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INTENTION TO RECEIVE INFLUENZA VACCINATION AMONG PREVENTIVE MEDICINE STUDENTS AT HANOI MEDICAL UNIVERSITY IN 2024 AND ASSOCIATED FACTORS

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ABSTRACT

Objective: This study aimed to describe the intention to receive seasonal influenza vaccination among preventive medicine students at Hanoi Medical University in 2024 and to analyze associated factors.

Methods: A cross-sectional descriptive study was conducted on 447 preventive medicine students at Hanoi Medical University.

Results: Only 66% of students intended to receive the seasonal influenza vaccine. The two main barriers to vaccination were lack of time and concerns about post-vaccination side effects. Female students were 1.6 times more likely to intend to get vaccinated compared to male students (95% CI: 1.1–2.4). Additionally, students who had previously received the influenza vaccine were 6.4 times more likely to intend to get vaccinated in the future than those who had not (95% CI: 3.1–13.1).

Conclusion: The proportion of students intending to receive the seasonal influenza vaccine remains low, at only 66%, with significantly lower rates observed among male students and those who have never been vaccinated. Strengthening communication strategies that provide accurate information and emphasize the benefits of vaccination, especially targeting male students and those without prior vaccination, is essential to increase vaccination intention.

Keywords: Vaccination intention, seasonal influenza vaccine, medical students.

1. INTRODUCTION

Seasonal influenza is an acute respiratory infectious disease caused by influenza viruses. According to the World Health Organization (WHO), seasonal influenza is responsible for approximately 290,000 to 650,000 deaths worldwide each year[1]. In Vietnam, there were 289,214 reported cases of seasonal influenza in 2024, with eight deaths[2]. Seasonal influenza vaccination is a proactive and highly effective preventive measure, reducing 70–90% of influenza cases[3]. A study by Huynh Nguyen Phuong Quang et al demonstrated that annual influenza vaccination practice, exposure to influenza vaccine communication, and awareness of influenza severity were factors influencing influenza vaccine acceptance among healthcare workers[4]. Another international study showed a statistically significant association between medical students' intention to get vaccinated in the following year and their awareness of being at higher occupational risk, previous vaccination, and having received vaccination recommendations[5]. Similarly, a study in Italy found that influenza vaccination within the past five years was associated with future influenza vaccine uptake intentions among medical students[6].

Preventive medicine students are part of a high-risk group; however, no studies in Vietnam have yet examined the intention to receive seasonal influenza vaccination among this population. Therefore, questions remain about the intention to receive influenza vaccination among these students and the factors associated with it. Thus, we conducted the study: *"Intention to receive seasonal influenza vaccination among preventive medicine students at Hanoi Medical University in 2024 and associated factors"* with two objectives:

1. Describing the intention to receive seasonal influenza

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vaccination among preventive medicine students at Hanoi Medical University in 2024.

2. Analyzing factors associated with the intention to receive seasonal influenza vaccination among preventive medicine students at Hanoi Medical University in 2024.

2. SUBJECTS AND RESEARCH METHODS

2.1. Research design: Cross-sectional study.

2.2. Duration and place of the research

- Duration: From 09/2024 to 06/2025 (Collect data from 12/2024).

- Place: Hanoi Medical University.

2.3. Objects: Year one to year six Preventive medical students from Hanoi Medical University, academic year from 2024 to 2025.

- Exclusion criteria: Students who were absent at the time of the study taking place or who did not consent to participate.

2.4. Sample size and sampling method

The study was conducted on all year-one and year-six Preventive Medical students at Hanoi Medical University. Approximately 447 of 487 students (91.8%) agreed to participate in the research.

2.5. Study variables

The main groups of variables and key indicators included:

- Group of variables for Objective 1: Demographic characteristics (sex, age, ethnicity, year of study, family circumstances, father's educational level, mother's educational level, monthly living expenses); seasonal influenza vaccination status; barriers to seasonal influenza vaccination (cost, time, location, origin of vaccine, etc.); intention to receive seasonal influenza vaccination.

- Group of variables for Objective 2:

+ Dependent variable: Influenza vaccination intention among Medical students.

+ Independent variable: Demographic features, Vaccinated/Unvaccinated, barriers to seasonal influenza vaccination intention.

2.6. Data collection method: After being explained about the research, students self-completed a questionnaire through an online link.

2.7. Data processing and analysis

- Quantitative data were checked, cleaned, coded, and entered into the RedCap software, and subsequently analyzed using Stata version 15.0.

- Descriptive statistics (percentages, means, etc.) were used to address Objective 1.

- Odds ratios (OR) with 95% confidence intervals (95% CI) were used to analyze Objective 2 to identify factors associated with the intention to receive seasonal influenza vaccination among preventive medicine students at Hanoi Medical University in 2024.

2.8. Research ethics

The study was approved by the Hanoi Medical University student scientific research project in 2024 under Decision No. 4809/QĐ-ĐHYHN. All participants were clearly informed about the purpose and content of the study and voluntarily agreed to participate. All personal information was kept confidential and only used for research purposes, with no other use permitted.

3. RESULTS

The research was conducted on 447 preventive medicine students in Hanoi Medical University during 2024-2025. The proportion of female students (61.1%) was higher than that of male students (38.9%). Moreover, first-year students accounted for the highest proportion at 22.8%, while fourth-year students had the lowest at 11.6%. Regarding monthly living expenses, students reported sources including family support and part-time work, with the majority spending between 2–5 million VND (48.8%) or less than 2 million VND (36.9%) per month. Most students self-assessed their family's economic status as average (83.9%).

3.1. Seasonal influenza vaccination intention among preventive medicine students

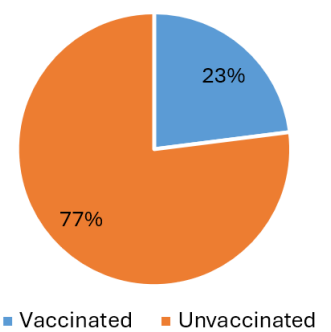

Chart 1. Seasonal influenza vaccination coverage among students in 2024 (n=447)

Chart 1. Illustrates that 23% of students received the seasonal influenza vaccine in 2024, whereas approximately 77% did not.

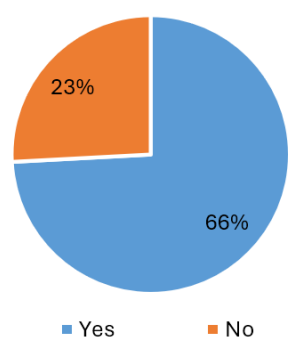

Chart 2. Seasonal influenza vaccination intention in the future

Chart 2. illustrates that, among students, the intention to receive seasonal influenza vaccination in the future was 66%

Table 1. Barriers to seasonal influenza vaccination among preventative medicine students

Barriers	Agree	
	n	%
Lack of time to get vaccinated	229	51.2
Concern about the side effects of the seasonal influenza vaccine	182	40.7
Unawareness of vaccination sites for seasonal influenza	159	35.6
Influenza is a seasonal disease that is self-limiting	153	34.2
Concern regarding the origin of the vaccine	144	32.2
Believe that they are unlikely to contract seasonal influenza	135	30.2
Vaccines are expensive	130	29.1
Concern that the seasonal influenza vaccine may lead to influenza and fever	97	21.7
Lack of confidence in the effectiveness of the seasonal influenza vaccine	89	19.9
The doctor did not recommend getting the influenza vaccine	49	11

Table 1. The results indicate that the main barriers affecting students' intention to receive influenza vaccines were a lack of time (51.2%) and concerns about vaccine side effects (40.7%).

3.2. Factors associated with the intention to receive seasonal influenza vaccination among preventive medicine students

Table 2. The associations between general information and influenza vaccination intention in the future

General information	Vaccination intention		OR (95%CI)	p
	Yes n (%)	No n (%)		
Gender				
Male	104 (59.8)	70 (40.2)	1	
Female	193 (70.7)	80 (29.3)	1.6 (1.1-2.4)	0.02
Year				
Pre-third-year	120 (62.8)	71 (37.2)	1	
Post-third-year	177 (69.1)	39 (30.9)		
Monthly living expenses				
<2 million VND	116 (70.3)	49 (29.7)	1	
≥2 million VND	181 (64.2)	101 (35.8)	0.8 (0.5-1.1)	0.19
Family background				
Poor, near poor	22 (62.9)	13 (37.1)	1	
Average	253 (67.5)	122 (32.5)	1.2 (0.6-2.5)	0.6
Well-off	22 (59.5)	15 (40.5)	0.9 (0.3-2.3)	0.8
Prior influenza vaccination status				
Vaccinated	204 (59.3)	140 (40.7)	1	
Did not get vaccinated	93 (90.3)	10 (9.7)	6.4 (3.1-13.1)	0.000

Table 2. The results indicate that gender and prior influenza vaccination status were significantly associated with the intention to receive seasonal influenza vaccination among students. Specifically, female students were 1.6 times more likely to intend to be vaccinated than male students, and those who had previously been vaccinated were 6.4 times more likely to intend to vaccinate than those who had not been vaccinated (p<0.05).

Table 3. The association between various barriers to seasonal influenza vaccination and the intention to receive seasonal influenza vaccination in the future

Barriers	Vaccination intention n (%)		OR (95% CI)	p
	Agree	Disagree		
Vaccines are expensive				
Disagree	213 (67.2)	104 (32.8)	1	0.6
Agree	84 (64.6)	46 (35.4)	0.9 (0.6-1.4)	
Lack of time to get vaccinated				
Disagree	142 (65.1)	76 (34.9)	1	0.57
Agree	155 (67.7)	74 (32.3)	1.1 (0.8-1.7)	

Barriers	Vaccination intention n (%)		OR (95% CI)	p
	Agree	Disagree		
Unawareness of vaccination sites for seasonal influenza				
Disagree	181 (62.9)	107 (37.1)	1	0.03
Agree	116 (73.0)	43 (27.0)	1.6 (1-2.4)	
Lack of confidence in the effectiveness of the seasonal influenza vaccine				
Disagree	232 (64.8)	126 (35.2)	1	0.14
Agree	65 (73.0)	24 (27.0)	1.5 (0.9-2.5)	
Concern about the side effects of the seasonal influenza vaccine				
Disagree	161 (60.8)	104 (39.2)	1	0.002
Agree	136 (74.7)	46 (25.3)	1.9 (1.3-2.9)	
Concern that the seasonal influenza vaccine may lead to influenza and fever				
Disagree	223 (63.7)	127 (36.3)	1	0.02
Agree	74 (76.3)	23 (23.7)	1.8 (1.1-3.1)	
Believe that they are unlikely to contract seasonal influenza				
Disagree	217 (69.6)	95 (30.4)	1	0.03
Agree	80 (59.3)	55 (40.7)	0.6 (0.4-1)	
Influenza is a seasonal disease that is self-limiting				
Disagree	203 (69.1)	91 (30.9)	1	0.11
Agree	94 (61.4)	59 (38.6)	0.7 (0.5-1.1)	
The doctor did not recommend getting the influenza vaccine				
Disagree	268 (67.3)	130 (32.7)	1	0.25
Agree	29 (59.2)	20 (40.8)	0.7 (0.4-1.3)	
Concern regarding the origin of the vaccine				
Disagree	197 (65.0)	106 (35.0)	1	0.35
Agree	100 (69.4)	44 (30.6)	1.2 (0.8-1.9)	

Table 3. The results show that barriers such as not knowing where to get seasonal influenza vaccination, fear of vaccine side effects, concerns that the vaccine may cause influenza and fever, and the belief of not being personally susceptible to seasonal flu were statistically significantly associated with students' intentions to receive seasonal influenza vaccination in the future ($p<0.05$).

4. DISCUSSION

Our study, conducted among 447 students enrolled in the Preventive Medicine Doctor program at Hanoi Medical University during the 2024–2025 academic year, found low seasonal influenza vaccination coverage, with only 23% of students having received the vaccine in the past year. This result is lower than that reported by Rogers et al., who found an influenza vaccination rate of 43% among public health students[7]. On the other hand, our findings are relatively consistent with a study in Japan, which showed that only 27.3% of students had been vaccinated; moreover, students in medicine and health care majors were three times more likely to receive vaccination than those in other fields[8]. Additionally, the intention to receive influenza vaccination among our participants was low, with 66% reporting an intention to be vaccinated. However, this figure was higher than that found by Haiyan Zou et al., who surveyed 2.261 Chinese university students, of whom 55.3% were willing to be vaccinated without hesitation, and 44.7% showed hesitancy[9]. Our result was also higher than that of Nguyen Minh Chau, who reported that only 18.97% of medical students and healthcare workers were willing to receive the influenza vaccine or booster. However, more than half agreed that influenza vaccination should be mandatory for these groups[10]. By contrast, our results were lower than those reported by Huynh Nguyen Phuong Quang, who found an influenza vaccine acceptance rate of 81.7% among healthcare workers in Can Tho City in 2020[4]. Differences regarding these researchers' subjects may explain this difference.

The relatively low intention to receive influenza vaccination in the future may be explained by several barriers, among which the most frequently reported were a lack of time to get vaccinated and concerns about side effects, as reported by students. Similarly, a study conducted by Alshammari et al. in Riyadh, Saudi Arabia, found that fear of becoming ill after vaccination was one of the main reasons for not receiving the influenza vaccine[11]. An Australian study also indicated that lack of time was a factor contributing to low influenza vaccination rates among medical students[12]. Christopher J. Rogers and colleagues at California State University reported similar findings regarding barriers, with nearly half of the participants believing that influenza vaccination could cause influenza[13]. In our study, this rate was 21.7%. Another study in Saudi Arabia identified the three most common barriers among

students as the belief that the vaccine weakens the immune system, doubts about its effectiveness, and skepticism about the vaccine's protective capability [14]. In our study, 19.9% of students did not believe the seasonal influenza vaccine was effective. Another study in Saudi Arabia showed that the most significant barrier affecting medical students' vaccination intention was the assumption of having no risk of contracting influenza, reported by 37.9% [15], which was comparable to our finding, in which 30.2% of students believed they would not contract seasonal influenza.

Regarding factors associated with students' vaccination intention, female students were 1.6 times more likely to intend to receive vaccination compared to male students (95% CI: 1.1–2.4). In addition, students who had previously received seasonal influenza vaccination were 6.4 times more likely to intend to be vaccinated in the future than those who had not been vaccinated (95% CI: 3.1–13.1). Another study in Vietnam, among medical students and healthcare workers, found that marital status, regular health check-ups, and advice from healthcare providers were associated with willingness to vaccinate.

Specifically, individuals who were not single were more likely to intend to receive or repeat influenza vaccination (OR = 2.42, 95% CI: 1.30–4.51). Those who visited healthcare providers at least once a year showed higher willingness to receive or repeat vaccination compared to those who did not (OR = 1.68, 95% CI: 1.04–2.69). Additionally, participants who received vaccination recommendations from healthcare providers were more willing to accept or repeat influenza vaccination (OR = 3.14, 95% CI: 1.98–4.97)[10]. Another study found that students' gender, family background, and educational level were associated with influenza vaccine hesitancy. According to logistic regression results, female students (OR = 0.662, 95% CI: 0.535–0.820) and students without a family history of cancer (OR = 0.691, 95% CI: 0.486–0.982) were less likely to hesitate about vaccination, while those with a university degree (OR = 1.672, 95% CI: 1.170–2.390) and those with a bachelor's degree (OR = 2.387, 95% CI: 1.460–3.902) were more likely to show hesitancy[9]. Pasquale Stefanizzi and colleagues, in a study among health science students in Italy, reported that older age increased the likelihood of receiving influenza vaccination in the following year (OR = 1.06; 95% CI: 1.03–1.09; $p < 0.001$). Comparing medical students with other students showed that non-medical students were less likely to receive influenza vaccination in the following year (OR = 0.58; 95% CI: 0.46–0.73; $p < 0.001$)[16].

5. CONCLUSION

The study results indicated that the proportion of students intending to receive seasonal influenza vaccination remained low, at only 66%, especially with even lower rates among male students and those who had never been vaccinated. Statistically significant barriers to vaccination intention included lack of knowledge about vaccination sites, concerns about side effects, fear that the vaccine might cause influenza and fever, and the belief that they would not contract seasonal flu. As a result, we can say that strengthening accurate communication and emphasizing the benefits of influenza vaccination, particularly for male students and those who have never been vaccinated, is necessary to improve intention to receive seasonal influenza vaccination.

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