

Knowledge and worry as basis for different behaviors among university students: the case of Pandemic Flu H1N1v

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Key words

Pandemic flu • Students • Behavior

Summary

Introduction. Attitudes towards the pandemic were different across countries and cultures and confounding news caused some to question whether unnecessary alarm and public panic resulted.

The aim of this study was to detect behavior, perception and worry about pandemic flu among undergraduate students considered a group at major risk to contract and spread the infection.

Materials and methods. In November 2009, during the pandemic peak in Italy, we conducted a survey about pandemic flu by means of anonymous multiple choice self-administered questionnaires among students, attending different courses at the Tor Vergata University in Rome. To investigate the relationship between

the level of concern about H1N1v and the attitude to prevention the sample was divided in three groups based on the level of the declared worry.

Results. Among the 436 students that answer the questionnaires a statistical correlation was found between the level of worry and the disposition to change habits and the will to undergo vaccination. Males were less worried than females and more students living outside Rome would accept the vaccine.

Discussion and conclusions. The results of the study, generally in agreement with those of similar research, confirmed the need to know the relationship between fear and attitude in order to organize effective preventive campaigns.

Introduction

The nearly constant media coverage of the pandemic, the rapid increase in the phase alerts together with the continuously confirmed new cases alarmed people worldwide. The threat of an influenza with high mortality rates, like the “Spanish” flu pandemic which caused about 50 million deaths in 1918-1919, was feared almost universally [1].

Attitudes towards the pandemic were different across countries and cultures and confounding news caused some to question whether unnecessary alarm and public panic resulted. As a consequence, H1N1v immunization coverage rates were low everywhere, even when the vaccine was readily available [2]. Several studies, carried out all over the world to detect worry about pandemic flu, showed that many individuals and countries perceived the pandemic to be a “false alarm” and conceptualized it as “mild” in severity, despite data from the US to the contrary. In Italy the media alarmism and the erroneous management decisions during the AH1N1v pandemic flu season 2009-2010 are considered the main reasons of the low compliance not only to H1N1v immunization campaign but also to the present seasonal flu vaccination campaign.

The aim of this study was to detect awareness, perception and worry about pandemic flu among young adults, considered among the risk groups, as nearly 80% of all

reported cases in Europe were in individuals under 30 years of age [3].

Materials and methods

In November 2009, during the pandemic peak in Italy, a survey about level of knowledge, attitudes and risk perception of pandemic flu was performed among undergraduate students, attending different courses (Medicine, Economy, Biology and Engineering) at Tor Vergata University in Rome. Anonymous 10 multiple choice self-administered questionnaires were used. After a short demographic session, the questionnaire investigated general knowledge about the pandemic flu asking whether its symptoms differed from seasonal flu, who was the testimonial of the national information campaign and which was the main source of information. Following questions concerned worry about the risk of infection, disposition to change own habits, such as more frequent hand washing, avoiding crowded places or renouncing to a possible travel to USA, and the willingness to undergo vaccination.

To investigate the relationship between the level of concern about H1N1v and the attitude to prevention the sample was divided in three groups based on the level of the declared worry (not worried at all, worried, very worried).

The collected data was analyzed by SPSS v.19. Frequencies and percentages were computed for descriptive purposes and χ^2 test was administered to test significance. Significance was considered when $p < 0.05$.

Results

Students involved in the survey were 436, belonging to different study courses: 139 Medicine, 64 Economy, 91 Biology and 142 Engineering [4]. The mean age was 23.05 ± 2.88 years and male were 52%. Among the 416 students who answered the question, 86,6% knew that the testimonial chosen the preventive campaign was the puppet "Topo Gigio". Information about flu was obtained principally (81%) from mass media, following by 40% from newspapers, 26% from internet, 8% from university and only 4% from general practitioners. Although we asked to select only the main source of information, many students have indicated multiple sources. When asked what was the reason why the pandemic was called swine flu only 37% of the students said correctly that it was caused by a recombinant virus. Among students, 68% thought that there were no differences in the severity of the clinical manifestation between pandemic and seasonal flu, while 13% and 19% considered pandemic flu symptoms less and more serious, respectively, without significant difference among the study courses. Moreover, 75% declared to be only a little worried or not worried at all about the possibility that themselves or a member of their family could contract the infection; 59% affirmed they had not changed their habits at all. Among those who adopted some preventive measures, 38% washed their hands more frequently, 4% avoided crowded places and 11% would renounce to a travel to USA. Less than 25% of the students declared to be willing to undergo vaccination while the majority

would refuse it due to the fear about the side effects of the vaccine, the uncertainty of its efficacy and the conviction to be able to recover from the infection without drugs.

Based on the level of concern about H1N1v (Tab. I), 109 students were very worried (Group 1 = G1); 226 students worried (G2) and 101 students not worried at all (G3). In G3, 65% were male with a statistically significant difference ($p = 0.01$) respect to female. No difference was detected among the groups related to the evaluation of symptoms severity, keeping in mind that less of 20% of the students feared the clinical manifestation of the disease. There was a statistically significant correlation ($p < 0.001$) between the groups and the disposition to change own habits, such as more frequent hand washing and/or avoiding crowded places: 67% of the very worried students declared to have changed their habits respect to 18% of those not worried at all. Moreover, 32% of the very worried students said that they would renounce to a travel to USA to avoid the risk of infection compared to only 4.9% and 3% of the students less and not worried at all, respectively. Significance is calculated considering only the students who responded.

In G1, 43% of the students affirmed they would accept the vaccination, a significantly higher percentage respect to 21% in G2 and 8% in G3.

Moreover, we looked for a correlation between the socio-demographic characteristics and the disposition to undergo vaccination (Tab. II). Students that declared to be in favor of vaccination were 23.6%. We found no statistically significant differences between groups about sex, age, nationality and course of study, while there was a correlation between students living or not in Rome ($p = 0.002$). We also found no statistically significant correlation between declared willingness to undergo vaccination and information sources.

Tab. I. Students characteristics related to the level of concern about H1N1v.

		Total	Worried			
			Very (G1)	Less(G2)	Not at All (G3)	
Number		436	109	226	101	
Age			22.09	22.09	23.05	N.S.
Sex						
	Male	225	48.6%	47.3%	64.4%	< 0.01*
	Female	208	49.5%	52.7%	34.7%	
Symptoms severity pandemic <i>versus</i> seasonal flu						
	=	295	63.3%	69.5%	68.3%	N.S.
	+	85	24.8%	18.6%	15.8%	N.S.
	-	54	11%	11.5%	15.8%	N.S.
Information from	University	36	5.5%	7.5%	12.9%	N.S.
Changing habits	Yes	180	67.0%	39.4%	17.8%	< 0.001
Travel to USA	No	49	32.1%	4.9%	3.0%	< 0.001**
H1N1v vaccination	Yes	103	43.1%	21.2%	7.9%	< 0.001

N.S.: not significant; * in G3 M vs. F; ** G3 vs. G1 and G2.

Tab. II. Students characteristics related to the attitude to undergo vaccination against H1N1v.

	Total	Vaccination			
		Yes	No		
Number	436	103	333		
Age		23.2	23		
Sex					
	Male	225	49.5%	52.3%	N.S.
	Female	208	48.5%	47.4%	
Fields of studies					
	MED/BIO	230	59.2%	50.8%	N.S.
	ENG/ECO	206	40.8%	49.2%	
Age range					
	≤ 21	177	42.7%	39.9%	N.S.
	> 21	249	56.3%	57.4%	
Nationality					
	Italian	415	97.1%	94.6%	N.S.
	Other	18	1.9%	4.8%	
City of residence					
	Rome	330	64.1%	79.3%	< 0.002
	Other	96	33.0%	18.6%	

N.S.: not significant; MED/BIO: Medicine/Biology; ENG/ECO: Engineering/Economy.

Discussion and conclusions

The uncertain epidemiological data about the new pandemic flu AH1N1v, the pathogenicity and clinical severity and the World Health Organization (WHO) pandemic level 6 declaration sustain a worst-case scenario approach. In addition, the contradictory positions of healthcare workers and the public information, the rapid approval and availability of the pandemic vaccines contributed to the concern of the general population about the pandemic flu [1, 5].

All these reasons, in particular the confounding communication strategy, prejudiced the vaccination campaign in Italy. The low vaccination uptake led to a coverage of only 4% of the target population: 15% of the healthcare personnel and 1.5% of the general population [6].

As Schools and Universities are places at major risk to contract and spread the infection, it is important to assess the level of student's knowledge and attitudes about the pandemic flu in order to improve the compliance to health preventive measures.

In this survey the students declaring themselves not worried at all were significantly more male; the gender difference in risk perception is well known although underlying dynamics are not well understood [7]. This result is in agreement with a study conducted in Turkey on a similar student population while we did not found differences based on age, field of study or other demographic features [8]. As reported in other studies regarding pandemic flu, the most important information source was represented by mass media [9, 10], that play an important role in disseminating information, especially during

a world alert. The students' apprehension about the swine flu does not seem linked to an increased perception of the seriousness of the clinical symptoms or to the fear that themselves or their relatives may have the disease, although the survey was performed in November 2009, the period of greatest alarm in Italy, when a higher risk perception was to be expected. This result is in agreement with the data of similar recent studies performed among students during the peak of swine flu in Turkey and in Australia [8, 11]. However worry about flu seems to affect changes in student's habits; a decreasing trend was found with decreasing declared fear in the disposition to change habits and implementing preventive measures, particularly in daily activities such as washing hands frequently or avoiding

crowded places, while the renounce to a travel to USA was significantly more often declared only by the very worried group.

We found a significant difference in the acceptance of the vaccine declared by 43% of the students in G1, compared to 21% in G2 and only 8% in G3. This attitude is explained by the fear about the side effects of the vaccine, the worry on its efficacy and the conviction to be able to recover from the infection without drugs. Similar data were found in two recent Australian surveys, performed among undergraduate students and general population during the peak of pandemic in that country. The students' perception to be healthy people, that can easily avoid flu only by practicing preventive hygiene measures, may led to the disregard of the vaccine as a primary preventive measure [12], moreover, the risk perception of serious side-effects of this new vaccine may have influenced its acceptance [11]. In our study the students more willing to undergo vaccination were not resident in Rome, possibly because living far away from home leads to a major attention to the own state of health.

The knowledge of the relationship between fear and attitudes is important to build communication campaigns that can really reach the target not only in the case of epidemic events but also for facing many preventive measures.

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