

Attitudes of healthcare professionals in primary healthcare about influenza vaccination

Stavovi zdravstvenih radnika u primarnoj zdravstvenoj zaštiti o cijepljenju protiv gripe

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Abstract

Introduction: Influenza is a viral respiratory disease. The most effective way to counteract that disease is by vaccination. Due to aerosol transmission of the virus, its virulence, and the amount of patient–healthcare worker contact in primary care, it is highly recommended for both patient and healthcare worker to get vaccinated.

Aim: The study aims to investigate attitudes about flu vaccination among primary healthcare professionals.

Material and methods: Quantitative methodology was used in the descriptive cross-sectional survey. That was carried out using a survey questionnaire in 12 healthcare centers around Styria in Slovenia, where the target group of the survey was healthcare professionals in health centers. The data was processed using descriptive statistics, calculating average values, and presented in tables and graphs.

Results: Vaccination among healthcare professionals in healthcare centers was found to be higher compared to other studies. They are vaccinated primarily to protect themselves, their family, and their patients. The ones not vaccinated choose to opt out due to personal beliefs regarding their health and the side effects caused by the vaccine. It was also established that free vaccination would contribute greatly to increased interest, as well as vaccination during working hours and a higher number of vaccination sites.

Discussion: Based on our results, only a third of healthcare professionals in health centers are vaccinated regularly each year. As vaccination rates are low among healthcare professionals, raising awareness among them and the general population regarding the importance of flu vaccination is of great importance.

Conclusion: The vaccination of healthcare professionals in health centers is quite good; however, there is some space for improvement in vaccination coverage. Further prospective research on this topic is needed to obtain a broader aspect of the vaccination problem. In addition to vaccination, we can prevent the spread of influenza through other safeguards and good hygiene habits.

Keywords: vaccinations, primary prevention, virus diseases, flu

Short title: Attitudes of health care professionals about influenza vaccination

Sažetak

Uvod: Gripa je virusna respiratorna bolest. Najučinkovitiji je način suprotstavljanja navedenoj bolesti cijepljenje. Zbog aerosolnog prijenosa virusa, njegove virulentnosti i kontakta pacijent – zdravstveni djelatnici u primarnoj zdravstvenoj zaštiti, preporučljivo je obostrano cijepljenje.

Cilj: Cilj je ispitati stavove o cijepljenju protiv gripe među zdravstvenim radnicima primarne zdravstvene zaštite.

Metode: U deskriptivnom presječnom istraživanju korištena je kvantitativna metodologija. Istraživanje je provedeno pomoću anketnog upitnika u 12 domova zdravlja primarne zdravstvene zaštite diljem Štajerske regije u Sloveniji gdje su ciljna skupina istraživanja bili zdravstveni djelatnici u domovima zdravlja. Podaci su obrađeni deskriptivnom statistikom, izračunavanjem prosječnih vrijednosti te su prikazani u obliku tablica i grafikona.

Rezultati: Utvrđeno je da je procijepljenost zdravstvenih djelatnika u domovima zdravlja veća u odnosu na rezultate drugih sličnih istraživanja. Zdravstveni se djelatnici cijepaju prvenstveno zbog osobne zaštite, zaštite svojih obitelji i pacijenata. Oni koji se ne cijepaju, ne cijepaju se zbog osobnih uvjerenja o svojem zdravlju i nuspojavama koje uzrokuje cjepivo. Također je utvrđeno da bi povećanom interesu uvelike pridonijelo besplatno cijepljenje, cijepljenje tijekom radnog vremena i veći broj mjesta za cijepljenje.

Rasprava: Na temelju naših rezultata možemo zaključiti da se samo trećina zdravstvenih djelatnika u domovima zdravlja svake godine redovito cijepi. Budući da je procijepljenost zdravstvenih djelatnika niska, podizanje svijesti zdravstvenih djelatnika i opće populacije o važnosti cijepljenja protiv gripe vrlo je važno.

Zaključak: Procijepljenost zdravstvenih djelatnika u domovima zdravlja zadovoljavajuća je, no postoji prostor za poboljšanje procijepljenosti. Potrebna su daljnja prospektivna istraživanja na ovu temu da bismo dobili širi aspekt problema procijepljenosti. Osim cijepljenjem, širenje gripe možemo spriječiti i drugim mjerama zaštite te dobrim higijenskim navikama.

Ključne riječi: cijepljenje, primarna prevencija, virusne bolesti, gripa

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Introduction

Influenza and pneumococcus infections are among the leading causes of mortality and morbidity worldwide [1].

The annual morbidity for influenza, especially during seasonal peaks, is 10-20% [2]. It is spread among the popula-

tion very fast, mainly in the winter periods in the northern hemisphere. Anyone afflicted can get sick, but the elderly are most at risk, as well as people with various chronic diseases, infants, young children, and pregnant women [1, 3]. Influenza virus infection is also a major problem in the hospital environment, increasing patient mortality and morbidity, medical expenses, and sick leaves of healthcare professionals [4-6].

Contagion with the influenza virus can be confirmed via a nasopharyngeal swab with either a rapid antigen test or further microbiologic testing [4]. Influenza is caused by three viruses: influenza A virus, influenza B virus, and influenza C virus [7]. Small changes in the antigenic characterization of the virus are responsible for the emergence of annual epidemics [3]. The flu virus is transmitted by infected droplets and close contact from person to person. Droplets infected with the flu virus are usually produced via loud talk, sneezing and coughing. These particles are then inhaled or spread in contact with various surfaces, as such contaminating them [3, 7, 8]. The incubation period of the virus is 1-3 days. Symptoms of flu include fever, fatigue, headache, sore throat, dry cough, nasal congestion, and malaise. Gastrointestinal problems may also occur in children. These symptoms tend to be self-limiting, as they subside within five to seven days. However, muscle fatigue can last for more than two weeks [7, 9]. A person infected with the flu virus is most infectious a few days prior and after symptoms begin to show (3-5 days) [3, 10]. In most cases, treatment of influenza is only symptomatic [11, 12].

The most important measures to prevent influenza outbreaks are [5, 13]:

- chemoprophylaxis and seasonal influenza vaccination are most effective for the prevention of influenza;
- limiting contact between people suffering from influenza and healthy individuals;
- the implementation of standard hygiene measures;
- if applicable, respiratory, and standard mask protection;
- hygiene of hands; cleaning and disinfection of devices, surfaces, and equipment; use of personal protective equipment; proper handling of clothing and textiles; not crossing clean and unclean paths.

In the fight against infectious diseases, vaccination [14-15] is the most important and effective measure. Flu vaccination is recommended for all people who want to protect themselves and the people around them from the virus [5, 12, 15]. It takes about two weeks to develop a protective immune response after vaccination. Therefore, it is optimal to vaccinate before the start of the forecasted flu season. Although the overall effectiveness of the flu vaccine depends on a good correlation between the vaccine and circulating influenza viruses, the vaccine will still provide protection [7]. Vaccination is contraindicated only if a person is hypersensitive to eggs or any of the other components of the vaccine, and at an elevated body temperature of $>38.5^{\circ}\text{C}$ [5]. Flu vaccination is effective in preventing around 70% of infections in adults and reducing mortality in the elderly by up to 48% [6]. Mass vaccination can ensure the collective protection of the entire population [16].

In the 2007/08 and 2014/15 seasons, the vaccination rate among the older population was between 1% and 76.3% (median 47.6%) in the 26 member states of the European Union. In Slovenia, vaccination is very low, due to low interest and various campaigns against vaccinations. Across Europe, we are among those with the lowest vaccination rates [17-18]. In the 2019/2020 season, only about 6.8% of the national population decided to get vaccinated. In recent years, more and more people in the 65-year age group and older have decided to vaccinate. The percentage of vaccinated people increased from 6.8% in 2019/2020 to 10% in 2020/2021 [19]. Healthcare professionals are also at high risk due to the infection and its transmission to patients and others [1]. Flu vaccination is a cost-effective strategy for healthcare professionals that reduces lost working hours, hospital transfer, and mortality among hospitalized patients [20]. The WHO and other national health authorities of most European countries recommend immunization annually to all healthcare professionals [1]. Transmission of infection to a healthcare professional may occur in both domestic as well as work environment [4].

There is a different vaccination policy between countries. In many European countries, flu vaccination is not mandatory, while it is mostly only recommended in the rest [14]. According to the WHO, vaccination rates among healthcare professionals are low across Europe and not only in Slovenia [21]. In most European countries, it is below 40% [22]. In the 17 countries that are members of the European Union, vaccination coverage among healthcare professionals is 5.7-54.4% (median 26.9%) [17]. Authors [20] surveyed doctors and nurses in Turkey; the rate of regular vaccination was 9.2% (more in physicians than in nurses). Higher age, longer working life, work in internal wards, chronic illness and living with a person over 65 have significantly increased vaccination decisions. This survey can be compared with a survey carried out in Slovenia in 2017 in UKC Ljubljana [23]. The survey involved 1.320 employees—of which 26.2% have been vaccinated regularly. The main reasons respondents have indicated for vaccinating against influenza are, above all, to protect themselves and to protect patients and their family members. The reasons for not opting for influenza vaccination were categorized into two groups: (1) distrust of the vaccine and vaccination; (2) belief in personal health and immunity. More than two thirds of respondents disagree that healthcare workers are more exposed to influenza and infection than others [23]. The article aims to investigate attitudes about flu vaccination among primary healthcare professionals.

Material and methods

We used a quantitative methodology in a descriptive cross-sectional survey. The questionnaires were collected in autumn 2021 in 19 healthcare centers at the primary level. Data was collected anonymously through the website. Participants were informed by consent and volunteering; all respondents gave their informed consent in writing regarding the purpose of the survey, with which they agreed and allowed to use their survey data by completing the questionnaires. The study was carried out according to the

ethical principles of the Code of Ethics for Nurses and Nurse Assistants of Slovenia of the Helsinki Declaration. The study carried no risk of the violation of ethical principles.

The research population consisted of healthcare professionals, administrators, and students on the primary level. Data was collected in an online study in web portal 1ka and then forwarded to the participants. Health centers at the primary level in Slovenian Styria (n=19) were invited to participate in the study. 12 (63%) health centers agreed to participate. The target group of our research were healthcare professionals in health centers. The study included 441 healthcare professionals in community health centers, which is a dedicated sample. The study included 388 women (88%) and 53 men (12%). The average age of participants was 38.9 years. The structured questionnaire consists of three sets. The first set covers demographic issues (gender, age, professional group, and years of work in health), the second includes health status and flu vaccination experiences and the third set of healthcare professionals' views on flu vaccination. In the third set, there were 30 questions to which they answered with full agreement, in part or in no way. The survey questionnaire was obtained from Dernovšek Hafner & Urdih Lazar [23], from whom we got permission to use the questionnaire. Answers to individual questions were graded on a 3-point Likert scale (1-I totally agree, 2-I partially agree, 3-I disagree in no way). We used descriptive statistics to analyze the data. We analyzed the data using Microsoft Office Excel 2013. We also calculated the average value, and described the data using displayed graphs and tables.

Results

The survey involved 441 healthcare professionals, administrators, and students employed in healthcare centers in Slovenian Styria, which represents 3.95% of all employees

in Health care centers in Slovenia [24]. Most respondents were employed in nursing (nursing assistants, registered nurses), which is 287 (65.2%). There were 105 doctors or dentists (23.8%). Other respondents (11%) circled the other and stated that they are physiotherapists or occupational therapists (n=19, 4.4%), laboratory employees (n=14, 3.1%), administrators (n=10, 2.2%), social workers (n=4, 0.9%) and 2 (0.4%) were students.

When asked about defining one's own health, 375 (85%) respondents considered themselves healthy; 62 (14%) described health problems that do not constitute a contraindication to vaccination; 4 (1%) have a health problem, which counts as a contraindication to vaccination. 61% surveyed participants have had experience with vaccination—that means that more than a third respondents have no experience with it. 48% of those surveyed are regularly vaccinated against influenza in the professional group of doctors and dentists. Within the professional group, only 33% of those surveyed have been vaccinated. Among the vaccinated, 172 (64%) replied that they were vaccinated in the 2019/2020 season, 38 (14%) were vaccinated in the 2018/2019 season, 29 (11%) between 2017 and 2010, 22 (8%) before the pandemic influenza and 8 (3%) in 2009 of pandemic influenza. When asked if they had experienced the flu in the past, 163 (37%) replied with *yes*, and 278 (63%) replied with *no*. Figure 1 presents the reasons for vaccination for those who have been vaccinated against influenza earlier in their life.

Respondents most often indicated that they chose to vaccinate to protect family members, themselves, and patients from the flu (Figure 1). More than 50% of those surveyed disagree with claims that they are being vaccinated against the flu because they have been encouraged by the media, pressured by their superiors or colleagues, or because the vaccination is free.

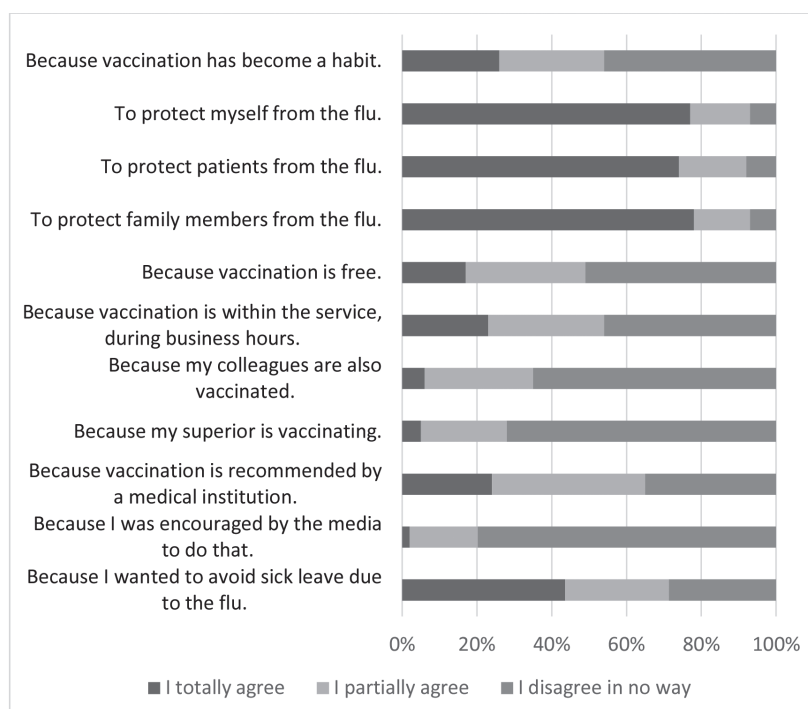


FIGURE 1. Reasons for vaccination

Most of those without a history of vaccination are not vaccinated because they think they are perfectly healthy. More than half of those surveyed agree with the claim that they are not vaccinated due to side effects. Respondents also gave other reasons why they are not vaccinated. These are: thinking there are not enough doses; it is only recommended for the elderly; protection falls sharply after vaccination; low trust in pharmacy; allergic reactions at prior vaccinations; becoming very ill after vaccination. When asked about the decision to vaccinate in the future—according to their experience to date, 238 respondents (54%) are likely to be vaccinated in the future. 119 respondents (27%) and 84 respondents (19%) answered the question of not opting for flu vaccination or are undecided.

Table 1 shows the opinion of healthcare professionals in healthcare centers regarding influenza vaccination. More than half agree with the claims that vaccination protects them and others and that healthcare professionals are more exposed to the flu virus than other workers. More than

two-thirds of respondents disagree that vaccination only makes sense for the elderly over 65, chronically ill, pregnant women and children. They also do not agree with views where major pharmacy firms mostly benefit from vaccination, that influenza is only a major cold, and that flu vaccination does not make sense. More than half of those surveyed disagree with claims that vaccination can lead to flu, that it weakens the immune system, and that vaccination is not necessary for healthy people. When the argument for mandatory vaccination was presented to all healthcare professionals, opinions were different. 140 respondents (32%) fully agree with this argument, 146 respondents (33%) partially agree, and more than a third—i. e., 155 (35%) of respondents disagree with this claim.

The most prominent measures for increasing vaccination among healthcare workers are the following: (1) free vaccination for all workers; (2) vaccination during working hours; (3) a higher number of vaccination sites in different locations (Table 2). The least meaningful were the following su-

TABLE 1. Opinion of respondents on influenza vaccination claims

| | 1-I totally agree | 2-I partially agree | 3-I disagree in no way | Pv |
|--|-------------------|---------------------|------------------------|-----|
| The most effective way to protect us against influenza is by vaccination. | 206 47% | 194 44% | 41 9% | 1.6 |
| Influenza vaccination should be mandatory for all healthcare professionals. | 140 32% | 146 33% | 155 35% | 2.0 |
| Vaccinations can make you sick with the flu. | 34 8% | 179 40% | 228 52% | 2.4 |
| Flu vaccination weakens the immune system. | 35 8% | 147 33% | 259 59% | 2.5 |
| Flu vaccination only makes sense for over-65s. | 37 8% | 112 26% | 292 66% | 2.6 |
| Only the pharmaceutical industry benefits from flu vaccination. | 24 5% | 126 29% | 291 66% | 1.9 |
| Flu vaccination only makes sense for chronically ill, pregnant women and children. | 29 6% | 123 28% | 289 66% | 2.6 |
| The flu is nothing but a slightly bigger cold. | 11 2% | 100 23% | 330 75% | 2.7 |
| Healthcare workers are more exposed to flu virus infection than other workers. | 265 60% | 149 34% | 27 6% | 1.5 |
| Flu can be avoided by a healthy lifestyle and following standard hygiene measures. | 116 26% | 288 65% | 37 9% | 1.8 |
| I protect myself and others (family, colleagues, patients...) by vaccinating. | 273 62% | 127 29% | 41 9% | 1.5 |
| A good vaccination of healthcare professionals reduces the mortality of hospitalized patients. | 155 35% | 209 47% | 77 18% | 1.8 |
| Healthy people do not have to get vaccinated. | 30 7% | 134 30% | 277 63% | 2.6 |
| Seasonal flu has a significant impact on the increase in sick leave of employees. | 194 44% | 203 46% | 44 10% | 1.7 |
| Flu vaccination is too effective. | 28 6% | 234 53% | 179 41% | 2.3 |
| Flu vaccination makes no sense. | 14 3% | 93 21% | 334 76% | 2.7 |
| In our institution, the vaccination of all workers must be increased. | 139 32% | 182 41% | 120 27% | 2.0 |

TABLE 2. Reasonableness of measures to increase vaccination

| | 1-totally agree | 2-partially agree | 3-disagree in no way | Pv |
|---|-----------------|-------------------|----------------------|-----|
| Vaccination is free for all workers. | 357 81% | 67 15% | 17 4% | 1.2 |
| Vaccination takes place during working hours. | 320 73% | 98 22% | 23 5% | 1.3 |
| Increasing the number of vaccination sites to make vaccination more accessible to employees in different locations. | 244 55% | 151 34% | 46 11% | 1.5 |
| Longer vaccination schedules to make vaccination more accessible. | 229 52% | 159 36% | 53 12% | 1.6 |
| Vaccination participants receive a practical gift for participation. | 67 15% | 96 22% | 278 63% | 2.5 |
| Increased awareness among workers of the positive aspects of vaccination in the form of lectures. | 179 41% | 194 44% | 68 15% | 1.7 |
| Participants would receive an additional day of annual leave. | 151 34% | 97 22% | 193 44% | 2.1 |
| Enhanced information to workers over the Internet. | 157 36% | 207 47% | 77 17% | 1.8 |
| Conducting group motivational conversations with employees about the benefits and implementation of vaccination. | 123 28% | 210 48% | 108 24% | 2.0 |
| Unpaid sick leave due to infection in non-vaccinated employees. | 47 11% | 96 22% | 298 67% | 2.6 |
| Better marking of fission sites. | 79 18% | 213 48% | 149 34% | 2.2 |
| Enhanced information to workers about vaccination via email. | 122 28% | 220 50% | 99 22% | 1.9 |
| Gaining additional knowledge in the field of influenza and vaccination against it. | 162 37% | 219 49% | 60 14% | 1.8 |

uggestions: unpaid sick leave for those who are not vaccinated against the flu and get the flu. They also do not think it makes sense to receive a practical gift to participate in the vaccination.

Respondents were also given the opportunity to write their own comments and suggestions. Most of the comments were on optional and mandatory vaccinations for all healthcare professionals. Lots of respondents think that it should not be mandatory and that this should be the decision of everyone. In the comments, we can also detect distrust of the vaccine, as some do not want to vaccinate themselves or their close ones due to their poor experience. There have also been some comments about the number of vaccines, as it is usually too few and quickly runs out. Respondents suggested that people who do not get vaccinated should pay a higher insurance premium.

Discussion

We wanted to find out the views of healthcare professionals in healthcare facilities on the primary level regarding flu vaccination and ways to increase vaccination rates. Based on our results, only a third of healthcare professionals in health centers are vaccinated regularly each year. Just under half of all respondents are no longer vaccinated against the flu or have never been vaccinated against the

flu. In 2018, 41.939 people [25] were employed in healthcare, and only 7.595 people in healthcare were vaccinated in 2019/2020, that is 18%. Our survey showed that vaccination among healthcare professionals in healthcare centers in Slovenian Styria is good, as more than half of all respondents are vaccinated. The rate of regular vaccination was 15% in Italy [26]. In the survey carried out in Slovenia, the highest numbers of vaccinated healthcare professionals were in the Ljubljana and Maribor regions. Fewer than 400 health workers were vaccinated against influenza in Koper, Murska Sobota, Novo mesto, and Ravne na Koroškem [27]. The main reasons for vaccination are to protect yourself from the flu, your family members, and patients. For all, the consensus rate was above 90%. A high degree of agreement can be seen regarding paid leave if side effects occur. The following two reasons received the lowest agreement rate: (1) they were encouraged by the media and (2) their superiors were vaccinated. Those were also the main reasons for being vaccinated against influenza at the University medical center Ljubljana [26].

Among all the various measures proposed to increase vaccination rates for healthcare professionals, we found that the most meaningful impact would be by providing free vaccinations for all interested. The least supported proposal was, as could be expected, unpaid sick leave for those who would catch the flu with prior declination of vaccina-

tion. According to the World Health Organization [22], the vaccination of healthcare professionals in most European countries is below 40%. Slovenia does not deviate from this, as we are vaccinated just under 20% of healthcare professionals. Based on the results of our research, we can say that vaccination in health centers in Slovenian Styria is good, which is currently at 34%. During our survey, we encountered some obstacles which limited the sample size and time window regarding data collection. Due to the COVID-19 epidemic, we had to survey healthcare homes to provide healthcare professionals online; as such, we obtained fewer replies than expected from a live visit. Healthcare professionals are overworked and not as responsive to the survey questionnaire submitted because of the COVID-19 pandemic. The research was conducted only in Slovenian Styria, and the results cannot be generalized for the entire country. As such, it would be desirable to survey other healthcare centers on the primary level in Slovenia and in different types of health facilities (hospitals, primary healthcare, and care facilities for the elderly). Perhaps it should be repeated now after the pandemic.

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Conclusion

Vaccination is the most effective measure to prevent influenza and, at the same time, to manage the burden of the disease. Although flu vaccination is a very effective and important method, many healthcare professionals do not choose to opt for it because of various beliefs. We should further inform and educate healthcare professionals and other people, thus raising awareness of ways to protect oneself and others from flu. People should be aware and warned that if the flu, its signs, and symptoms occur, they should stay at home and consider all measures to prevent the spread of the virus. More needs to be done to increase vaccination coverage among healthcare professionals.

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