaged in vaccination. The personnel involved in vaccine administration identified themselves as vaccine advocates, with a percentage exceeding 96% of nurses and 99% of physicians. Among healthcare professionals not directly involved in vaccine administration, 96% of doctors self-identified as vaccine advocates, whereas only 74% of nurses shared the same sentiment (*Figure 4*). We compared vaccination rates of physicians and nurses employed in vaccination administration. 77% of doctors and 53% of nurses involved in administering vaccinations received vaccination at least once in past 3 years (figure 4)

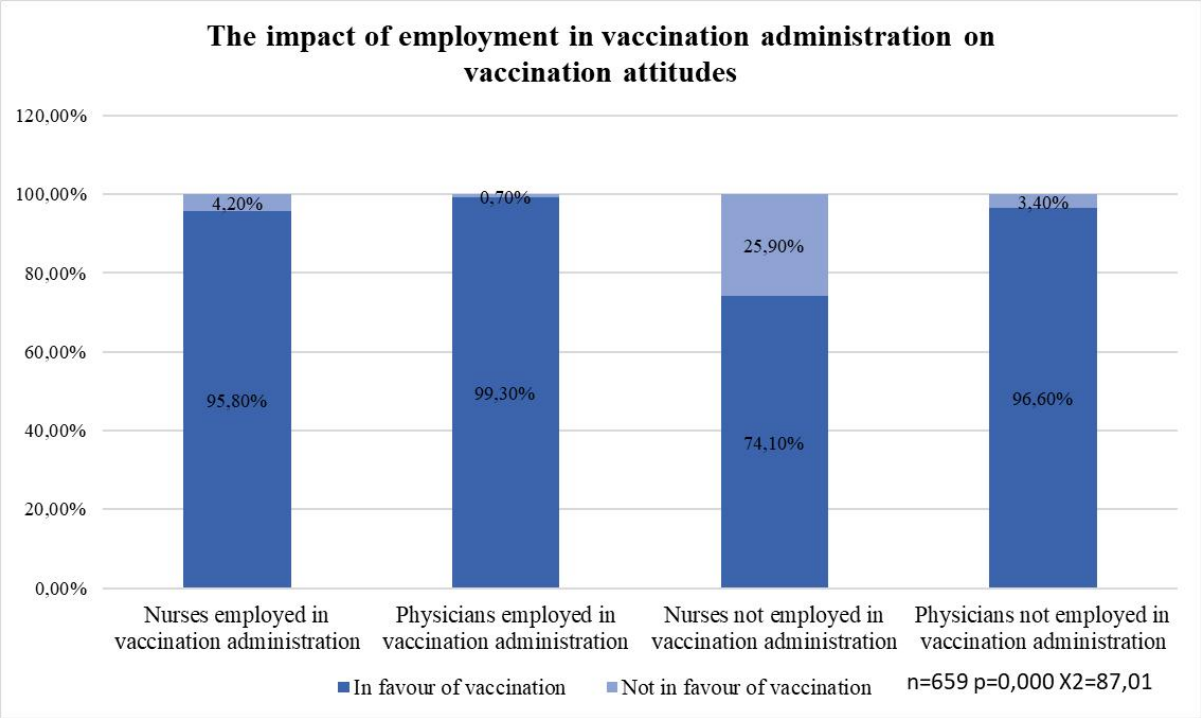


Figure 4

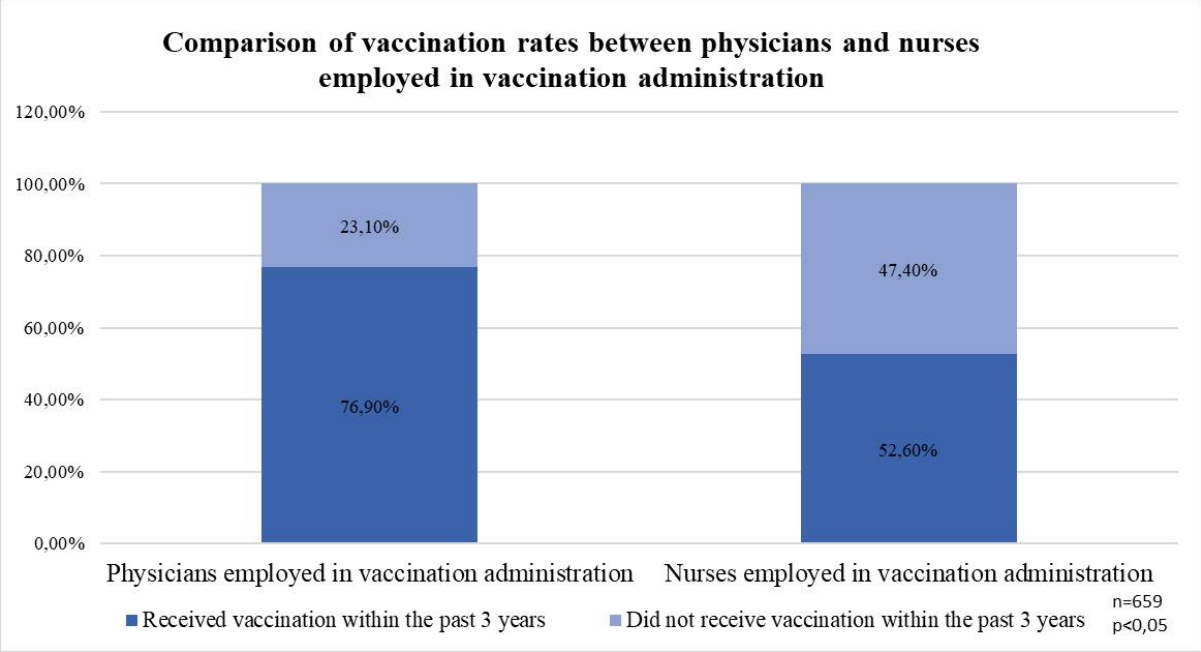


Figure 5

We assessed the level of influenza vaccination coverage among healthcare workers. Among them, 48% do not get vaccinated against influenza at all. Only 25% receive the vaccination every year. Interestingly, 63% of nurses do not get vaccinated against influenza at all, while the percentage is lower among doctors at 40%. (*Figure 6,7*).

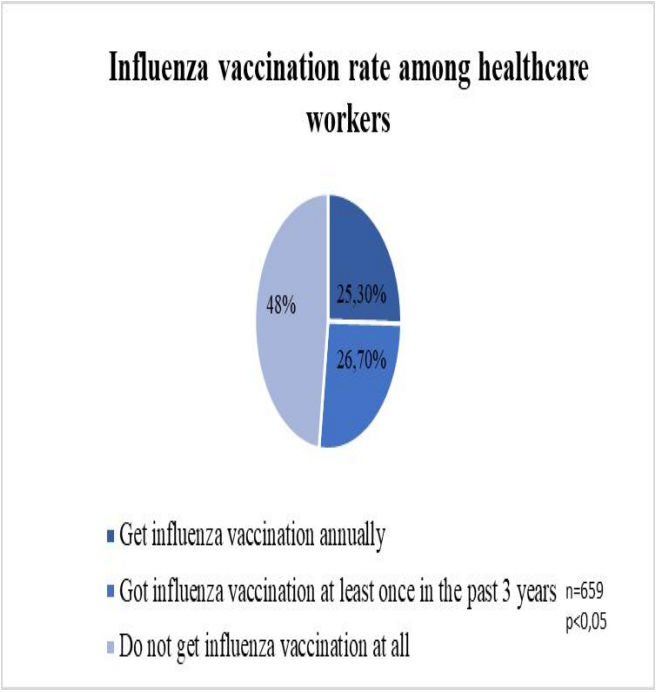


Figure 6

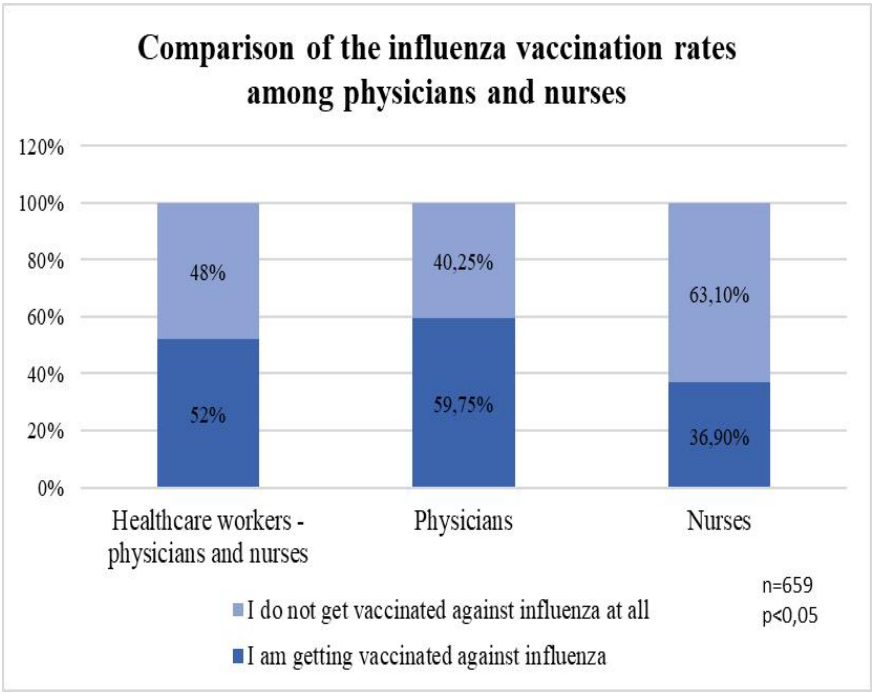


Figure 7

We analyzed whether healthcare workers' belief in the statement "vaccines cause autism" has an impact on their uptake of vaccinations. It was found that among the medical personnel who agree with the statement that vaccines cause autism, none of them received vaccination in the past 3 years. Among those who are unsure about the truthfulness of the statement, the percentage of non-vaccinated individuals reached 85%. On the other hand, among those who do not believe, 40% did not receive vaccination (*Figure 8*).

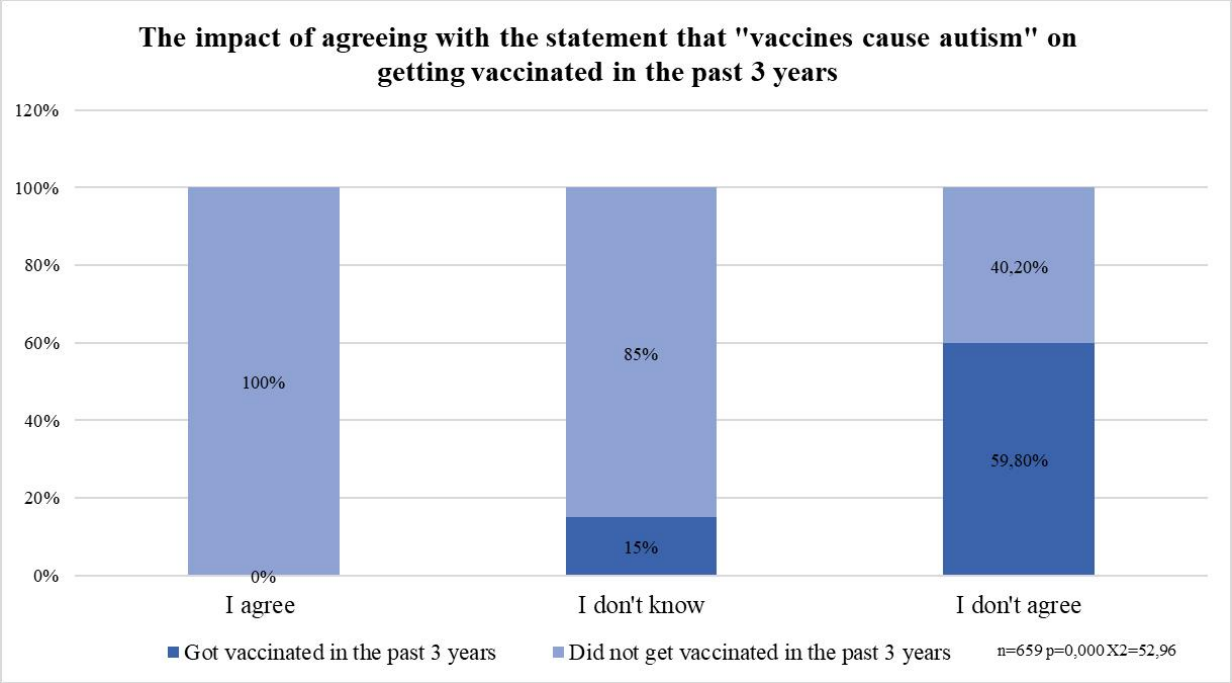


Figure 8

Discussion:

In Poland, the vaccination coverage among healthcare workers against influenza remains at a low level, with a lower percentage among nurses compared to doctors. According to our data, 48% of healthcare workers do not receive influenza vaccination, including 40.25% of doctors and 63.10% of nurses. A similar situation is observed in other European countries. In Italy, for instance, only 6 out of 10 doctors, 2 out of 10 nurses, and less than 1 out of 10 other healthcare workers received influenza vaccination [7]. In another study it was shown that 79.9% of Healthcare Personnel (HCP) in the United States reported having received an influenza vaccination during the 2021-22 season, which was similar to the account of 75.9% during the 2020-21 season. Moreover, vaccination coverage against influenza was found to be lower among nurses (87.8%), compared to physicians (96.8%) [8]. The above results are consistent with the results of our study, which also shows a lower vaccination coverage rate among nurses than physicians, however in Poland only 16,5% of nurses receive annual vaccinations, whereas in the United States it is around 90%. According to our study and literature [9], compared to physicians, nurses were less trustworthy of the influenza vaccination, which is a worrying matter, especially when it comes to professionals

caring for high-risk patients. Furthermore, according to our data, only 25.31% of healthcare workers report being vaccinated against influenza annually. In the last a significantly lower percentage of healthcare workers received influenza vaccination at least once over the past three years, with only 26,7% out of 659 respondents. In contrast, in Spain, the vaccination rate was 72.5% among 1425 participants [10]. Interestingly, both in our survey and in the United States, the percentage of vaccinated healthcare workers involved in vaccine administration is higher compared to personnel who do not have contact with vaccinations in the workplace [11]. According to our conducted study, 76.9% of physicians and 52.6% of nurses employed in vaccination activities received vaccination within the past 3 years. In contrast, among healthcare personnel not involved in vaccination administration, less than half- 48.2%, received vaccination. As the level of influenza vaccination among medical professionals is significantly low, it is really important to find a strategy in order to improve vaccination coverage. One study showed that among healthcare workers whose employers did not have a vaccination mandate, the vaccination rate against influenza was higher among those who worked in locations where free vaccinations were offered for one day (70.4%) [12]. Another research showed results regarding implementation of the on-site influenza vaccination strategy, which requires that physicians attend, in specific days and time slots, directly to the Operational Units (OUs) of a hospital in which the healthcare workers wish to join the vaccination campaign, with the aim of covering as many Departments as possible. Within the use of the mentioned strategy, the vaccination rate against influenza among medical professionals increased from 8.7% to 14.2% in one year [13].

According to the literature, the reasons for poor vaccine compliance by healthcare workers is misinformation promoted in media, lack or inadequate awareness campaigns, insufficient health education regarding vaccine effectiveness and adverse reaction, lack of access to vaccination facilities or not having the time to attend the vaccination clinic. Vaccine hesitancy among healthcare workers poses a significant public health problem [14]. Among Turkish healthcare workers, the reasons for not receiving influenza vaccination were concerns about adverse effects, doubts about effectiveness and safety, and lack of adequate knowledge about vaccines [15]. In Poland, according to our study, this uncertainty may come from a belief among some healthcare personnel that autism is a side effect of vaccinations. Another reason for vaccination uncertainty may be insufficient knowledge among healthcare professionals about vaccinations - 38% of nurses and 7% of surveyed physicians do not know which disease has been eradicated through vaccination. General knowledge and perception of the risks associated with vaccine-preventable diseases (VPDs) impact the willingness to

vaccinate among occupational medicine physicians [16]. Similarly, among healthcare personnel in Poland, greater knowledge among doctors and nurses was associated with a higher likelihood of receiving annual influenza vaccinations. According to the literature, among patients who have vaccinated themselves, the main reasons for vaccination were: enough information about vaccines and recommendation from doctor or from nurses. Moreover, nearly 40% of the unvaccinated said that they had not been vaccinated due to a lack of recommendation or prescription [17]. Considering the role of physicians in vaccinations, these statistics call for actions aimed at addressing vaccine hesitancy and identifying the sources of misinformation regarding vaccines, as well as combating them [18].

Conclusions:

According to our findings, there is a need for enhanced knowledge and vaccine education among medical professionals. Moreover, it is important to increase efforts by healthcare professionals and the media to promote the importance and advantages of vaccination in the population. It is recommended to implement information and education campaigns focused on influenza, its complications, and the effectiveness and safety of vaccination. Additionally, designing vaccination campaigns in alignment with the recommendations of healthcare experts would be crucial to improve vaccination coverage. If, despite education efforts, the vaccination coverage among healthcare workers does not improve, consideration should be given to implementing a policy that encourages healthcare workers to get vaccinated, such as the mask requirement in the United States. Another potential solution could be the introduction of mandatory training on vaccines and vaccinations, supported by credible research, to counteract the dissemination of false information among healthcare professionals.

Author Contributions

Conceptualization, K.K., I.M.; supervision and project administration, K.K., I.M., A.A., J.Z.; T.H.A and A.A.A., I.M., K.K.; Methodology, K.K., I.M.; Software, A.A., J.Z.; Validation, K.K., I.M.; formal analysis, A.A., M.B.; investigation, M.B.; resources, K.K., I.M.; writing-original draft preparation, K.K., I.M., A.A., J.Z., M.B.; writing- review and editing and visualization, K.K., I.M., A.A., J.Z., M.B.

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Institutional Review Board Statement

Not applicable. The study was conducted in accordance with the Declaration of Helsinki. In accordance with the low in force in the Republic of Poland, questionnaire studies do not require the opinion or consent of the Bioethics Committee, as they are not a medical experiment in which human organisms would be interfered with. For this reason, we did not seek the consent of the Commission. What's more, the results of the study did not affect the management of patients at any stage, so the above-mentioned procedure was followed.

Informed Consent Statement

Not applicable.

Data Availability Statement

Not applicable.

Conflicts of Interest

The authors declare no conflict of interest.

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