

ANALYSIS OF THE VACCINATION SITUATION AGAINST THE INFLUENZA VIRUS AMONG TEACHERS: A CROSS-SECTIONAL STUDY

ANÁLISIS DE LA SITUACIÓN DE LA VACUNACIÓN CONTRA EL VIRUS DE LA INFLUENZA ENTRE LOS DOCENTES: UN ESTUDIO TRANSVERSAL

ANÁLISE DA SITUAÇÃO VACINAL CONTRA O VÍRUS DA INFLUENZA ENTRE PROFESSORES: ESTUDO TRANSVERSAL

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ABSTRACT

Objective: To analyze the vaccination situation against influenza virus among elementary school teachers. **Method:** Cross-sectional study, using a self-designed questionnaire answered by 137 teachers linked to 11 schools in a municipality of the Metropolitan Region of Fortaleza, Ceará, Brazil. The collection occurred in September and October 2019. Data were analyzed in the Statistical Package for the Social Sciences, version 20.0. Statistical analysis used the chi-square test and likelihood ratio with 95% confidence interval. **Results:** Most teachers were vaccinated (101; 73.7%), however, the vaccination target of 90% was not reached. Difficulties related to health units' opening hours (14; 60.8%), lack of vaccines (9; 39.1%), and need for professional proof (6; 26.0%) were reported. Vaccination predominated in health facilities close to home (49; 48.5%). Post-vaccination adverse reaction was evidenced (59; 58.4%), with local pain being the most frequent (50; 84.7%). Higher adherence to vaccination was observed in 2018 (107; 78.1%) compared to 2017 (88; 64.2%) and 2019 (101; 73.7%). The following were positively associated with the decision for vaccination: age group 18 to 39 years ($p=0.021$), children ($p=0.046$) and teaching modality ($p=0.016$). **Conclusion:** Most teachers were vaccinated, however, none of the 3 years studied reached the recommended vaccination coverage. The adherence fluctuated during the period, which requires managers and health professionals to plan and adjust strategies to reach the goals.

Keywords: School Teachers; Immunization Programs; Vaccination Coverage; Influenza Vaccines.

RESUMO

Objetivo: Analisar a situação vacinal contra o vírus da influenza entre professores do ensino básico. **Método:** Estudo transversal, utilizando-se questionário de elaboração própria respondido por 137 professores vinculados a 11 escolas de um município da Região Metropolitana de Fortaleza, Ceará, Brasil. A coleta ocorreu em setembro e outubro de 2019. Os dados foram analisados no Statistical Package for the Social Sciences versão 20.0. A análise estatística utilizou o teste qui-quadrado e razão de verossimilhança com intervalo de confiança de 95%. **Resultados:** A maioria dos professores foi vacinada (101; 73,7%), contudo, a meta vacinal de 90% não foi alcançada. Dificuldades relacionadas ao horário de funcionamento das unidades de saúde (14; 60,8%), falta de vacinas (9; 39,1%) e necessidade de comprovação profissional (6; 26,0%) foram relatadas. Predominou a vacinação em equipamentos de saúde próximos ao domicílio (49; 48,5%). Evidenciou-se reação adversa pós-vacinal (59; 58,4%), sendo mais frequente a dor local (50; 84,7%). Verificou-se em 2018 maior adesão à vacinação (107; 78,1%) em comparação aos anos de 2017 (88; 64,2%) e 2019 (101; 73,7%). Foram associados positivamente à decisão pela vacinação: faixa etária de 18 a 39 anos ($p=0,021$), filhos ($p=0,046$) e modalidade de ensino ($p=0,016$). **Conclusão:** A maioria dos professores foi vacinada, entretanto, em nenhum dos 3 anos estudados houve alcance da cobertura vacinal preconizada. A adesão oscilou no período, o que requer de gestores e profissionais de saúde planejamento e adequação de estratégias para o alcance de metas.

Palavras-chave: Professores Escolares; Programas de Imunização; Cobertura Vacinal; Vacinas contra Influenza.

RESUMEN

Objetivo: Analizar la situación de vacunación contra el virus de la influenza en docentes de educación básica. **Método:** estudio transversal, utilizando un cuestionario de diseño propio, respondido por 137 profesores de 11 escuelas de un municipio de la Región Metropolitana de Fortaleza, Ceará, Brasil. La recolección ocurrió en septiembre y octubre de 2019. Los datos fueron analizados utilizando el Paquete Estadístico para Ciencias Sociales versión 20.0. El análisis estadístico utilizó la prueba de chi-cuadrado y la razón de verosimilitud con un intervalo de confianza del 95%. **Resultados:** La mayoría de los docentes fueron vacunados (101; 73,7%), sin embargo, no se alcanzó la meta de vacunación del 90%. Fueron relatadas dificultades relacionadas con el horario de apertura de las unidades de salud (14; 60,8%), falta de vacunas (9; 39,1%) y necesidad de pruebas profesionales (6; 26,0%). Predominó la vacunación en establecimientos de salud cercanos al domicilio (49; 48,5%). Hubo reacción adversa posvacunal (59; 58,4%), siendo más frecuente el dolor local (50; 84,7%). En 2018 hubo mayor adherencia a la vacunación (107; 78,1%) en comparación con los años 2017 (88; 64,2%) y 2019 (101; 73,7%). Se asociaron positivamente con la decisión de vacunar: grupo de edad de 18 a 39 años ($p=0,021$), hijos ($p=0,046$) y tipo de educación ($p=0,016$). **Conclusión:** La mayoría de los docentes estaban vacunados, sin embargo, en ninguno de los 3 años estudiados se logró la cobertura vacunal recomendada. La adherencia fluctuó en el período, lo que obliga a los gestores y profesionales de la salud a planificar y adaptar estrategias para alcanzar las metas.

Palabras clave: Maestros; Programas de Inmunización; Cobertura de Vacunación; Vacunas Contra la Influenza.

INTRODUCTION

According to the World Health Organization (WHO), each year there are an estimated one billion cases of influenza worldwide, of which 3 to 5 million are severe cases that culminate in about 290,000 to 650,000 deaths per year. The hospitalization and death related to the disease occur mainly among high-risk groups⁽¹⁾.

In Brazil, data from this monitoring show that until the first half of May 2019, among the samples positive for influenza, 40.3% were from influenza A (H1N1), 40.1% from influenza B, and 14.7% from influenza A (H3N2)⁽²⁾. In Ceará, during 2019, 1,066 cases of Severe Acute Respiratory Syndrome (SARS) were reported, with 244 (22.9%) confirmed for influenza. Of these cases, 44 (39.6%) evolved to death from influenza. Regarding the municipality of Guaiúba, in 2018, three cases of SARS were reported with the confirmation of one death due to influenza⁽³⁾.

Vaccination against influenza was included in the National Vaccination Calendar in 1999 and constitutes the main action indicated for protection against the disease and its potential complications, especially pneumonia, resulting from infection by the virus itself or by secondary bacterial infection⁽⁴⁾.

Given the recurrent mutations suffered by the viruses, especially the A and B strains, the vaccine is reformulated annually, and seasonal re-vaccination is recommended. Therefore, every year the National Vaccination Campaign against Influenza occurs throughout the Brazilian

territory and the vaccines used have their composition determined by the World Health Organization (WHO) according to information from the epidemiological surveillance of viruses circulating in the Southern Hemisphere in the previous year⁽⁵⁾.

Initially offered only to the elderly population, the target audience for this vaccine has changed over the years, being made available to children aged six months to less than five years of age, women in the pregnancy-puerperal cycle, health workers, indigenous peoples, groups of people with chronic noncommunicable diseases and other special clinical conditions, adolescents and youth under socio-educational measures, population deprived of freedom and employees of the prison system⁽⁴⁾.

The penultimate modification in relation to the priority population occurred in 2017 because of a joint action between the Ministry of Health and the Ministry of Education, culminating with the incorporation of teachers from public and private elementary and higher education schools, with the goal of 90% coverage⁽⁶⁾. In 2020, aiming to expand access to vaccination for the most vulnerable groups, people aged 55 to 59 years old and people with disabilities were also incorporated⁽⁴⁾.

The inclusion of teachers as a priority audience may favor the reduction of the risk of influenza transmission in the school environment, since this is a place of agglomeration of people who live very close and for a long time. Furthermore, the increase in

cases of influenza in schools can result in high levels of absenteeism of workers with consequent interruption of essential services, loss of productivity and negative impact on the quality of education⁽⁷⁾.

Thus, the importance of these workers having access to health services and vaccination is emphasized.

For this, Primary Health Care, as the priority entrance door to the Unified Health System (SUS), is the point of care that contributes to routine vaccination⁽⁸⁾ and campaign actions. Among the members of the Family Health Care team, nurses play a key role in achieving vaccination coverage and the recommended goals, mainly because of their proximity to the users' reality and by fostering welcoming relationships and consolidation of bonds with the enrolled population⁽⁹⁾.

Although there is proof of the effectiveness of immunization in the control of immune-preventable diseases, an important and dangerous phenomenon has gained significant space in the world and, no differently, in Brazil. It is vaccine hesitancy, defined by the WHO as the delay in accepting or refusing vaccines, despite their availability. Multicausal in nature, it may be related to the user's or community's distrust of the vaccine, non-perception of the need for vaccination, and factors that interfere with the population's access to vaccination^(10,11). Moreover, this behavior has contributed to the decline in vaccination coverage, increasing the risk of outbreaks and epidemics of diseases

previously controlled and eradicated, such as measles⁽¹²⁾.

In Brazil, the scientific production on influenza vaccination in priority groups is vast and covers various nuances, such as adherence and coverage^(13,14), as well as post-vaccination adverse events⁽¹⁵⁾. However, most of these studies have elderly individuals and healthcare professionals as participants, possibly because these individuals have been part of the vaccination campaigns for longer than the other influenza risk groups⁽¹⁶⁾.

The national scientific production that aims to evaluate factors related to influenza vaccination among elementary school teachers is still incipient, since the incorporation of these individuals as a priority is recent⁽¹⁷⁾. However, it is inferred that the analysis of preliminary data can support an early diagnosis of the main factors associated with the practice of vaccination or not in this population. Considering the above, this study aimed to analyze the influenza vaccination status among elementary school teachers.

METHODS

This is a cross-sectional study conducted in the municipality of Guaiúba, located in the Metropolitan Region of Fortaleza, Ceará, Brazil.

Data collection occurred in September and October 2019 in 11 elementary schools (infant, elementary, and high school) chosen by convenience of the researcher, nine public and two private schools. Among them, seven were in the headquarters and four in rural areas. In that

municipality, according to School Census 13, there were 31 registered educational institutions in 2019.

The population was composed of 297 teachers of both genders, aged between 18 and 59 years, with at least one year of teaching experience, and actively working in the municipal education department. The temporal criterion is justified by the fact that the inclusion of teachers as a priority group was proposed in 2017⁽⁶⁾, which would allow the participation of the study population in some previous vaccination campaigns.

The sample size was established with a prevalence of 0.90 - vaccination coverage recommended by the Ministry of Health for this population⁽⁶⁾ - the confidence level is 95%, and sampling error is 5%. An additional 10% was also established to compensate for possible non-responses and losses. The calculation showed the need to include at least 105 teachers.

The sampling was intentional. After presenting the project at a meeting with the city's education department and previously scheduling with the school principals, a previously scheduled visit was made to the management of the educational institutions in the morning and afternoon shifts, where teachers were invited to participate in the research and signed the Free and Informed Consent Form (FICF).

A questionnaire was used with sociodemographic variables (gender, age, date of birth, color/race/ethnicity, marital status, children, level of education, year of conclusion, family income); occupational aspects (time

working, employment status, school management, modality of work, work with children under 5 years old, adolescents or patients with disabilities) and questions about influenza vaccination (priority group, vaccination in the years 2017, 2018 and 2019, reasons, indications, difficulties faced, opinions, locus of vaccination and adverse reactions).

The results were presented in tables with absolute and relative frequencies, means, and standard deviations. The association between vaccination prevalence and sociodemographic conditions, occupational aspects, and behaviors related to vaccination was assessed using the chi-square and likelihood ratio tests. Analyses with $p < 0.05$ were considered statistically significant. The data was processed in SPSS 20.0, license number 10101131007.

The research was approved by the Research Ethics Committee of the School of Public Health of Ceará with opinion no. 3,556,784 of September 2019, obeying the Resolution of the National Health Council no. 466/2012 that provides guidelines and regulatory standards for research involving human beings.

RESULTS

A total of 137 teachers participated in the study. Most teachers were vaccinated (101; 73.7%), but the 90% vaccination goal was not reached; most were female (117; 85.4%), self-reported skin color brown (105; 76.6%), married (70; 51.1%), with children (92; 67.2%), with complete postgraduate studies (87; 63.5%), and income of up to two minimum wages (80;

58.4%). The mean age was 39.5 ± 9.9 years, with a higher proportion in the 18 to 39 age group (72; 52.6%). A statistically significant difference

was found between the decision to get the vaccine and age ($p=0.021$) and number of children ($p=0.046$), as shown in Table 1.

Table 1 - Distribution of the number of teachers according to sociodemographic variables. Guaiuba, CE, Brazil, 2019

Characteristics	Influenza vaccination in 2019			Statistics [p-value] ^{*,†}
	Total n [%]	Yes 101 [73.7]	No 36 [26.3]	
Gender				
Female	117 [85.4]	85 [72.6]	32 [27.4]	0.476*
Male	20 [14.6]	16 [80.0]	4 [20.0]	
Age group				
18–39 years old	72 [52.6]	59 [81.9]	13 [18.1]	0.021*
40–59 years old	65 [47.4]	42 [64.6]	23 [35.4]	
Marital status				
Single	44 [32.1]	34 [77.3]	10 [22.7]	0.517 [†]
Married	70 [51.1]	51 [72.9]	19 [27.1]	
Divorced	7 [5.1]	5 [71.4]	2 [28.6]	
Widowed	5 [3.6]	2 [40.0]	3 [60.0]	
Living with someone	11 [8.0]	9 [81.8]	2 [18.2]	
Skin Color/Race				
Brown	105 [76.6]	79 [75.2]	26 [24.8]	0.800 [†]
Black	15 [10.9]	10 [66.7]	5 [33.3]	
White	15 [10.9]	11 [73.3]	4 [26.7]	
Do not know/ Did not declare	2 [1.5]	1 [50.0]	1 [50.0]	
Education				
High school complete	7 [5.1]	5 [71.4]	2 [28.6]	0.888 [†]
Higher education incomplete	9 [6.6]	7 [77.8]	2 [22.2]	
Higher education complete	22 [16.1]	17 [77.3]	5 [22.7]	
Post-graduation incomplete	12 [8.8]	10 [83.3]	2 [16.7]	
Post-graduation complete	87 [63.5]	62 [71.3]	25 [28.7]	
Incomes[‡]				
Up to 2 incomes	80 [58.4]	58 [72.5]	22 [27.5]	0.596 [†]
2.1 to 4 incomes	48 [35.0]	35 [72.9]	13 [27.1]	
4.1 to 6 incomes	7 [5.1]	6 [85.7]	1 [14.3]	
6.1 or more incomes	2 [1.5]	2 [100]	-	

Children

Yes	92 [67.2]	63 [68.5]	29 [31.5]	0.046*
No	45 [32.8]	38 [84.4]	7 [15.6]	

Fonte: Dados da pesquisa (2019).

*Teste Qui-Quadrado de Pearson

†Razão de verossimilhança

‡Salário mínimo vigente = R\$ 998,00, Brasil, 2019.

Source: survey data (2019).

*Pearson's chi-square test.

†Likelihood ratio

‡Current minimum wage = Brazilian currency (R\$ 998.00), Brazil, 2019.

Most worked in municipal public schools (89; 65%), located at the headquarters (80; 58.4%). There was no significant difference regarding vaccination and the characteristics of school location, employment relationship and time working in the teaching profession. There was a statistically significant difference in the proportion of those vaccinated who worked in

secondary/technical education ($p= 0.016$). Since these were inclusive schools, most worked in classrooms with students with disabilities (76; 55.5%).

Table 2 presents the characteristics of the school environment and of the teachers' performance.

Table 2 - Distribution of the number of teachers regarding influenza vaccination and characteristics of the school environment, Guaiúba - Ceará, 2019.

Characteristics	Influenza vaccination in 2019			Statistics [p-value] ^{1,2}
	Total n [%]	Yes 101 [73.7]	No 36 [26,3]	
School Location				0.687 ¹
Headquarters	80 [58.4]	60 [75.0]	20 [25.0]	
Rural Area	57 [41.6]	41 [71.9]	16 [28.1]	
School management				0.063 ²
Public Municipal	89 [65.0]	60 [67.4]	29 [32.6]	
Public State	23 [16.8]	21 [91.3]	02 [8.7]	
Private	08 [5.8]	07 [87.5]	01 [12.5]	
Social Organization	17 [12.4]	13 [76.5]	04 [23.5]	
Employment relationship				0.832 ¹
Statutory	42 [30.7]	30 [71.4]	12 [28.6]	
Fixed-term contract	63 [46.0]	48 [76.2]	15 [23.8]	
Public selection	32 [23.4]	23 [71.9]	09 [28.1]	
Time of experience in teaching				0.288 ¹
Up to 5 years	20 [14.6]	16 [80.0]	04 [20.0]	
Between 5 and 10 years	38 [27.7]	29 [76.3]	09 [23.7]	
Between 11 and 15 years	29 [21.2]	23 [79.3]	06 [20.7]	
Between 16 and 20 years	12 [8.8]	10 [83.3]	02 [16.7]	

More than 20 years	38 [27.7]	23 [60.5]	15 [39.5]	
Type of education				0.016 ¹
Preschool	59 [43.1]	46 [78.0]	13 [22.0]	
Elementary School	55 [40.1]	34 [61.8]	21 [38.2]	
High School - Technical	23 [16.8]	21 [91.3]	2 [8.7]	
Teaching of students with disabilities				0.428 ¹
Yes	76 [55.5]	54 [71.1]	22 [28.9]	
No	61 [44.5]	47 [77.0]	14 [23.0]	

Source: survey data (2019).
¹Pearson's chi-square test
²Likelihood ratio

Most teachers said they knew their professional category was part of the priority group for influenza vaccination (133; 97.1%). Among teachers who said they had previous indication for vaccination (53; 38.7%), chronic respiratory diseases (15; 28.3%), cardiovascular diseases, and diabetes (7; 13.2%) prevailed. However, a portion of those who had a prior indication did not get the vaccine in 2019 (15; 28.3%). Pregnancy or postpartum was motivation for previous vaccination (9; 16.9%).

The largest proportion of teachers declared as place of vaccination the health unit near their home (49; 48.5%), followed by those vaccinated in the school itself (41; 40.6%) and in health units near the school of performance (11; 10.9%). In the associations made between the variables' vaccination location and teaching modality, early childhood education teachers were proportionally more vaccinated in their own school ($p=0.002$).

Among the teachers who reported some difficulty in getting vaccinated (23; 16.8%), the opening hours (14; 60.8%), the lack of vaccines in health units (9; 39.1%), and the requirement to prove one's profession to receive the vaccine dose (6; 26.0%) were the ones reported. In addition, most of them did not take the recommended dose (17; 73.9%).

More than half of the vaccinated teachers reported some post vaccine adverse event (59; 58.4%), with local pain being the most present (50; 84.7%), followed by muscle pain (13; 22%), fever, and malaise (07; 11.8%).

Recognizing oneself as a risk group for getting sick was important for the vaccinated group (73; 72.2%), while fear of adverse events was a demotivating factor for those who did not take the recommended dose (11; 30.5%). It is noteworthy that vaccination in the school environment was a facilitating factor in the view of half of the respondents (51; 50.4%). These data are presented in Table 3:

Table 3 - Distribution of the number of teachers, according to reasons regarding vaccination. Guaiúba - Ceará, 2019.

Reason for getting vaccinated (n=101)	Nº	%
I believe I am in the risk group and that the flu vaccine is recommended for me	73	72.2

I believe that getting vaccinated decreases the chance of my students and colleagues getting sick	60	59.4
I believe that the vaccine will give me good protection against the flu	54	53.4
The healthcare team offered me the vaccine in my work environment	51	50.4
The vaccination campaign was well publicized, and I tried to get vaccinated	49	48.5
I have confidence in the safety of the vaccines in general	49	48.5
The school's direction/coordination recommended my vaccination	40	39.6
I believe that serious reactions to this vaccine are rare	17	16.8
I believe that I am at high risk of getting sick	13	12.8
Reason for not getting vaccinated (n=36)	N^o	%
I am afraid of the adverse reactions to the vaccine	11	30.5
I do not usually get the flu	10	27.7
The vaccination site/times were inaccessible to me.	8	22.2
I forgot to get vaccinated	8	22.2
I don't trust the safety of vaccines in general	2	5.5
I have had the vaccine before and no longer need it	2	5.5
I didn't know about the campaign this year	2	5.5
I am allergic to this vaccine, so I cannot get the vaccine	2	5.5
I believe that the vaccine does not protect me from the flu	1	2.7
I think I might get the flu from the vaccine	1	2.7

Source: survey data (2019).

Note: teachers had the opportunity to choose more than one reason.

Regarding the teachers' knowledge about the disease and vaccine indications, most said that the influenza vaccine is indicated for all education professionals (117; 85.4%) and agreed with the statement that good hand hygiene can reduce virus transmission (128; 93.4%). However, a portion of the respondents stated that the flu is not a contagious disease and does not

kill young and healthy people (38; 27.7%), and they associate the vaccine with a long-lasting protection, for many years (41; 29.9%).

To evaluate vaccine adherence, we asked about influenza vaccination as of 2017, the year in which teachers were included in the priority group (Table 4).

Table 4 - Distribution of the number of teachers regarding influenza vaccination in 2019 and comparison with the years 2017 and 2018 (n= 137). Guaiúba - Ceará, 2019.

Year	Yes	No
	n [%]	n [%]
2017	88 [64.2]	49 [35.8]
2018	107 [78.1]	30 [21.9]

2019

101 [73.7]

36 [26.3]

Statistics [*p*-value]¹

0.032

Source: survey data (2019).

¹Pearson's chi-square test

It was found that in the year 2018, participants were more adherent to vaccination (107; 78.1%) compared to the years 2017 (88; 64.2%) and 2019 (101; 73.7%) ($p=0.032$).

DISCUSSION

In the present study, in none of the years investigated, the vaccination coverage of teachers reached the goal recommended by the Ministry of Health (90%). Corroborating these results, a similar investigation conducted in the period 2019-2020, aiming to assess the attitudes, knowledge, and acceptance of the influenza vaccine, found an average of 34.8% of adequately vaccinated teachers, while 53.9% said they would receive it in the years 2020-2021⁽¹⁸⁾.

Studies from a scoping review evidenced several factors that influence vaccination adherence, and lack of knowledge can be considered a barrier to achieving the goals targeted by the campaigns⁽¹⁹⁾. The adult population tends to be unaware of their own situation and the vaccination schedule, and many do not even have the vaccination booklet to assess the doses taken^(17,19). It also highlights the absence of regular campaigns for vaccination of adults in general, besides a culture that still does not recognize the importance of this action⁽¹⁷⁾.

It was observed in the results of this study that younger teachers and those with children were more adherent to influenza vaccination,

which may suggest that they, although they have more access to social networks, are more critical about the quality of information they access, making them less susceptible to vaccination hesitation when compared to those of higher age. Moreover, the concern with family protection is a dominant factor among the motivations for vaccination, which may explain the greater adherence of those who are parents⁽²⁰⁾.

Working at the secondary or technical level, harming elementary and early childhood education, was associated with a higher prevalence of vaccination. Corroborating this finding, a study conducted in Portugal found that teachers from different levels of education have different concerns and motivations towards vaccination, which may impact on the coverage stratified in this way⁽²¹⁾.

Evaluating the knowledge, attitude, and practice of adults regarding influenza vaccination, it has been found a strong negative influence of new media and communication technologies on the behavior of those not favorable to vaccination^(22,23). This fact alerts to the need for health professionals to work with this population, aiming to disseminate consistent data on the safety of immunobiological agent's and combat false information disseminated by various media.

In the data obtained, it was possible to identify factors related to the behavior of non-adherence to vaccination by teachers. Thus, it is

essential to rethink the (re)organization of health services considering the needs to promote access and adherence regarding immunization, prioritizing the planning, acquisition, and maintenance of the necessary doses to avoid lack or delay of vaccination, in addition to providing information about possible adverse events^(4,24).

The health unit near the home was the main locus of vaccination, however, it was found that vaccination in the school environment was also a facilitating factor for adherence. Thus, it can be inferred that the strategy of vaccination for children under six years old at school can be an opportunity to offer the doses to teachers, minimizing the problem of the opening hours of health units.

It is up to public health authorities, school administrators, and health teams to coordinate efforts to increase vaccination rates among adults in the school environment, since the low vaccination coverage of school employees can negatively affect the health of other individuals in this environment⁽²³⁾.

Health professionals play a key role in recommending vaccination, clearing up misconceptions and clarifying controversial issues about its efficacy and adverse events, besides disseminating the health benefits provided by vaccination^(25,26).

Although the participants understood to be from the risk group and agreed on the importance of hygienic measures to reduce transmission, the lack of knowledge about vaccines, their advantages and relevance to mitigate and control the proliferation of diseases, as well as myths and misinformation can

negatively influence adherence to immunization. Thus, it is valid that health professionals provide clear and evidence-based information to highlight the benefits of vaccination for health and quality of life⁽²⁵⁾.

Moreover, in the last decades, anti-vaccine groups have been gaining strength worldwide. The rapid dissemination of false news, facilitated by the advent of the Internet and social networks, can increase misinformation and skepticism, which may culminate in epidemics of immunopreventable diseases and the risk of reemerging diseases⁽²⁷⁾. In Brazil, between 2009 and 2017, there was a decrease in vaccination coverage and among the various reasons are hesitancy and refusal to vaccinate⁽¹¹⁾.

Although not new, the circulation of fake news in social media gained significant notoriety globally during the implementation of the vaccination against COVID-19, when concerns about side effects, distrust of government and health authorities, and the desire to wait for more data on vaccine safety were among the main reasons for vaccine hesitancy⁽²⁸⁾.

A recent Brazilian study analyzed the content of false news related to vaccines, disseminated on national news websites, and found a strong association between vaccine hesitancy and refusal with the mass dissemination of ideas of ineffectiveness and risk of sequel and deaths attributed to immunobiological agent's⁽²⁹⁾. Moreover, the same study draws attention to the importance of the professional nurse as a health educator and propagator of safe information with the population.

In March 2019, the WHO launched a new global influenza control strategy, the Global Influenza Strategy 2019-2030, which presents two goals: to build stronger surveillance and response structures and mechanisms in countries, and to develop tools to prevent, detect, control, and treat influenza, including effective and affordable vaccines and treatments for all⁽³⁰⁾. There is still much to be done to achieve these goals, and the educational work with the populations is indispensable. Well-informed users can be multipliers and motivators of changes in their families and social groups, encouraging new habits and a healthy lifestyle⁽³¹⁾.

The results point to the need to qualify the care for the adult population regarding immunization, and considering that, it is suggested the preparation and updating of health professionals who work in these services, besides the development of strategies for better vaccination coverage, due to its preventive character. For this, intervention efforts can be directed at families, aiming to combat arguments without scientific basis, clarify myths, improve confidence, and obtain adherence⁽³²⁾.

It is also important to improve the reception of the teachers' immunization demands in health units, since they are the most sought after for this service; besides promoting the linking of health professionals to schools in the territories, which could favor greater vaccination coverage and better use of this important space for health care^(32,33).

From this perspective, there is the integration between the Ministries of Health and

Education, proposed by the School Health Program - PSE, established in 2007, as a strategy to facilitate the achievement of health goals, such as immunization, through actions of prevention and health promotion, focusing on strategies directed to the vaccination coverage of students, and opportunely, of educators⁽³³⁾.

A limitation of the study is the risk of bias in the teachers' memory about the vaccination status, since the vaccination booklets were not checked for comparison with the data informed about the immunobiological agents under study.

CONCLUSION

The analysis of the vaccination status of elementary school teachers allowed us to conclude that most teachers recognize being in the priority group and were vaccinated against influenza. This adherence was related to the recognition of a risk group, to the awareness of the need for individual and collective protection, in addition to the access to information about the immunobiological agent's product and its administration in the school environment.

However, the 90% coverage proposed by the Ministry of Health was not reached in the three-year period investigated, the reasons for vaccine hesitation being fear of adverse reactions, reduced perception of risk, and misinformation about contraindications and adverse effects.

Considering the importance of the topic in public health, it is believed that the results of this study may indicate contributions to the area of public health and nursing, since these professionals work directly in the vaccine room,

health education and care coordination in Primary Health Care. Furthermore, knowledge about the situation, adherence and hesitancy to vaccination should be the object of study of other studies with a view to increasing vaccination coverage and the protection and promotion of health.

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