



VACCINATION AGAINST INFLUENZA IN A COHORT OF ELDERS IN A CITY IN THE SOUTH OF BRAZIL

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ABSTRACT

Objective: to verify the prevalence of vaccination against influenza and to investigate the reasons for the lack of vaccination in the elder population. **Methods:** cohort study "Health of the Elder Gaucho from Bagé, RS", carried out in the city of Bagé in 2008 and 2016/2017. The dependent variable was found using the question: "Did you get vaccinated against influenza this year? "Yes or no?". When the response was negative, the elder was asked why they were not vaccinated. We carried out a descriptive analysis of the vaccination prevalence and calculated the prevalence ratio using the software Stata 14.0. **Results:** the prevalence of vaccination against influenza in 2008 was 58.8%, reaching 80.8% in 2016/2017. In 2008, the most common answer from the elders about why they did not vaccinate was "I didn't want to" (29%); in 2016/2017, it was "I was afraid" (16.7%). **Conclusion:** although the prevalence of vaccination increased, elders continue to have doubts and fear about the vaccine, and it is necessary to rethink strategies together with the Family Health Teams.

Keywords: Influenza Vaccines. Vaccination coverage. Immunization programs. Health of the elderly. Primary health care.

INTRODUCTION

Influenza, characterized as a viral respiratory disease, affects the respiratory tract and is one of many acute respiratory infections. In general, its complications are the reason for many rates of morbidity and mortality, especially in vulnerable groups, such as people with chronic disease, pregnant women, and the elderly(1,2). Estimates indicate that nearly 600 million people in the world are affected by influenza, which is seasonal, with a higher incidence during the winter(1,3,4).

In Brazil, the National Program of Immunization (PNI), released by the Ministry of Health (MS) in the second half of the 1970s, aims to control, eradicate, and eliminate immunopreventable diseases. Considering risk, vulnerability, and social

characteristics, the PNI creates a vaccination schedule according with the specificities of the population (children, adolescents, adults, pregnant women, elders, and indigenous peoples)(1,5,6).

In the Single Health System (SUS), the first vaccination campaign against the influenza virus took place in 1999, for elders above 65 years. From 2000 on, the vaccine became available for all those above 60 years(7). Vaccination is one of the main forms of prevention. It contributes for mortality rates, reduces hospitalizations, and expenses with medication(2,8).

A study with 1468 samples of respiratory secretions in patients suspected for Severe Acute Respiratory Syndrome (SARS) and 56 respiratory samples from deaths suspected for SARS, found that elders who were vaccinated less, presented a

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higher rate of infection. Furthermore, most patients with SARS were not vaccinated, and 100% of deaths that were positive for influenza were of unvaccinated individuals(9)

At SUS, vaccination is available mostly at primary care. The role of this level of complexity is to encourage users to keep their vaccines updated(5). The Family Health Strategy (ESF) attempts to direct the working process towards increased effectiveness in health situations experienced by people and community(10). It reiterates the principles and guidelines of SUS and provides significant contributions for a better access and use of health services by the population, with better health results when compared with the traditional model of care(11,12)

Through our findings, it may be possible to fill in some of the gaps in regard to a better adherence of the elders to the vaccination campaigns, explaining, especially, the reasons they had not to be vaccinated. Therefore, this study is relevant for health workers, managers, and members of the general population who, through the results found, can rethink public strategies targeted at vaccination and improve ESF actions, aiming to increase elder adherence to the campaign, to adapt previous programs and public policies, and to develop health educations activities.

The objective of this study was to verify the prevalence of vaccination against influenza, and the reasons that led the elderly population not to get vaccinated.

METHOD

This study used data collected in cohort study called "Health of the Elder Gaucho from Bagé, RS (SIGa-Bagé)", which aimed to identify the changes in the situation of 60-year-old or older elders who lived in the urban area of the city of Bagé, and the contributions from the ESF in the care to their needs from 2008 to 2016/2017(13,14).

The city of Bagé is located in Rio Grande do Sul (RS), in the far south of Brazil and in the border with Uruguay. According to the 2010 census, the estimated population of Bagé for 2010 was 120,943 people, with a population density of 28.52 hab/km². The Municipal Human Development Index (HDI) in 2010 was 0,740, similar to that of the entire state (HDI=0.746) and to that of the country (HDI=0.727)(15).

At the time of the first collection, from July to

November 2008, we took into account the 20 Primary Health Care Units (UBS) in the city, 15 of which were ESFs while 5 were Traditional Primary Unit. Later, when data was collected from September 2016 to August 2017, we considered the 19 ESFs and 3 traditional units in the urban area of the municipality

The statistical power calculation for a sample of 704 individuals (which was the size of the sample for the outcome in a baseline study) was 100%. To locate the sample, the UBS area was divided into microareas. Each block received a numerical identification, and the initial site of data collection was randomized. To guarantee that all homes had the same probability of being in the sample, we systematically skipped five residences. All 60-year-old or older residents in the houses selected were invited to participate in the study(13,14). Data collection was carried out in the house of the elders through an interview with a questionnaire, printed in 2008, and an electronic questionnaire from 2016/2017.

In both stages, whenever the interviews could not be carried out after three attempts in different days and times, they were considered losses and/or refusals. We excluded from the study individuals who, at the time of the interview, were traveling, in deprivation of freedom due to judicial decisions, or living in long-permanence institutions. When the physical or cognitive condition of the elder was not sufficient for them to answer the questionnaire, the questions were applied to the main caregiver.

The research was approved by the Research Ethics Committee at the Faculdade de Medicina da Universidade Federal de Pelotas (UFPel), in Process No. 15/08 in 2008, and under opinion 678.664 in 2014. Ethical principles were respected as the participants signed the Free and Informed Consent Form (FICF), and complete anonymity was guaranteed.

The dependent variable, in 2008 and in 2016/2017, was found using the question: "*Did you get vaccinated against influenza this year?*". The respondents could answer with "Yes" or "No". When the response was negative, the elder was asked why they were not vaccinated.

The independent variables included were sociodemographic: sex (male/female), age (60 to 74 years/ \geq 75 years for 2008, and 68 to 79 years/ \geq 80 years for 2016/2017), self-reported skin color (white / black, brown, native, Asian), educational level

(none/ 1 to 7 / 8 or more), socioeconomic classification according with the Brazilian Consort of Research Companies - ABEP (A and B/ C / D and E), retirement (no/yes), marital status (has a partner or spouse/has no partner or spouse/widow or widower), lives alone (no/yes), has health insurance (no/yes), type of UBS coverage (Traditional/ESF). The behavioral variables were body mass index (BMI) (overweight/adequate/low weight); smoking (no/yes), and drinking (no/yes). Health conditions were medical diagnosis of systemic hypertension (SH) (no/yes), diabetes mellitus (DM) (no/yes), heart problems (no/yes), kidney problems (no/yes), lung problems (no/yes), and health self-perception (terrible or bad/ regular/great or good).

We used descriptive statistics with frequency distribution according with the year of the study and the prevalence of vaccination against influenza in the population of the study and their reasons for not vaccinating. We compared the prevalence between models of care using prevalence ratios and CI = 95%. The analyses were carried out using the statistical program Stata 14.0.

RESULTS

Table 1. Population distribution according to sociodemographic, behavioral, and health condition variables. SIGa- Bagé, 2008 and 2016/2017.

Variable	2008 (n=1593)		2016/2017 (n=735)	
	n	%	n	%
SOCIODEMOGRAPHIC				
Sex				
Male	593	37.2	254	34.6
Female	1000	62.8	481	65.4
Age				
60-74 years (2008)	1096	68.8	-	-
68-79 years (2016/2017)	-	-	505	68.7
≥75 years (2008)	497	31.2	-	-
≥80 years (2016/2017)	-	-	230	31.3
Skin color				
White	1252	78.6	604	82.2
Black, Asian, brown, native	341	51.4	131	17.8
Educational level (n=1592/729)				
None	382	24.0	169	23.2
1 to 7 years	868	54.4	398	54.6
≥8 years	342	21.5	162	22.2
Socioeconomic classification (1581/720)				
A/B	429	27.1	105	14.6
C	615	38.9	283	39.3
D/E	537	34.0	332	46.1
Retirement (733)				
No	451	28.3	149	20.3
Yes	1142	71.7	584	79.7

Marital status (1592/731)				
Has a partner/spouse	816	51.3	310	42.4
Does not have a partner/spouse	238	14.9	105	14.4
Widow/widower	538	33.8	316	43.2
Lives alone				
No	1313	82.4	558	75.9
Yes	280	17.6	177	24.1
Health insurance (1586)				
No	1025	64.6	432	58.8
Yes	561	35.4	303	41.2
Type of UBS coverage				
Traditional	741	46.5	335	45.6
ESF	852	53.5	400	54.4
BEHAVIORAL				
Body mass index (1377/668)				
Overweight	492	35.7	316	47.3
Adequate	662	48.1	242	36.2
Low weight	223	16.2	110	16.5
Smoking (1592/728)				
No	1348	84.7	660	90.7
Yes	244	15.3	68	9.3
Drinking (15883/ 728)				
No	1329	84.0	623	85.6
Yes	254	16.0	105	14.4
HEALTH CONDITIONS				
Arterial hypertension (734)				
No	712	44.7	245	33.4
Yes	881	55.3	489	66.6
Diabetes mellitus				
No	1352	84.9	587	80.0
Yes	241	15.1	146	20.0
Heart problems				
No	1122	70.4	512	69.7
Yes	471	29.6	223	30.3
Kidney problems (1591)				
No	1476	92.8	710	96.6
Yes	115	7.2	25	3.4
Lung problems				
No	1444	90.6	658	89.5
Yes	149	9.4	77	10.5
Health self-perception (1540/711)				
Terrible/Bad	109	7.1	59	8.3
Regular	525	34.1	270	38.0
Great/Good	906	58.8	382	53.7
TOTAL	1593	100.0	735	100.0

Source: SIGa-Bagé Study

The prevalence of vaccination against Influenza in this study, in 2008, was 58.8% (CI_{95%} 56.4; 61.2); in 2016/2017, it was 80.8% (CI_{95%} 77.7; 83.6) (Figure 1). When we compare the coverage between models of care in 2008, we find that RP = 1.01

(CI_{95%} 0.91; 1.10); while, in 2016/2017, RP = 1.01 (CI_{95%} 0.94; 1.09). Therefore, there was no statistically significant difference between the models in these years.

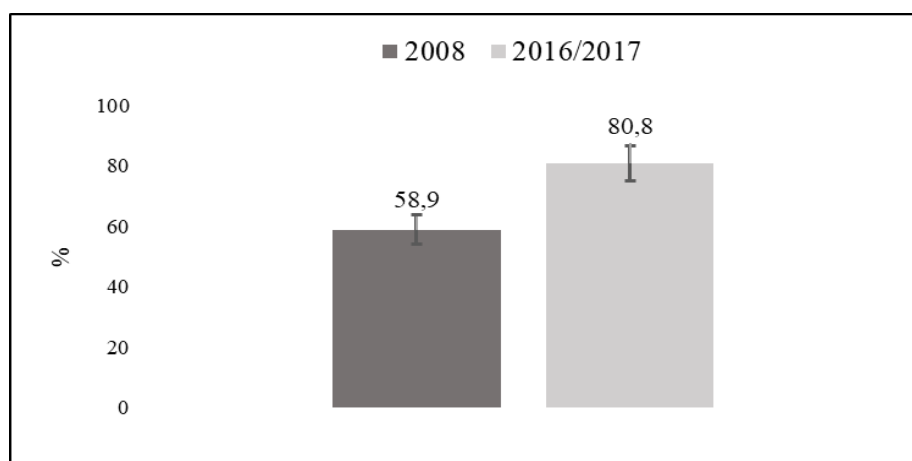


Figure 1. Elders who were vaccinated against influenza. Bagé, RS.

Source: Data collection from the SiGa-Bagé research. 2008/2016-2017.

In 2008, the most common reasons given by the elders for not vaccinating were "not wanting to" (29%), "not liking it" (17%), and "being afraid"

(13%). In 2016/2017, the main reason among unvaccinated elders (n=135) was "being afraid" (26.7%), followed by "not wanting to" (17.0%) (Figure 2).

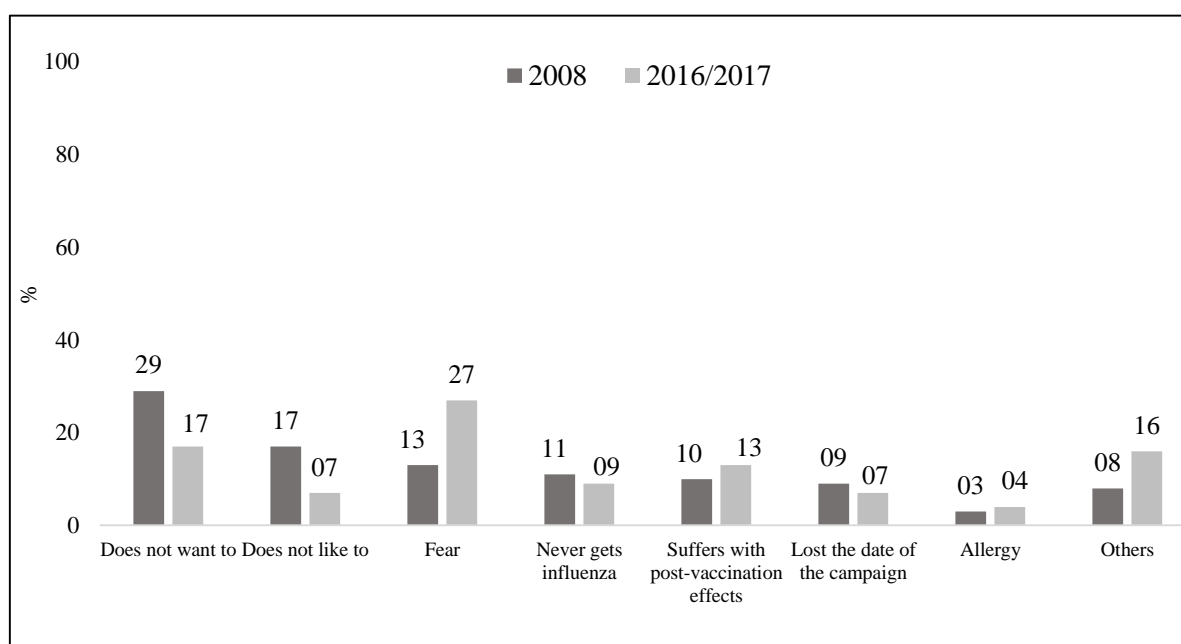


Figure 2. Reason given by elders for not vaccinating against influenza. Bagé, RS.

Source: Data collection from the SiGa-Bagé research. 2008/2016-2017.

DISCUSSION

Coverage of the influenza vaccine, comparing 2008 and 2016/2017, increased 21.9 percentage points in our population. Therefore, considering the goal of a minimum 80% vaccination against influenza in the target groups, established by the MS, the data regarding 2016/2017 show that the

coverage was adequate⁽¹⁶⁾.

In 2008, national vaccine coverage against influenza had a prevalence of 79.1% in the elderly, although the vaccination goal for the period was 80.0%. In 2016, the vaccination among elders in Rio Grande do Sul (RS), met the mark of 95.7%^(16,17). In 2017, the national vaccination coverage against influenza was 87.8% in the general population and

94.6% in elders. State coverage was 86.3% in the general population and 94.0% in the elderly⁽¹⁷⁾.

A study carried out from 2008 to 2009 in Campinas-SP, with 1,517 elders above 60 years of age, found that the prevalence of influenza vaccination was 62.6%⁽¹⁸⁾. On the other hand, a study carried out in 2014 in Pelotas-RS, involving 1,451 elders, found a prevalence of 71% among elders⁽³⁾. These studies show similar results to those found in this work, as, with the passing of the years, the adherence to vaccination against influenza also improved.

Azambuja et al., 2020, carried out an investigation with data from the Information System of the National Immunization Program, part of the System of Hospital Information and the Mortality Information System, obtained from the MS. In said study, they detected an increase in the vaccine coverage from 2010 and 2019 where the goal of 80% vaccination coverage was met in all Brazilian regions starting in the year 2011⁽¹⁹⁾.

When we compare the coverage between models of care, there was no statistically significant difference between the models in each year, showing that the coverage was similar regarding each the model of care. Regarding ESF coverage, even when the number of primary units with ESF did not increase much in the city under study, this improvement in results throughout the years is probably associated with the consolidation of ESF, whose goals include prevention⁽¹¹⁾.

The ESF has an essential role in encouraging users to vaccinate. Home visits can help finding people for vaccination campaigns and identify vaccines that are delayed in patients' vaccination charts⁽⁵⁾. Nonetheless, we must also consider demographic, socioeconomic, or cultural characteristics that can be an obstacle to the access to health services⁽⁷⁾.

Regarding the reasons for non-vaccination, the answers were similar in the years analyzed. According with a study by Gomes et al., some reasons mentioned by the elders not to be vaccinated would be: not having time to go to the UBS, not being interest in vaccinating, not believing the effectiveness of the vaccine, and not knowing about it⁽²⁰⁾. Francisco, Barros and Cordeiro found that the most common explanations for non-vaccination were not believing that the vaccine was necessary, and believing that the vaccine causes a reaction⁽¹⁸⁾. It is necessary to create broader educational action to

deal with the lack of knowledge of the elder population and their families about importance of vaccination, so that campaigns can be effective in the way they address the subject⁽²⁰⁾.

Regarding access to information about vaccination, media is important and allow for this type of access. Gomes et al., in 2013, investigated 121 elders in the north of Brazil, finding that 56.2% of them preferred receiving information about campaigns from the television and the radio, since it is easy to access. 23.1% preferred to receive information from the community health agents (ACS), and the rest preferred to receive information from their physicians, families, neighbors, or friends⁽²⁰⁾.

For preventive measures to be effective in elders, this public needs to adhere to the campaigns. Literature shows how important it is for health services to provide guidance about health services, thus clarifying doubts the population may have⁽³⁾. Health workers, especially physicians and nurses, have an essential role in giving information about the availability of vaccines and in clarifying the doubts of the population in this regard⁽²¹⁾.

It stands out that caregivers and relatives have an important role and should also receive guidance in order to take the target audience to the UBS to be vaccinated. Their support is essential for the decision making of the elders, regarding vaccination. Traditional UBS and ESF teams must work effectively towards educating users from target groups to be vaccinated against influenza, informing them about recommendations and the protection the vaccine provides, while also actively searching for elders who miss their shots with the help of community health agents, and, when necessary, vaccinating elders in visits of nurses of nursing technicians.

It is noteworthy that, since the emergence of COVID-19 and the vaccines for this virus, many fake news started to be shared in social networks. This is a warning sign for health surveillance issues in the country, since many people adhered to the antivaxer movement, causing vaccine rates to alarmingly decrease, and leading to the reappearance of diseases already eradicated in Brazil, such as measles and polio^(22,23).

The state of RS, in June 2022, showed a serious concern about the low vaccination coverage against influenza, recommending the broadening of vaccination programs. At time of writing,

vaccination coverage is below 50%, reaching 55.3% among elders. In the same period, the city of Bagé had a coverage higher than the mean of the state, with 78.9% elders vaccinated against influenza^(17,24).

In the period studied, vaccination campaigns were showing themselves effective and leading to an increased vaccine coverage. However, with the appearance of COVID-19 and the fake news disseminated in social networks by important public figures of the country, this prevalence may decrease.

It is also of note that, even with all the obstacles that may appear, ESF needs to exercise its role by constantly monitoring and following up the users in its territory.

This study has some limitations, such as its cross-sectional design and the survivor bias, since elders who were not vaccinated may have passed away.

This study highlights the importance of vaccinating the elderly against influenza and the importance of health services and workers in bringing the adherence of this priority group in vaccination campaigns. It is paramount to increasingly invest in the dissemination of truthful, science-based information to guarantee an adequate vaccine coverage to the elderly

CONCLUSION

Our results showed that the vaccination goals in

2008 were not achieved, while, in 2016, it was achieved among interviewed elders. Nonetheless, even with all current vaccination campaigns, the population still shows doubts and fear about vaccination. The consolidation of the ESF throughout the years may have contributed for an increase in the prevalence of vaccination in elders; however, there was no significant difference in the adherence to vaccination when we compared the ESF with the traditional primary care model.

It is essential to consider health education strategies that have the elder population in mind, clarifying the doubts of this public and explaining the advantages of vaccinating against influenza, thus allowing elders to clarify doubts that lead them to question the protective effect of vaccines, and, consequently, increasing their adherence to vaccination. It is interesting for health services that offer socialization groups to give space for this topic. Furthermore, this could also be discussed with patients in the waiting rooms of UBSs, addressing the main doubts of the population.

Moreover, it is paramount to develop further studies that investigate the population adherence to vaccination and the reasons why they did not vaccinate. Ascertaining this information, we can consider new strategies to attract the public into vaccination campaigns, in order to guarantee an adequate coverage and assure protection.

VACINAÇÃO CONTRA A INFLUENZA EM COORTE DE IDOSOS DE MUNICÍPIO DO SUL DO BRASIL

RESUMO

Objetivo: este estudo objetivou verificar a prevalência de vacinação da influenza e investigar os motivos da não vacinação na população idosa. **Método:** Estudo de coorte "Saúde do Idoso Gaúcho de Bagé, RS, realizada em Bagé em 2008 e 2016/2017. A variável dependente foi obtida através da pergunta: "Neste ano o(a) Sr.(a) fez a vacina contra a gripe? Sim/não". Em caso de resposta negativa o idoso era questionado sobre a razão de não ter se vacinado. Realizou-se análise descritiva, prevalência de vacinação e cálculo de Razão de prevalência no programa Stata 14.0. **Resultados:** a prevalência de vacinação contra Influenza no ano de 2008 foi de 58,8% e em 2016/2017 de 80,8%. O motivo mais frequente referido pelos idosos para a não realização da vacina em 2008 foram: "não quis" (29%) e em 2016/2017 "ter medo" (26,7%). **Conclusão:** apesar da prevalência de vacinação ter aumentado, evidencia-se que os idosos continuam com dúvidas e receios acerca da vacina, sendo necessário repensar novas estratégias em conjunto com as Equipes de Saúde da Família.

Palavras-chave: Vacinas contra influenza. Cobertura vacinal. Programas de imunização. Saúde do idoso. Atenção primária à saúde.

VACUNACIÓN CONTRA LA INFLUENZA EN COHORTE DE PERSONAS MAYORES DE MUNICIPIO DEL SUR DE BRASIL

RESUMEN

Objetivo: este estudio tuvo como objetivo verificar la prevalencia de vacunación de la influenza e investigar los motivos de la no vacunación en la población de personas mayores. **Método:** estudio de cohorte Salud del Anciano Gaúcho de Bagé, RS, realizado en Bagé-RS/Brasil en 2008 y en 2016/2017. La variable dependiente fue obtenida a través de la pregunta: "¿Este año usted ya se ha vacunado contra la gripe? Sí/no". En caso de respuesta negativa el anciano era preguntado sobre la razón de no haberse vacunado. Se realizó análisis descriptivo, prevalencia de vacunación y cálculo de Razón de prevalencia en el programa *Stata 14.0*. **Resultados:** la prevalencia de vacunación contra Influenza en el año 2008 fue de 58,8% y en 2016/2017 de 80,8%. El motivo más frecuente señalado por las personas mayores para la no realización de la vacuna en 2008 fue "no quiso" (29%); y en 2016/2017 "tener miedo" (26,7%). **Conclusión:** aunque la prevalencia de vacunación ha aumentado, se evidencia que los ancianos continúan con dudas y recelos acerca de la vacuna, siendo necesario repensar nuevas estrategias en conjunto con los Equipos de Salud de la Familia.

Palabras clave: Vacunas contra influenza. Cobertura de vacunación. Programas de inmunización. Salud del anciano. Atención primaria de salud.

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