

KNOWLEDGE REGARDING INFLUENZA AMONG NURSING STUDENTS

WIEDZA STUDENTÓW PIELĘGNIARSTWA NA TEMAT GRYPY

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ABSTRACT

Introduction. Influenza is one of the most common infectious diseases and, due to its high prevalence, it constitutes a real and present threat to human life and health globally.

Aim. Assessment of knowledge of influenza among the first- and second-year students of Nursing at the Faculty of Health Sciences, Warsaw Medical University.

Material and Methods. A total of 120 nursing students (115 female, 5 male) were enrolled in the study. The study group comprised 57 first-year and 63 second-year students. Mean age of the study group amounted to 25.72 years, and the most frequently reported job tenure was below one year.

Results. The largest number of respondents assessed their knowledge of influenza as good (4) or quite good (3.5). The mean score of self-assessment of knowledge about influenza was approximately 3.68. A prevailing number of the study participants had not been vaccinated against influenza in the epidemic season of 2015/2016. More than three-fourths of the study group had not been vaccinated against influenza over the last five years.

Conclusions. 1) The level of knowledge of influenza among the study group of nursing students is insufficient. 2) A vast majority of respondents are not vaccinated against influenza. 3) There is a need to dedicate more time to the issue of influenza in training of nursing students and promote vaccination against influenza.

KEYWORDS: Prevention of influenza, knowledge, students.

STRESZCZENIE

Wstęp. Grypa jest jedną z najczęściej występujących chorób zakaźnych, a ze względu na jej powszechne występowanie stanowi aktualne i realne zagrożenie zdrowia i życia ludzi na całym świecie.

Cel. Ocena wiedzy studentów I i II roku studiów kierunku pielęgniarstwa Wydziału Nauki o Zdrowiu Warszawskiego Uniwersytetu Medycznego na temat grypy.

Materiał i metody. Badaniem objęto 120 studentów pielęgniarstwa (115 kobiet, 5 mężczyzn). Wśród badanej grupy znalazło się 57 studentów I roku studiów oraz 63 studentów II roku. Średnia wieku badanej grupy wyniosła 25,72 lat, a najczęściej deklarowany czas pracy zawodowej wynosił poniżej roku.

Wyniki. Najwięcej respondentów oceniło własną wiedzę na temat grypy jako dobrą (4) lub dość dobrą (3,5). Średnia samooceny wiedzy na temat grypy w badanej grupie wyniosła ok. 3,68. Przeważająca liczba ankietowanych nie zaszczepiła się przeciw grypie w ówczesnym sezonie epidemicznym 2015/2016. Ponad trzy czwarte badanej grupy nie szczepiło się wcale w ciągu ostatnich 5 lat.

Wnioski. 1) W badanej grupie wiedza studentów pielęgniarstwa na temat grypy jest niewystarczająca. 2) Przeważająca większość badanych studentów nie szczepi się przeciw grypie. 3) Występuje konieczność poszerzenia tematyki dotyczącej grypy w kształceniu studentów pielęgniarstwa oraz promowania szczepień przeciw grypie.

SŁOWA KLUCZOWE: profilaktyka grypy, wiedza, studenci.

Introduction

Influenza is one of the most common infectious diseases and due to its high prevalence, it constitutes a real and presents threat to human life and health globally [1–4]. Influenza occurs with different intensity in two forms. Seasonal influenza occurs regularly as an epidemic, usually caused by typical influenza viruses affecting humans, whereas pandemic influenza spreads worldwide

in an unpredictable manner, once every several years or decades, caused by new and yet unknown subtypes or variants of influenza viruses [1–4].

With the current state of medical knowledge, it is impossible to successfully eradicate the disease due to the huge genetic variability of the influenza virus. However, there is a variety of therapeutic and preventive agents. Preventive vaccination is highly effective

tive against influenza and its complications, however, it is not commonly used. This is reflected by a very low influenza vaccination coverage rate in Poland, amounting to just a few percent (3.7%) [1]. Although influenza can cause serious complications and even lead to death, it is often underestimated and undiagnosed [1–4].

The practice of nursing helps develop health seeking behaviour in patients, provide them with necessary knowledge and enhance responsibility and awareness of their health and disease. This allows for implementing the prevention of influenza and reducing the risk of its complications.

Aim

The study aimed to assess the knowledge of influenza among first- and second-year students of Nursing at the Faculty of Health Sciences, Warsaw Medical University.

Material

The study enrolled a total of 120 nursing students (115 female, 5 male). The study group comprised 57 first-year and 63 second-year students. Mean age of the study group was 25.72 years (minimum age: 22 years, maximum age: 53 years). Persons aged 22–25 years were the most numerous among the respondents (79.2%). Most study participants were working and had one job. Over half of the respondents were employed in a hospital. An outpatient clinic was the second most frequent place of employment in the study group.

The most common job tenure among the respondents was below one year, followed by no work experience at all.

Methods

The study was performed between December 2015 and March 2016. A diagnostic survey was applied as a method of data collection, supported by an anonymous questionnaire. The questionnaire comprised 35 closed-ended single-choice questions. Participation in the study was voluntary.

The data were entered into a Microsoft Excel sheet and the statistical analysis was conducted using the STATISTICA 10.0 software (licensed to Warsaw Medical University).

Results

The largest number of respondents assessed their knowledge of influenza as good (4) or quite good (3.5). The mean score of self-assessment of knowledge was approximately 3.68. A prevailing number of the participants were not vaccinated against influenza in the epi-

demical season of 2015/2016. More than three-fourths of the study group have not been vaccinated at all over the last five years.

Most students did not know the correct answer to the question about the proportion of the global population that becomes infected with influenza viruses and influenza-like infections every year, according to the World Health Organisation (WHO). Most study participants provided a wrong answer to the question about the number of influenza cases in Poland in 2014. Most respondents did not know the correct answer to the question about the types of influenza viruses that are the most virulent human pathogens. One-in-five study participants knew the correct answer to the question about the type of influenza virus undergoing antigenic shift. Over half of the students did not know the modes of transmission of influenza. A majority of respondents did not know the correct answer to the question about effective drugs for influenza viruses A and B. A vast majority of study participants did not know the correct answer to the question about influenza virus strains that require mandatory hospitalisation even if only suspected. Slightly over half of the students participating in the study knew the most effective method for preventing influenza. Slightly more than one-third of the total had knowledge about the influenza vaccination coverage rate in Poland. See **Table 1** for detailed data.

Table 1. Selected questions concerning knowledge about influenza

Question	Answer choice	% of answers
Knowledge of the study group about the percentage of the global population suffering every year from influenza and flu-like infections according to the World Health Organization (WHO)	0.5/–1.5%	0%
	1.6/–5%	17.5%
	6/–25%	41.67%
	26/–40%	23.33%
	I don't know	17.5%
Knowledge of the study group about the number of deaths due to influenza, according to the World Health Organization (WHO)	200,000	30.83%
	300,000–500,000	37.5%
	500,000–1,000,000	12.5%
	1,000,000–2,000,000	3.33%
	I don't know	15.83%
Knowledge of the study group about the number of influenza cases diagnosed in Poland in 2014	+ / – 50,000	20.83
	+ / – 400,000	35%
	+ / – 1,500,000	18.33%
	+ / – 3,700,000	2.5%
	I don't know	23.33%
Knowledge of the study group about the types of influenza viruses that are the most virulent human pathogens	Influenza viruses A and B	36.67%
	Only Influenza virus A	8.33%
	Influenza virus A and influenza virus C	16.67%
	Influenza virus B and influenza virus C	5.83%
	I don't know	32.5%

Knowledge of the study group about animal species which are reservoirs for influenza virus A in nature	Only wild birds and pigs	22.5%
	Domestic poultry, pigs, horses, cows	16.67%
	Wild birds, domestic poultry, pigs, horses	35%
	I don't know	25.83%
Knowledge of the study group about the type of virus causing the influenza pandemics and annual epidemics of seasonal influenza	A	47.5%
	B	15.83%
	C	10.83%
	I don't know	25.83%
Knowledge of the study group about the type of influenza virus undergoing antigenic shift	A	20.83%
	B	20%
	C	8.33%
	I don't know	50.83%
Knowledge of the study group about the modes of transmission of influenza	Only airborne spread	33.33%
	Spread by blood and direct physical contact	2.5%
	Food-borne spread and airborne spread	15%
	Direct physical contact and airborne spread	45.83%
	I don't know	3.33%
Knowledge of the study group about the time of excretion of the influenza virus by the infected person	/Between several days before the onset of symptoms and three days after their resolution	25%
	Between several days before the onset of symptoms and approximately seven days after their resolution	34.17%
	Between the onset of symptoms and 14 days after their resolution	14.17%
	Only during the presence of symptoms	8.33%
	I don't know	18.33%
Knowledge of the study group about the symptom not present in typical clinical picture of influenza	Fever >38°C	24.17%
	Rhinitis	40.83%
	Headache	15.83%
	Muscle pain	12.5%
	I don't know	6.67%
Knowledge of the study group about the most accurate method used in the diagnosis of influenza infections	Immunofluorescence assay	18.33%
	RT-PCR assay	10%
	Culture	8.33%
	Rapid antigen test	31.67%
	I don't know	31.67%
Knowledge of the study group about the effective drugs for influenza viruses A and B.	Amantadine and zanamivir	17.5%
	Zanamivir and oseltamivir	23.33%
	Rimantadine and oseltamivir	15.83%
	I don't know	43.33%
Knowledge of the study group about influenza virusstrains that require mandatory hospitalisation, even if only suspected	influenza viruses H2 and H1	25%
	influenza viruses H1 and H3	22.5%
	influenza viruses H5 and H7	9.17%
	Hospitalisation is not mandatory for any strain of influenza virus	10%
	I don't know	33.33%

Knowledge of the study group about the most effective method for preventing influenza	Patient isolation	21.67%
	Preventive vaccination against influenza	52.5%
	Frequent hand washing	14.17%
	Use of protective mask and disposable gloves	7.5%
Knowledge of the study group about the influenza vaccination coverage rate in Poland	I don't know	4.17%
	0.8%	17.5%
	3.7%	35.83%
	6.5%	13.33%
Wiedza badanej grupy na temat, czy szczepienie przeciw grypie może wywołać grypę u zaszczepionej osoby/Knowledge of the study group about whether influenza vaccine can cause influenza in vaccinated individuals	9.2%	5%
	I don't know	28.33%
	Yes	60.83%
	No	25%
Wiedza badanej grupy na temat szczepionek przeciw grypie dostępnych w Polsce w sezonie 2015/2016 / Knowledge of the study group about influenza vaccines available in Poland in the season 2015/2016	I don't know	14.17%
	Fluarix, Influvac	10%
	Vaxigrip, Influvax	46.67%
	Influvax, Agrippal, Inflflexal V	6.67%
	Begrivac, Agrippal, Optaflu	0%
Knowledge of the study group about the most common adverse events following immunization against influenza	I don't know	36.67%
	1–2 days of elevated body temperature, muscle pain, abdominal pain, rhinitis	16.67%
	Up to two days of localised redness, tenderness and swelling at the site of vaccination, elevated body temperature	41.67%
	Up to five days of localised redness, muscle and joint pain, itching, high fever	23.33%
Knowledge of the study group about a medical condition not being a severe post-vaccination reaction associated with hypersensitivity to egg protein in the vaccine	I don't know	18.33%
	Quincke's oedema	16.67%
	Allergic asthma flare-up	4.17%
	Anaphylactic shock	24.17%
	Lymphadenitis	21.67%
I don't know	33.33%	

Source: author's own research

Discussion

Influenza is an infectious and common disease that continues to be a matter of concern and a threat to human health and life. Students of nursing, both working and not working in their profession, are at risk of influenza. During classes they might come into contact with, among others, other students, healthcare professionals, and patients infected with influenza. In addition, not only are nursing students at risk of influenza, but they also may become a source of infection and thus

contribute to the spread of influenza epidemics. Therefore, students' knowledge of influenza may contribute to their own safety as well as to the safety of persons in their care, all persons in their environment, and, consequently, the entire community. This requires students of nursing in particular to have and promote the necessary knowledge about this serious disease as well as to take a responsible attitude towards human health and life through undertaking and promoting preventive actions.

Preventive vaccination is the most effective method of preventing influenza. However, the present results demonstrated that a prevailing number of nursing students were not vaccinated against influenza in the epidemic season of 2015/2016 when the present study was performed. In addition, more than three-fourths of the study group have not been vaccinated against influenza over the last five years. The estimated percentage of individuals vaccinated among medical staff in Poland is low, comparably to the one obtained in the present study, and amounts to 5–6%. It is slightly higher than the vaccination rate of the general population (3.7%) [2].

According to the data found in literature, it is possible to increase the vaccination coverage rate. For instance, the influenza vaccination rate among healthcare workers in the US varies between 20% and 80% [3].

The present results are similar to the findings obtained in 2009 which showed that among a group of 524 people only one-in-ten nurses and students of medicine and one-in-five doctors declared being regularly vaccinated against influenza. Based on the above data it may be concluded that a small percentage of medical personnel and students of medicine are regularly vaccinated against influenza [4].

Different results were obtained in a study of 2013. Over half of the study group comprising 888 healthcare workers said that they had been vaccinated against influenza in the epidemic season in question and over one-third reported being vaccinated against influenza on a regular basis over the last five years [5].

The present study group comprising 120 students of nursing was asked to evaluate their knowledge of influenza. It was found that the largest proportion of students assessed their knowledge as good (4) or quite good (3.5). However, the present results demonstrated that the level of knowledge of the second-year students of nursing about influenza was low. Nearly three-quarters of the questions about influenza were difficult for the students who failed to provide the correct answer.

Similar results were obtained in a study of 2014 conducted within the National Test of Knowledge about Influenza [6]. A total of 495 respondents from Poland participated in the part intended for doctors and healthcare workers, with doctors comprising 83% of all par-

ticipants and nurses, students of medicine and other medical professionals comprising the remaining 17% of participants. The results demonstrated that correct answers represented approximately 25% of all answers provided to each question [6].

It was found that the students participating in the present study did not have sufficient knowledge of the epidemiology of influenza. Most respondents did not know the proportion of the global population that becomes infected with influenza viruses and suffer from influenza-like infections every year according to the World Health Organisation, the annual number of deaths attributable to influenza according to the World Health Organisation, and the number of cases of influenza diagnosed in Poland in 2014. A vast majority of the study participants provided answers considerably underestimating the real incidence which may be indicative of the lack of interest in the scale of influenza infections and underestimation of the importance of influenza in Poland and globally.

The study showed that most students were disturbingly unfamiliar with the types of influenza viruses that are the most virulent human pathogens, animal species which are reservoirs for A virus influenza in nature, and the type of virus causing the influenza pandemics and annual epidemics of seasonal influenza [8].

Furthermore, a vast majority of the study group did not know the type of influenza virus undergoing antigenic shift. It was a vital question since the process of antigenic shift occurs only in influenza A viruses and may lead to an outbreak of dangerous epidemics or pandemics of influenza. In addition, type A influenza is most virulent and causes the most severe epidemics covering the largest areas [7, 8].

The study also demonstrated that most participants provided incorrect answers to the questions concerning modes of transmission of influenza viruses, the time of excretion of the influenza virus by the infected person, and symptoms of influenza. Without the proper knowledge in this regard, effective diagnosis of infection, isolation of patients, and prevention of further spread of infection will be impossible. Only 8.9% of the respondents taking part in the National Test of Knowledge about Influenza responded correctly to the question about the modes of transmission of influenza. It was also found that specialist knowledge about the types of influenza viruses was not common among the study population [6].

Although influenza may cause serious life- and health-threatening complications, the present study showed that nursing students did not have sufficient knowledge in that regard. Students responded correctly only to half of the questions. This may pose a threat to

the safety of patients infected with influenza and may also result in increased mortality due to influenza. The results of the National Test of Knowledge about Influenza also showed that only one-in-ten respondents gave the correct answer to the question about complications of influenza [6].

The present study revealed that the students did not have sufficient knowledge of diagnostics and treatment of influenza, which may, consequently, affect the diagnosis and course of treatment. A study carried out on the basis of the National Test of Knowledge about Influenza demonstrated that most respondents were familiar with antiviral drugs in treatment of influenza. However, only one in ten persons answered correctly to the question about the diagnostic work-up of influenza [6].

Although the vaccination coverage rate declared by the present study participants was low, both in the epidemic season in question and over the last five years, more than half of the students indicated influenza vaccination as the most efficient prophylaxis. The students did not know, however, the exact influenza vaccination coverage rate in Poland.

The respondents provided incorrect answers to more than half of the questions concerning influenza vaccination. Lack of knowledge and low awareness of the students in this regard might represent one of the reasons for low vaccination rate among the study sample population. Most participants responded positively to the question whether an influenza vaccine may cause influenza in a vaccinated person. This may testify to the concerns of students associated with possible complications of vaccination and lack of awareness of students about the safety of influenza vaccines available in Poland. Unfamiliarity with the indications for influenza vaccination makes it impossible for students to effectively promote prevention of influenza and prevent the spread of the disease. It should be noted that the students participating in the study were more familiar with the contraindications for vaccination, since most of them responded correctly to both questions concerning this issue. This indicates that there was a gap between the knowledge of indications and the one concerning contraindications.

In the National Test of Knowledge about Influenza it was also noticed that respondents' knowledge about contraindications for vaccination was significantly better (correct answers constituted 85.5%) than that of other aspects relating to the problem of influenza. Less than half of the study participants had knowledge concerning the indications for influenza vaccination listed in the Preventive Vaccination Plan for 2014. It was observed that asymmetry of knowledge of the respondents may be indicative of poor knowledge of the

risk associated with the disease and excessive concern about vaccination [6].

Although most students participating in the present study knew the possible routes of administration of the vaccine, most of them did not know the vaccines available in Poland in the epidemic season of 2015/2016. A majority of the participants did not have knowledge concerning the most common adverse reactions and serious complications following influenza vaccination.

Due to the insufficient level of knowledge of the study participants, students may be incapable of providing efficient education concerning the disease, health and life safety of patients, co-workers and other persons in their environment.

In summary, there is a need to expand the issue of influenza in the education of nursing students. It is of vital importance to promote vaccination against influenza among this group as the most effective method for the prevention of influenza. The need to educate healthcare workers with respect to influenza and its prevention has also been noticed in numerous studies performed by other Polish researchers [4, 5, 6].

Conclusions

1. The level of knowledge of influenza among the study group of nursing students was insufficient.
2. A vast majority of respondents have not been vaccinated against influenza.
3. There is a need to dedicate more time to the issue of influenza in training of nursing students and promote vaccination against influenza.

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