

BEHAVIOURS REGARDING PREVENTIVE MEASURES AGAINST PANDEMIC H1N1 INFLUENZA AMONG ITALIAN HEALTHCARE WORKERS, OCTOBER 2009

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A survey on attitudes and behaviours towards preventive measures against pandemic H1N1 influenza 2009 was carried out during the month of October 2009 in Italy through an online questionnaire adapted to the Italian situation from a similar survey of the Harvard School of Public Health in the United States (US). Results show that the intention to get vaccinated against pandemic H1N1 influenza 2009 is generally low and that there are differences in attitudes and behaviours towards preventive measures against pandemic H1N1 influenza 2009 between physicians and nurses, especially concerning vaccination. Differences relate also to sex, region of residence and marital status.

Introduction

One of the main concerns related to the present pandemic H1N1 influenza 2009 is the overwhelming burden on medical structures and resources that it poses and the consequent negative impact on mortality and morbidity. This situation puts healthcare workers (HCW) in the unusual position of being both the main actors and one of the main targets of the prevention strategies against the pandemic H1N1 influenza 2009, and considering also their usual unavoidable risk of being an important vector for transmission [1,2]. That is why it is so important to understand the behaviour and attitudes of HCW in relation to the spreading pandemic [3]. The importance of this understanding is also demonstrated by studies carried out worldwide [4,5].

The aim of our survey was to gather information about attitudes and behaviours towards preventive measures against pandemic influenza among Italian HCW, taking into account the characteristics of the Italian health care setting. The survey was carried out by means of a questionnaire distributed to and collected from physicians and nurses.

Materials and methods

The questionnaire was designed by the Clinical Medicine and Public Health section of the Sapienza University of Rome, adapted to the Italian situation on the basis of a similar one used in a telephone survey in the US by the Harvard School of Public Health [6]. The adaptation consisted in changing some questions, i.e. concerning health insurance (Italy has a National Health System) or referring to pandemic H1N1 influenza 2009 instead of swine influenza as in the original version of the questionnaire.

The questionnaire was made available through the Italian Journal of Public Health website (www.ijph.it) and a remote recording

TABLE 1

Socio-demographical characteristics of the survey participants, Italy, October 2009 (n=1,960)

Socio-demographical characteristics (number of responders)	Total
Age group (n=1,960)	
18-29 years	82 (4.2%)
30-49 years	1,444 (73.7%)
50-64 years	422 (21.5%)
≥ 65 years	12 (0.6%)
Sex (n=1,960)	
Female	1,360 (69.4%)
Male	600 (30.6%)
Civil status (n=1,908)	
Married/cohabitant	1,480 (78%)
Single	264 (13.7%)
Separated/divorced	144 (7.3%)
Widow	20 (1%)
Children < 18 years in your home (n=1,955)	
Yes	1,007 (51.5%)
No	948 (48.5%)
Job (n=1,960)	
Physicians	249 (12.7%)
Nurses	1,711 (87.3%)
Regions of residence (n=1,955)	
Northern Italy	1,101 (56.2%)
Central Italy	598 (30.5%)
Southern Italy and islands	256 (13.1%)
Health status (n=1,960)	
Excellent, very good, good	1,874 (95.6%)
Poor	86 (4.4%)

system collected the anonymous answers given by physicians and nurses [8]. The survey was advertised through an email sent to addresses in databases of Public Health professionals and nurses, owned by the Italian National Society of Public Health. Access to the online questionnaire was permitted from 1 to 31 October 2009, including week-ends when the website was accessed more often.

In order to perform an inferential analysis, we considered the following dependent variables:

a) willingness to get vaccinated against pandemic H1N1 influenza 2009;

b) washing hands and using hand sanitisers more frequently than before the beginning of the pandemic.

A univariate analysis was then carried out using a chi-squared test in order to investigate the association between the dependent variables and socio-demographic characteristics, as well as occupation. Moreover, two multiple logistic regression analyses were performed, using the backward elimination procedure as described by Hosmer and Lemeshow [7]. The goodness of fit of the regression model was tested using the Hosmer-Lemeshow test. The following were considered as potential explanatory variables: age group (18-29 years as the reference group), sex (reference modality male),

TABLE 2

Univariate analysis to investigate the association between the dependent variables and socio-demographic characteristics, as well as occupation, Italy, October 2009 (n=1,960)

	Would you get vaccinated against pandemic influenza ?			Did you wash your hand or use hand sanitiser more frequently ?		
	Yes	No	p	Yes	No	p
Age group						
18-29	26 (41.3%)	37 (58.7%)	<0.001	56 (68.3%)	26 (31.7%)	0.068
30-49	359 (31.1%)	797 (68.9%)		1,112 (77.5%)	323 (22.5%)	
≥ 50	179 (50.1%)	178 (49.9%)		345 (79.9%)	87 (20.1%)	
Sex						
Male	244 (49.2%)	252 (50.8%)	<0.001	429 (72.2%)	165 (27.8%)	<0.001
Female	320 (29.6%)	760 (70.4%)		1084 (80%)	271 (20%)	
Residence						
Northern Italy	261 (29.1%)	637 (70.9%)	<0.001	837 (76.5%)	257 (23.5%)	0.267
Central Italy	187 (39.1%)	291 (60.9%)		471 (78.9%)	126 (21.1%)	
Southern Italy and islands	115 (58.4%)	82 (41.6%)		204 (80.6%)	49 (19.4%)	
Marital status						
Married/cohabitant	438 (36.4%)	765 (63.6%)	0.355	1,169 (79.4%)	303 (20.6%)	0.001
Single/divorced/ separated/ widow	126 (33.8%)	247 (66.2%)		344 (72.1%)	133 (27.9%)	
Occupation						
Physicians	141 (67.1%)	69 (32.9%)	<0.001	161 (64.7%)	88 (35.3%)	<0.001
Nurses	423 (31%)	943 (69%)		1,352 (79.5%)	348 (20.5%)	

TABLE 3

Multivariate analysis, Italy, October 2009 (n=1,908)

	Yes, I would get vaccinated		Yes, I washed my hands or used hand sanitisers more frequently	
	Crude OR (IC95%)	Adjusted OR (IC95%)	Crude OR (IC95%)	Adjusted OR (IC95%)
Age group				
18-29 (reference)	1	1	1	1
30-49	0.71 (0.44-1.15)	0.66 (0.52-0.83)	1.6 (0.99-2.59)	-
≥ 50	1.51 (0.91-2.5)		1.84 (1.09-3.1)	1.56 (1.17-2.08)
Sex				
Male (reference)	1	1	1	1
Female	0.45 (0.37-0.55)	0.64 (0.51-0.8)	1.54 (1.23-1.92)	1.59 (1.24-2.03)
Region of residence				
Northern Italy (reference)	1	1	1	1
Central Italy	1.47 (1.17-1.83)	-	1.16(0.92-1.48)	1.36 (1.06-1.76)
Southern Italy and islands	2.63 (1.98-3.49)	1.81 (1.36-2.41)	1.3 (0.92-1.82)	1.76 (1.23-2.53)
Marital status				
Single/divorced/separated/widow (reference)	1		1	1
Married/cohabitant	1.18 (0.94-1.49)		1.49 (1.18-1.89)	1.54 (1.21-1.96)
Occupation				
Nurses (reference)	1	1	1	1
Physicians	3.98 (3.02-5.23)	2.87 (2.14-3.85)	0.47 (0.35-0.63)	0.42 (0.3-0.57)
p-value from Hosmer-Lemeshow test		0.52		0.58

OR: odds ratio; CI: confidence interval

region of residence (reference modality Northern Italy), marital status (single/divorced/separated/widow as the reference group), occupation (physicians vs. nurses, with the latter as the reference group). The level of statistical significance was set at a p-value of ≤ 0.05 .

The statistical analysis was performed using the statistical software SPSS 13.0 for Windows.

Results

One thousand nine hundred and sixty individuals participated in the survey (249 physicians, 12.7%, and 1,711 nurses, 87.3%). The socio-demographical characteristics of the sample are shown in Table 1.

We found that 70.4% of the 1,360 females of our sample would not get vaccinated against pandemic H1N1 influenza 2009, while 49.2% of the 600 males would get vaccinated ($p < 0.001$) (Table 2). The main difference for the same question was related to occupation: 67% of physicians and 31% of nurses would get vaccinated against pandemic H1N1 influenza 2009 ($p < 0.001$). In contrast, nurses were more prone (79.5%) than physicians (64.7%) to wash their hands or use hand sanitisers more frequently in response to reports of pandemic influenza ($p < 0.001$).

Results from the multivariate analysis (Table 3) show that respondents aged 30-49 years are less likely to get vaccinated in comparison to young adults (18-29 years old) (adjusted odds ratio (AOR)=0.66; 95% confidence interval (CI): 0.52-0.83). Females also are less likely to get vaccinated (AOR=0.64; 95%CI: 0.51-0.8), confirming the results from the univariate analysis. Health professionals who are more likely to get vaccinated live in Southern Italy or on the islands (AOR=1.81; 95%CI: 1.36-2.41) and are physicians (AOR=2.87; 95%CI: 2.14-3.85).

As far as concerns the variable "Yes, I washed my hands or used hand sanitisers more frequently", there is a statistically significant association with: age (≥ 50 years: AOR=1.56; 95%CI: 1.17-2.08), sex (female: AOR=1.59; 95% CI: 1.24-2.03), region of residence (Central Italy: AOR=1.36; 95%CI: 1.06-1.76; Southern Italy and islands: AOR=1.76; 95%CI: 1.23-2.53), marital status (married/cohabitant: AOR=1.54; 95%CI: 1.21-1.96) and occupation (physicians: AOR=0.42; 95%CI: 0.3-0.57).

Conclusions

HCW are a strategic target for pandemic H1N1 influenza 2009 prevention such as vaccination and frequent hand-washing, since they are at higher risk themselves of contracting influenza, can place their patients at risk and are critical for a functioning health care system. Our online survey demonstrated that pandemic H1N1 influenza 2009 modified the behaviour of HCW, but a high percentage may still not realise that vaccination is a fundamental means of prevention and how important it is that they get vaccinated. This finding is surprising, as many studies worldwide present different attitudes among HCW [1,2].

The present study has some limitations, and the results must be interpreted with caution. First of all, a possible selection bias could have occurred, since healthcare professionals with internet skills would have been more likely to participate in the online survey. Moreover, it is likely that participants are mainly representative of younger HCW and this is supported by the age of responders (almost half of the participants should have been over 50 years old,

according to the information included in the databases). Concerning possible information bias, we are convinced of the validity of the self-report answers, since it is unlikely that participants spent time giving unreliable and biased views of their attitudes and behaviours.

Despite some limitations, our survey could be a useful tool for Italian decision makers to promote and launch programmes and campaigns aimed at informing and educating HCW. The results could also be used to motivate HCW to adopt attitudes and decisions which correspond to public health policies, since at the end of November 2009, only 14% of healthcare professionals had been vaccinated against pandemic H1N1 influenza 2009 at the national level [8]. Finally, this study could also help tailor vaccination campaigns by concentrating on groups (nurses, females, adults ≥ 30 years) or regions (Northern Italy) where the intended vaccine uptake is lower.

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