Influenza Vaccination in Coronavirus Times: Intention to Be Vaccinated by Primary Care Professionals in Central Catalonia (VAGCOVID)

Raquel Muñoz-Miralles
Centre d'Atenció Primària Plaça Catalunya, SAP Bages-Berguedà-Solsonès, Gerència Territorial Catalunya Central Institut Català de la Salut, Manresa

Anna Bonet-Esteve (ambonet.cc.ics@gencat.cat)
Unitat de Farmàcia, Gerència Territorial Catalunya Central Institut Català de la Salut, Sant Fruitós de Bages

Anna Rufas Cebollero
Centre d'Atenció Primària Manlleu, SAP Osona, Gerència Territorial Catalunya Central, Institut Català de la Salut, Manlleu

Xavier Pelegrin Cruz
Universitat Autònoma de Barcelona, Barcelona

Josep Vidal Alaball
Unitat de Suport a la Recerca de la Catalunya Central, Fundació Institut Universitari per a la recerca a l'Atenció Primària de Salut Jordi Gol i Gurina, Sant Fruitós de Bages

Research Article

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Abstract

Background

Influenza vaccination is the main measure of prevention against the epidemic flu, which annually produces a significant increase in the pressure on healthcare systems, in addition to influencing the absenteeism of health workers. Although it is recommended that health professionals be vaccinated, their vaccination coverage is low. The lack of knowledge about the evolution of influenza in the context of the SARS-CoV-2 coronavirus pandemic led to the continued recommendation of influenza vaccination to people at risk and to professionals. The aim of the study is to determine the intention to vaccinate against seasonal flu of health professionals in the 2020-21 campaign in the context of the SARS-CoV-2 pandemic, and to analyse the factors that influence it.

Methods

Cross-sectional study through a structured online survey aimed at Primary Care professionals in the region of central Catalonia.

Results

A total of 610 participants responded to the survey, 65.7% of whom intended to be vaccinated against the flu in this campaign and 11.1% did not yet know or did not answer. The intention to be vaccinated against flu is associated with the professional category, the years of professional practice, the fact of making face-to-face guards, and the perception of the risk of suffering from flu. It is also related to a history of influenza vaccination in the previous year and to having been vaccinated on another occasion. The profile of professionals who intend to be vaccinated against flu includes professionals with a history of vaccination, who were on duty and perceived that their staff were at risk of becoming ill with flu.

Conclusions

During the SARS-CoV-2 pandemic, many professionals show a clear intention to get vaccinated against the flu, but there are still some who doubt it. In order to improve influenza vaccination coverage among health professionals, it is necessary to design strategies aimed at professionals who are hesitant or reluctant to vaccination.

Introduction

Flu is estimated to affect between 5% and 20% of the general population each year. It is estimated that approximately 25% of respiratory febrile processes can be caused by influenza. [1]

Influenza is a public health problem that directly affects health care workers due to the increase in consultations resulting from the infection and its complications, leading to an increase in healthcare pressure and hospitalisations. [1, 2, 3] In addition, professionals who work in healthcare areas are at higher risk of catching the flu than those who work in non-healthcare areas, and the fact that they get the flu can affect the healthcare system due to their possible leaves. [4]

Influenza vaccination (VAG) is an effective primary prevention measure to prevent the onset of influenza and its complications [1, 5]. Its administration is recommended to risk groups and people who may be vectors of transmission, such as health professionals [1, 6]. Health workers can also infect people in their family environment and can be a key factor in the spread of epidemic outbreaks in health centres. [7] Sometimes the flu can turn up asymptomatically or mildly, and even if the spread of the virus in these forms is not clearly known, unvaccinated professionals continue to work and can act as a source of infection for the people they care for.. Although it is not clear what the vaccination coverage threshold for professionals should be considered, vaccination of health workers in nursing homes, health centres and hospitalisation plants could improve safety and reduce the morbidity and mortality associated with this infection [8]. In fact, vaccination of professionals has been shown to have some protective effects in elderly patients, with respect to mortality from pneumonia or mortality from other causes [4].

Overall, VAG coverage in health professionals achieved through vaccination campaigns is usually low. These coverages are far from the 75% target proposed by the World Health Organisation (WHO) and the European Centre for Disease Prevention and Control (ECDC) for the 2020-21 campaign. [9, 10]. Data collected in the European Union during the seasons 2015-16, 2016-17, 2017-18 show that vaccine coverage ranges from 15.6–63.2% [11]. In the 2019-20 campaign, coverage in Spain was 39.4%, and 30.2% in Catalonia [12].

The acceptance of vaccination by professionals can be influenced by different factors: 1) personal factors, linked to knowledge, beliefs, perceptions and factors that have to do with motivation; 2) social/community factors, linked to personal experiences and relationships and 3) professional factors that support behaviour; and 4) environmental factors, such as policy or environment that, despite not being adjustable, influence the individual by offering him/her the opportunity to be vaccinated. [4] According to Herzog [13], increased knowledge about vaccines, beliefs aligned with scientific evidence, and favourable attitudes towards them are associated with higher vaccination intentions. The social benefit provided by vaccination (protection to patients and the professional environment) is also a justification in favour of VAG in professionals [14]. In contrast, several studies have identified fear of adverse events and doubts about the effectiveness of the vaccine as the main reasons for non-vaccination by health care providers [14, 15]. However, a survey carried out in 2012 on 336 health workers in our country indicated as the main reasons for rejecting the VAG the fact that they do not consider themselves at risk, the lack of concern, or the lack of time. [16]

The role of professionals is crucial in order to increase the coverage of the population's flu vaccine, both in terms of informing patients and making health recommendations. Vaccine coverage for healthcare professionals, along with their opinion and attitude towards the effectiveness of the vaccine, influences the vaccination rates of their patients. [17]

The consensus document on influenza vaccination in health personnel, published in 2012 by 19 Spanish scientific societies, makes recommendations based on three basic pillars: necessity, ethics and exemplariness. As to necessity, self-protection is pointed out as the main reason for vaccination, because health professionals are more exposed to circulating viruses and this fact increases the likelihood of leaves. As to ethics (primum non nocere), it should be borne in mind that unvaccinated professionals could be transmitters of the virus to people at risk, who could be more severely affected by the disease, as well as their professional and family environment. As to exemplariness, the fact that professionals are vaccinated, aware and convinced of the usefulness and safety of the flu vaccine leads to more confidence in the general population and also among the professionals themselves, and influences the improvement of vaccine coverage. [18]

In the context of the current SARS-CoV-2 pandemic, the VAG 2020-21 campaign was considered to be influenced by ignorance of influenza virus behaviour and the risk of coinfection by both viruses. For this reason, health authorities promoted an increase in VAG coverage to reduce the incidence and the impact on healthcare pressure that takes place each year [9, 10].

In the 2020-21 influenza vaccination campaign, Catalonia and Spain set the goal to reach or exceed 75% of vaccination in people over 65 and in health personnel, and 60% in pregnant women and people with high risk of complications [9, 10].

In the context of the SARS-CoV-2 pandemic, it is important to know the intention to receive the VAG by health professionals, as intention is a key factor for action [14, 19] and therefore can help focus actions that improve vaccine coverage. It is also interesting to explore the pandemic-related reasons that may lead them to decide on the VAG.

The aim of the study is to determine the intention to vaccinate against seasonal flu of health professionals in the 2020-21 campaign, in the context of the SARS-CoV-2 pandemic. The specific objectives are: 1) Assess the perception of risk of seasonal flu in the context of the SARS-CoV-2 pandemic. 2) Determine whether the contextual factors related to the physical and hygienic protection measures disseminated and implemented during the pandemic influence the intention of getting vaccinated against the flu.

Methodology

Cross-sectional study on the acceptance of VAG, the perception of risk of seasonal influenza during the SARS-CoV-2 pandemic, and the influence of contextual factors related to the hygienic/physical measures implemented during the pandemic, through an online survey to primary care professionals. This survey (Annex I) is based on a previous one conducted by Apiñániz et al. to study the acceptability of an influenza A (H1N1) vaccine [21], which has already been used in a recent study on the intention to vaccinate among the at-risk population in the same area [22].

The field of the study was the Health Region of Central Catalonia, which includes the counties of Anoia, Bages, Berguedà, Moianès and Osona. The research period ranged from 15 days before the start of the influenza vaccination campaign until the month after its completion (October 5, 2020 - January 31, 2021). The population included was that of health professionals from the Catalan Institute of Health at Primary Care Teams (EAP) in Central Catalonia; approximately 1,500 professionals. The different professional categories included were: Group A1 (family doctors, paediatricians, dentists, pharmacists, senior technicians), Group A2 (nurses, midwives, social workers, management technicians), Group C1 (administrators, specialist technicians), Group C2 (pharmacy assistants, nursing assistants, nurses, administrative assistants, drivers, maintenance staff) and GP Group (caretakers, or others)

The inclusion criteria were: 1) Being a Primary Care Professional at the Catalan Institute of Health. 2) Having an indication for influenza vaccination due to belonging to the group of health professionals [6]. 3) Agreeing to participate in the study voluntarily, with informed consent and by answering the self-administered *online* questionnaire, which the professionals received via the corporate e-mail address.

People who were unable to understand the nature of the study were excluded from it.

The sample size was calculated with the GRANMO calculator [23]. It was calculated that a random sample of 290 individuals would be sufficient to estimate, with 95% confidence and an accuracy of +/- 5 percentage units, a population percentage that was predicted to be around 30%. The expected percentage of replacements was 10%.

A descriptive statistical analysis was performed with the data derived from the responses to the surveys. Categorical variables have been described using frequencies and percentages. Continuous variables have been described with mean and standard deviation. The proportions of categorical variables have been compared using Fisher's exact test and the t test for continuous variables.

The statistical programme R for Windows (version 3.6.3) has been used for statistical analysis. The results were considered significant with $p < 0.05$.

The study protocol was approved by the University Institute for Primary Care Research (IDIAP), Jordi Gol Health Care Ethics Committee (Code 20/177-PCV).

Results

The online survey was sent to 1,747 primary care professionals, 610 of whom (34.9%) responded to the entire survey. 83.6% of respondents were women and the average age was 50, with an age range of 20 to 60 years. 70.8% lived as a couple and 46.2% had one or more dependants.

24.1% of participants belonged to the professional category A1 and 38.5% to A2. 20.3% had a temporary contract and 42.8% were interim workers. 25.9% had a professional experience of more than 21 years and 22.1% of less than 5 years. 44.6% of participants performed physical presence guards. All this data is detailed in table number 1.

Table 1
Intention of influenza vaccination and sociodemographic characteristics of participants.

VARIABLE	Yes	No	NR/DK	Total	p
INTENTION TO GET VACCINATED AGAINST THE FLU	401 (65.7%)	141 (23.1%)	68 (11.1%)	610 (100%)	
Gender					0.081
Male	59 (59.6%)	25 (25.3%)	15 (15.2%)	99 (16.2%)	
Female	342 (67.1%)	116 (22.7%)	52 (10.2%)	510 (83.6%)	
Other	0 (0%)	0 (0%)	1 (100%)	1 (0.2%)	
Age	0.0900				
Average	46 (10.6)	44 (11.1)	46 (11.5)	50 (10.8)	
Average				50 [20–60]	
Origin					0.550
Native	386 (65.5%)	138 (23.4%)	65 (11.0%)	589 (96.6%)	
Foreigner	15 (71.4%)	3 (14.3%)	3 (14.3%)	21 (3.4%)	
Professional category					> 0.001*
Group A1 (MFiC, Pediatrician, Dentist, Pharmacist, Resident or Higher Technician	114 (77.6%)	21 (14.3%)	12 (8.16%)	147 (24.1%)	
Group A2 (Diploma in Nursing, Midwifery, IIR, TS or Management Technician)	175 (74.5%)	40 (17.0%)	20 (8.51%)	235 (38.5%)	
Group C1 (Administrative or Specialist Technician)	46 (63.0%)	19 (26.0%)	8 (11.0%)	73 (12.0%)	
Group C2 (Aux. of Pharmacy, TCAI, Aux. of Administration, Driver or Maintenance Staff)	64 (42.1%)	61 (40.1%)	27 (17.8%)	152 (24.9%)	
GP Group (Caretaker or other professional)	2 (66.7%)	0 (0.0%)	1 (33.3%)	3 (0.5%)	
Civil status					0.014*
Single	57 (53.3%)	34 (31.8%)	16 (15.0%)	107 (17.5%)	
Married/coupled	296 (68.5%)	97 (22.5%)	39 (9.03%)	432 (70.8%)	
Separated/divorced	43 (68.3%)	9 (14.3%)	11 (17.5%)	63 (17.5%)	
Widowed	5 (62.5%)	1 (12.5%)	2 (25.0%)	8 (1.3%)	
Employment situation					< 0.001*
Temporary or substitute	58 (46.8%)	51 (41.1%)	15 (12.1%)	124 (20.3%)	
Permanent	152 (71.0%)	37 (17.3%)	25 (11.7%)	214 (35.1%)	
Interim	182 (69.7%)	53 (20.3%)	26 (9.96%)	261 (42.8%)	
Resident	9 (81.8%)	0 (0.0%)	2 (18.2%)	11 (1.8%)	
Years of professional practice					0.030
< 5	72 (53.3%)	45 (33.3%)	18 (13.3%)	135 (22.1%)	
5–10	58 (71.6%)	18 (22.2%)	5 (6.17%)	81 (13.3%)	
11–15	54 (65.9%)	21 (25.6%)	7 (8.54%)	82 (13.4%)	
16–20	59 (68.6%)	16 (18.6%)	11 (12.8%)	86 (14,1%)	
> 21	158 (69.9%)	41 (18.1%)	27 (12.0%)	226 (37,1%)	

VARIABLE	Yes	No	NR/DK	Total	p
Guards					0.002
Yes	199 (73.2%)	49 (18.0%)	24 (8.82%)	272 (44.6%)	
No	202 (59.8%)	92 (27.2%)	44 (13.0%)	338 (55.4%)	
Dependent people					0.053
1 or more	195 (70.7%)	57 (20.7%)	24 (8.70%)	276 (45.2%)	
None	206 (61.7%)	84 (25.1%)	44 (13.2%)	334 (54.8%)	

46.6% of professionals believed that they were not at risk for the flu and 28.9% did not respond or did not know it (see table number 2). 43.5% of professionals with dependants believed that caretakers had a high risk of catching the flu. Within the 150 professionals (24.6% of the total) who believed that they were at risk for the flu, 83 (55.3%) had someone in charge. Within these, 66 (79.5%) believed that the dependant had a high risk of influenza, 15 (18%) did not believe it, and 2 (2.4%) did not know or did not respond.

61.1% of participants had been vaccinated against the flu last year and 73.4% had done so on another occasion.

Table 2
Intention to vaccinate according to perception of risk of influenza, history of vaccination and number of risk factors.

VARIABLE	Yes	No	NR/DK	Total	p
Risk of dependants from suffering the flu					< 0.001
Yes	101 (84.2%)	13 (10.8%)	6 (5.0%)	120 (19.7%)	
No	78 (64.5%)	31 (25.6%)	12 (9.92%)	121 (19.8%)	
NR/DK	16 (45.7%)	13 (37.1%)	6 (17.1%)	35 (5.7%)	
Own risk of suffering from flu					< 0.001
Yes	132 (88.0%)	7 (4.67%)	11 (7.33%)	150 (24.6%)	
No	158 (55.6%)	97 (34.2%)	29 (10.2%)	284 (46.6%)	
NR/DK	111 (63.1%)	37 (21.0%)	28 (15.9%)	176 (28.9%)	
Vaccination in the previous year					< 0.001
Yes	349 (93.6%)	9 (2.41%)	15 (4.02%)	373 (61.1%)	
No	52 (22.3%)	131 (56.2%)	50 (21.5%)	233 (38.2%)	
NR/DK	0 (0.0%)	1 (25.0%)	3 (75.0%)	4 (0.7%)	
Vaccination on other occasions					**< 0.001**
Yes	364 (81.2%)	41 (9.15%)	43 (9.60%)	448 (73.4%)	
No	35 (22.6%)	96 (61.9%)	24 (15.5%)	155 (25.4%)	
NR/DK	2 (28.6%)	4 (57.1%)	1 (14.3%)	7 (1.1%)	
Risk Factor number (age included)					< 0.00
0	289 (62.55%)	124 (26.84%)	49 (10.61%)	462 (100%)	
1	95 (74.80%)	15 (11.81%)	17 (13.39%)	127 (100%)	
2	15 (83.33%)	1 (5.56%)	2 (11.11%)	18 (100%)	
3	2 (66.67%)	1 (33.33%)	0 (0%)	3 (100%)	
Risk Factor number (age excluded)					0.003
0	289 (62.55%)	124 (26.84%)	49 (10.61%)	462 (100%)	
1	71 (77.17%)	11 (11.96%)	10 (10.87%)	92 (100%)	
2	5 (71.43%)	1 (14.29%)	1 (14.29%)	7 (100%)	
3	0 (0%)	1 (100%)	0 (0%)	1 (100%)	

65.7% of participants reported intending to get vaccinated against the flu in this campaign and 11.1% did not yet know or did not answer as you can see in table number 3. When asked if they intended to be vaccinated in the pandemic situation due to SARS-CoV-2, 60% answered that they would do so regardless of the situation, 6.7% would do so because of it, and 12.6% did not yet know or did not answer.

Regarding the intention to vaccinate and the relationship with the recommended protection measures during the pandemic, 52.8% would get vaccinated despite thinking that the mask already protects them, and 13.9% would not do so despite knowing that the mask does not protect them totally. Regarding hand washing and physical distancing, 52.1% and 51.1% of respondents respectively stated that they would get vaccinated despite applying these measures; and 15.2% and 15.4%, respectively, had no intention of getting vaccinated despite knowing that these measures do not protect them totally either. In the questions related to the three contextual variables, the answer Don't Know/No Answer was chosen by 14% of the participants.

Table 3
Intention to vaccinate in the context of the SARS-CoV-2 pandemic

VARIABLE	Yes	No	NR/DK	Total	p
Pandemic situation and intention to vaccinate					**< 0.001***
Yes, regardless of the pandemic	363 (99.2%)	0 (0.0%)	3 (0.82%)	366 (60.0%)	
Yes, because of the pandemic	33 (80,5%)	1 (2.44%)	7 (17.1%)	41 (6.7%)	
No, despite the pandemic	0 (0.0%)	23 (95.8%)	1 (4.17%)	24 (3.9%)	
No, regardless of the pandemic	0 (0.0%)	101 (99.0%)	1 (0.98%)	102 (16.7%)	
NR/DK	5 (6.49%)	16 (20.8%)	56 (72.7%)	77 (12.6%)	
Use of mask and intention to vaccinate					**< 0.001***
Even if the mask protects me, I will get vaccinated	317 (98.4%)	1 (0.31)	4 (1.24%)	322 (52.8%)	
The mask does not protect me, so I will get vaccinated	77 (89.5%)	1 (1.16%)	8 (9.30%)	86 (14.1%)	
The mask does not protect me, but I will not get vaccinated	1 (1.18%)	83 (97.6%)	1 (1.18%)	85 (13.9%)	
The mask protects me, so I will not get vaccinated	0	23 (85.2%)	4 (14.8%)	27 (4.4%)	
NR/DK	6 (6.67%)	33 (36.7%)	51 (56.7%)	90 (14.8%)	
Hand washing and vaccination intention					**< 0.001***
Even if hand washing protects me, I will get vaccinated	312 (98.1%)	1 (0.31%)	5 (1.57%)	318 (52.1%)	
Hand washing does not protect me, so I will get vaccinated	83 (90.2%)	1 (1.09%)	8 (8.7%)	92 (15.1%)	
Hand washing does not protect me, but I will not get vaccinated	0 (0.0%)	91 (97.8%)	2 (2.15%)	93 (15.2%)	
Hand washing protects me, so I will not get vaccinated	1 (4.55%)	19 (86.4%)	2 (9.09%)	22 (3.6%)	
NR/DK	5 (5.88%)	29 (34.1%)	51 (60.0%)	85 (13.9%)	
Physical distance and vaccination intention					**< 0.001***
Physical distancing protects me, but I will get vaccinated	307 (98.4%)	1 (0.32%)	4 (1.28%)	312 (51.1%)	
Physical distancing does not protect me, so I will get vaccinated	82 (89.1%)	1 (1.09%)	9 (9.78%)	92 (15.1%)	
Physical distancing does not protect me, but I will not get vaccinated	3 (3.19%)	89 (94.7%)	2 (2.13%)	94 (15.4%)	
Physical distancing protects me, so I will not get vaccinated	1 (4.35%)	21 (91.3%)	1 (4.35%)	23 (3.8%)	
NR/DK	8 (8.99%)	29 (32.6%)	52 (58.4%)	89 (14.6%)	

The professional category ($p < 0.001$), the employment situation ($p < 0.001$), the years of professional practice ($p = 0.03$) and the fact of making face-to-face guards ($p < 0.01$) were significantly associated with the intention to get vaccinated.

The intention to be vaccinated was also related to the perception of the risk of suffering from the flu ($p < 0.001$). There were professionals who intended to be vaccinated against the flu who did not perceive their own risk of suffering from it (55.6%) or who did not know if they had it (63.1%). Within the 83 professionals who had a perception of their own risk of influenza and had some dependant, 74 (89.15%) intended to be vaccinated, whilst 6 professionals (7.22%) did not want to be vaccinated and 3 (3.61%) did not know or did not answer.

Having dependants was not associated with the intention to be vaccinated ($p = 0.053$). The perception of the risk of suffering from the flu by the people in charge ($p < 0.001$) and the fact of having some additional risk factor (($p = 0.003$ (age excluded) and ip < 0.001 (age included)) were associated with the intention to be vaccinated. Having or having had a partner is also associated with a higher intention to vaccinate ($p = 0.014$).

The history of influenza vaccination has shown significant differences with the intention to be vaccinated, both the vaccination in the previous year ($p < 0.001$) and at some other time ($p < 0.001$).

Thus, the profile of health professionals intending to be vaccinated against influenza were those who were vaccinated the previous year or on some other occasion, those who made guards of physical presence and those who perceived that the people in their charge were at risk of getting sick from the flu.

Discussion

The results obtained in the present study on the intention to be vaccinated against influenza by health professionals show that, in the context of the SARS-Cov-2 pandemic, higher than usual vaccine coverage could be achieved [12], but without reaching the 75% proposed by the WHO or ECDC [9, 10].

The relatively high response rate (almost 35%), similar to other studies [15, 16, 24] with an online survey to health professionals, should be noted. It denotes the high interest that the influenza vaccination has aroused this year, in the context of the SARS-CoV-2 pandemic.

Concern about getting sick or being a source of infection for relatives or patients seems to be a factor that would motivate flu vaccination and has already been described in other studies [15, 16, 24]. The data obtained do not make it possible to distinguish between dependants, i.e. whether they are children or elderly or at risk of health complications; something which would provide more information in order to assess the perception of risk about the people they care for and their intention to vaccinate. In the context of the SARS-CoV-2 pandemic, there are professionals who state that they would be vaccinated against the flu, but who still report not being at risk of suffering from the disease or not knowing if they have it. That is, some health professionals do not perceive that they are more at risk of catching the flu than other people, as in previous studies [15], but that they would intend to be vaccinated according to the principles of ethics and exemplariness [18].

According to other studies [14, 24, 25], the history of vaccination in the previous year or on some other occasion is a strong predictor of influenza vaccination. This information is interesting because professionals who are vaccinated regularly or sometimes only need to continue to strengthen the recommendation as a risk group for themselves and for the transmission of the virus [18]. As for professionals who are never vaccinated, evaluable strategies and interventions should be designed to get them to do so, taking into account not only knowledge but also beliefs and attitudes [13, 16, 24,]. The WHO has initiated a different approach (FLU TYPE) in order to improve vaccination coverage in health personnel, drawing on knowledge of behaviour change theories and health programme planning models, and offering tools adapted to different contexts. [4, 26].

According to Godoy [17], influenza vaccination coverage of physicians, as well as their opinions, can be good predictors of vaccination of their patients. Therefore, the promotion of vaccination aimed at changing opinions and attitudes could have a beneficial effect on the coverage of both professionals and the population they serve.

According to some studies, age, years worked, being a pediatrician, and gender, are factors that would influence vaccination coverage [16, 27]. In the present study, gender and age have not been found to be significant. However, professional category, years of experience, and being on guard would be predisposing factors to acceptance of influenza vaccination by health professionals, as also shown in other works [16, 18]. Being over 60 or suffering from a health problem that predisposes you to be at risk for complications from the flu are factors that can influence vaccination, as Picazo points out [15].

The intention to vaccinate of health professionals is higher than the intention of citizens with some risk factor [22], although there are a significant number of people who do not have a clear decision in both population groups. This information is interesting because it would allow to deepen in the reasons that make them doubt with respect to vaccination. Similarly, the only variables associated with the intention to vaccinate that coincide in both professionals and users are the history of vaccination (both in the previous year and on other occasions) and the perception of risk of influenza in the dependants. The other variables analysed in the two population groups do not coincide in relation to the intention to be vaccinated.

This study may have certain limitations: the survey was entirely voluntary and online, and this can lead to a selection bias, as it may have been answered by the most interested and motivated professionals in the VAG. Nevertheless, the high percentage of participation in a survey of this nature would minimise this bias. Although the survey used had been adapted from a previous one, some questions -especially those related to the intention to vaccinate according to the contextual factors of the SARS-CoV-2 pandemic- with very similar answer options could generate hesitations when choosing the answers.

Knowing the intention of flu vaccination can help establish strategies to improve vaccine coverage, both for professionals and, consequently, for patients in vaccination campaigns. In addition, the intention to vaccinate should be contrasted with the vaccination coverage data obtained for the different risk groups which are indicated for vaccination.

As Collange [2] suggests, future lines of research, qualitative or quantitative, should be aimed at analysing in more detail the factors, already known, that influence the reluctance of health professionals to receive the vaccine against the flu.

Conclusions

Vaccination intention can be a good predictor of vaccination coverage by health professionals. The generalisation of the protection measures introduced due to the SARS COV 2 pandemic do not reduce the intention to get vaccinated among health professionals. However, there are still a significant number of professionals who are hesitant or reluctant to be vaccinated; an issue that highlights the need to establish actions aimed especially at them, addressing not only knowledge, but also attitudes and beliefs about vaccination.

Abbreviations

SIV: Seasonal Influenza Vaccines

WHO: World Health Organisation

ECDC: European Centre for Disease Prevention and Control

PCT: Primary Care teams

IDIAP: University Institute for Primary Care Research (Institut Universitari d'Investigació en Atenció Primària)

Declarations

Ethics approval and consent partipate

- All data extracted were anonymised and treated as strictly confidential. All methods were performed in accordance with the Declaration of Helsinki.

  The Research Ethics Committee (CEI) of the University Institute for Research in Primary Care (IDIAP Jordi Gol) approved the study protocol number 20/177-PCV.
- We cannot attach written informed consent because it was given in verbal form, as we have described in the manuscript: "Agreeing to participate in the study voluntarily, with informed consent and by answering the self-administered online questionnaire, which the professionals received via the corporate e-mail address". The mentioned verbal consent was obtained from all study participants.

Consent for publication

Not applicable

Availability of data and material

Our manuscript is based on confidential and sensitive healthcare data. However, to support scientific transparency, we have posted a de-identified and appropriately redacted data for replication purposes should you or the reviewers find it helpful. The data is available at the review stage for the journal staff and reviewers at our Mendeley data repository: http://dx.doi.org/10.17632/cv3yz46wh9.1

Competing interests

The authors declare that they have no competing interests

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Author's Contributions

RMM, ABE, AR and JVA contributed to the conceptualisation, study design, data collection and writing of the article. XP contributed to the data analysis and writing of the article. All of the authors reviewed and approved the article prior to its publication.

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