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Factors Associated with the Rejection of the Vaccine against Human Influenza AH1N1

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Identify the main factors that Influences the decision of the population to reject the immunization against human influenza AH1N1. Cross-sectional Study with systematic random sampling, Conducted in January- June 2014 in patients over 18 Attended WHO consultation in Pachuquilla Health Center, Hidalgo. Personally a survey was Applied to each individually Who Was in the waiting room area. A Total of 439 subjects (57.63% male, 42.36% female) on Which ITS decision was Questioned Regarding the vaccine against human influenza Were included: 72.34% HAD Vaccinated with previously accepted, 27.65% Mentioned Having rejected the vaccine. The main causes Associated With The rejection of the vaccine include: Alleged immunity to the virus (OR = 3.5595), fear of vaccines (OR = 2.469), female sex (OR = 1.275), go to the area of general practice care (OR = 1.253), other factors (OR = 1.315). The population Reported a high percentage of rejection of the vaccine against human influenza (27.65%) When Compared to the literature (9.4%). The main reason why people choose to refuse immunization is the fear of vaccines. A factor in particular, That shows a higher rejection rate in women is emphasized.

Key words: Decision, Factors associated, Immunization, Influenza AH1N1, Vaccine-rejection.

It is called pandemic to the global spread of a new disease.[1-3] Influenza pandemic occurs when the causative virus has spread around the world infecting people who have no immunity to it. In 2009, a subtype of influenza A viruses that usually affect animals like whales, horses, wild birds, poultry, and pigs[2] suffered a mutation that allowed its possible infection in humans. It was classified as viruses of human influenza or AH1N1, *"belonging to the family Orthomyxoviridae (Ortho: true; myxo: mucus, indicating the ability of this agent to bind to that substance)*[4] and is characterized by its easy transmission from person to person[5], and its high fatality rate, which represented a major challenge for health authorities to try to control it[6].

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In this situation, epidemiological response was to study the disease, so that, based on research in health[4], it gets obtaining the necessary knowledge about the virus to design a vaccine to combat it[7], and immunize the populationin order to control its spread[8,9,10].

We now know that the goal of human influenza control was achieved[11], and the fulcrum to achieve was precisely vaccination, and prevention, to prevent future cases as well as the participation of the population in following measures protection, unfortunately, there are still millions of unprotected persons exposed daily to get life-threatening diseases[12] as human influenza, representing a risk for the general population[13]. It is noteworthy that, as part of responses to combat the pandemic risk groups were established[14].

However, not all people were eligible to receive the vaccine, even though they belonged to that group, as this may cause side effects in response to people who have a weakened immune system or those who have a predisposition to allergy to eggs or their proteins[15], or presenting syndrome GuillianBarré within six weeks after receiving a flu shot in the past[16]. Immersed in this scenario, it was established that each individual could receive such protection against influenza AH1N1 attending at Health centers, Social Services Mexican Social Security Institute (IMSS), Institute for Security and State Workers (ISSSTE) or PetroleosMexicanos (PEMEX), where the shot was given freely, without existing distinction between whether the person was entitled, insured, pensioned or beneficiary of both.

It is also essential to consider that among other factors, fear of side effects (MES), lack of access (FA), fear of vaccines (MV), the belief of having a supposed acquired immunity to the virus (SIAV), or have no reliable information (INC), that is to say with data from unreliable sources[17], those are the main aspects that influence the rate of vaccine refusal. Proof of this has been a study conducted in December 2009 in homes in four major cities of the metropolitan area (Mexico City, Guadalajara, Monterrey, Merida) where data were obtained showing that 150 people of all respondents in a sample of 1600 individuals had rejected the vaccine against human influenza[18].

Treatment usually consists of adamantane-type drugs (amantadine and rimantadine) and neuraminidase inhibitors of influenza virus[19,20] in the case of seasonal influenza; however, in the case of the H1N1 virus vaccine was designed from three strains (H3N2, H1N1, and influenza B virus). In summary, treatments are multiple and can be controlled, for their operation and possible adverse effects that may occur in patients[20].

Aim

Identify the main factors that Influences the decision of the population to reject the immunization against human influenza AH1N1.

Methods

An observational cross-sectional study was performed in 439 patients over 18, who came to receive one of the following services: General consultation, dental consultation, consultation psychology in psychiatr. After reading a letter of informed consent, at the Center for Health Pachuquilla jurisdiction, Hidalgo, in the period from January to June 2014. The sampling frame was determined based on the formula of proportions n = [z 2 (p) (q)] / E 2 where in a partial population of 384 individuals was obtained. Subsequently, 15% of the value calculated not to affect the statistical analysis

In accordance with the provisions of Article 17 of the General Law of Health in Research for Health, qualified research as Category I - Research safely and was explained the procedure and the nature of the study for each patient.

The entire sample accept the terms and conditions and signed the consent on a form file has been available to the researcher. We proceeded to the collection of data through a survey consisting of 15 questions, previously validated by the Management and Coordination Health Center Pachuquilla, Hidalgo; interviews were conducted person to person. The statistical analysis in was performed (SPSS) Version 2.1

RESULTS

The sample consisted of 439 individuals, of whom 423 accomplished the requirements of the investigation. All patients mentioned in the course of the study were older than 18 years. Regarding the initial sample size of 253 individuals belonged to the female, 186 male gender, giving a ratio of 1.36: 1. Regarding age, a

Table 1. Characteristics of the study sample at the health center Pachuquilla, Hidalgo, Mexico, 2014

	Sex		Immunization		Education			Occupation		
	Woman	Man	He agreed	He rejected	Illiterate	Basic	High to Basic	Unemployed	Office	Profession
	253	186	306	117	6	359	58	188	204	31
Reason	1.36: 1		February-April 2014							
Rate			72.34%	27.65%						
Proportion					1.41%	84.86%	13.71%	44.44%	48.22%	7.32%

Source; Direct, 2014

Table 2. Area of attention and frequency of attendance at consultation.

	FocusArea				frequency of attendance				
	Outpatient	Dental	Psychiatry	Psychology	Always	AlmostAlways	Occasionally	Rarely	First time
	372	34	6	11	One	52	159	109	102
Reason									
Rate									
Proportion	87.94%	8.03%	1.41%	2.60%	0.23%	12.29%	37.58%	25.76%	24.11%

Source: Direct, 2014

Table 3. Factors involved in patient decision regarding immunization associated with the rejection of immunization against human influenza ah1n1 SS- Pachuquilla, Hidalgo, 2014

	Information		InformationUnreliable					FearSideEffects	
	Yes	Do Not	OfficialSource	Bulletins	Professionals	Websites	Reviews	Yes	Do Not
Individuals	341	82	210	16	96	5	14	260	81
Proportion	80.61%	19.38%	61.58%	4.69%	28.15%	1.46%	4.10%	76.24%	23.75%

Source; Direct, 2014

population was managed with an average of 36.08, median 34 years, fashion 18 years and a maximum age of 92, and a minimum age of 18 years.Regarding immunization, 72.34% of population accessed to be vaccinated and 27.65% refused vaccine.

Trying education, 1.41% of the total population reported illiterate, 84.86% belonged to the category basic education, and only 13.71% had higher basic education studies.Moreover, 44.44% reported not having a job, 48.22% worked a trade and 7.32% are dedicated to their profession.

Exposing the factors relating to assistance to the health center, it was found that 87.94% attended outpatient dental consultation 8.03%, 1.41% the area of psychiatry and 2.60% the area of psychology. From them it was found that 0.23% always went to one of the above services, 12.29% almost always, 37.58% did so occasionally, ie two to three times a week, 25.76% rarely, and 24.11% were the first occasion came (Table 1 and 2).

Factors involved in patient decision regarding immunization

Explaining the different variables that were handled in the study, it was found that 80.61% of patients had received information on human influenza (FI) and the application of the vaccine, while 19.38% had not heard of it.

Of 80.61% of patients who received vaccine information (INC) the 61.58% got it from an official source, 4.69% of bulletins issued by the World Health Organization (WHO), Pan American Health Organization (PAHO) Health Ministry (SSA); 28.15% received information directly from health professionals, 1.46% got from untrusted websites and social networks, and 4.10% of comments made by the general population. Moreover, regarding the knowledge of side effects (MES), the 76.24% understood what they were, and 23.75% had not heard of them.

In access or availability of the vaccine (FA), 81.32% of patients reported having access to the vaccine, while 18.67% of the sample said they did not, that the vaccine was exhausted by the time they attended apply, or because they were not part of the risk group for immunization.

As for the fear of vaccines (MV), 17.73% reported being afraid, being one of the factors that refused immunization, and 82.26% said they had no fear of injections.

The 3.78% of respondents said they had not vaccinated because previously suffered a respiratory illness (SIAV), such as asthma and pulmonary bronchitis, which were already sensitized to diseases of respiratory condition, that is to say, are considered immune while the remaining 96.21% believe that this factor no previous exposure makes them immune to a new viruses like human influenza (Table 3 y4).

Rejection of immunization against human influenza: Factors associated

Analysis of rejections following the dynamics set forth above.

Of the total sample, it was found that 27.65% rejected the H1N1 influenza vaccine, giving a value equivalent to 117 individuals. Of these, 73 patients correspond to the female, and 44 more to males, giving a ratio of 1.65: 1 indicating that the rejection of the vaccine in the Health Center Pachuquilla was predominant in women.

Of the total of 117 individuals who refused immunization, regarding schooling, 0.85% are illiterate, 81.19% had completed basic education, and 17.94% were professional studies. Of these, in turn, was obtained that 43.58% were unemployed, 46.15% has a job and only 10.25% exerts a profession, clearly indicating that this value is immersed within the 17.94% of individuals who have a higher degree of studies to basic education.

Table 4. Frequency and percentage involved in delpaciente- decision.

	Lack of Access		FearVaccines		Immunityagainst Virus	
	Yes	Do Not	Yes	No	Yes	Do Not
Individuals	344	79	75	348	16	407
Proportion	81.32%	18.67%	17.73%	82.26%	3.78%	96.21%

Source: Direct, 2014

Table 5. Characteristics of the sample rejection of the vaccine against human influenza ah1n1 in the health center Pachuquilla, Hidalgo, January-June 2014

	Education			Occupation			Immunityagainst Virus			
	Illiterate	Basic	High to Basic	Unemployed	Office	Profession	Outpatient	Dental	Psychiatry	Psychology
Individuals	One	95	21	51	54	12	106	7	February	February
Proportion	0.85%	81.19%	17.94%	43.58%	46.15%	10.25%	90.59%	5.98%	1.70%	1.70%

Source; Direct, 2014

In the area of care to which they went, the prevailing general or outpatient with 90.59%, followed by dental consultation area with a 5.98% and a 1.70% psychiatry as consultation in the area of psychology.

The frequency of attendance at consultation was marked by a 35.89% of the patients who came occasionally, 31.62% with minimal assistance, 23.93% in the first chance to see the Health Center, and 8.54% of patients reporting almost go always. (Table 5 and 6).

Of the variables set in research to determine which are associated with the rejection of the vaccine was found that of the total of 117 individuals who refused immunization, 58.97% received information about the disease and the vaccine, however decided to reject it, while 41.02% not received the information, which could explain the occurrence of this variable (information) in the non-acceptance.

Of 58.97% receiving information, equivalent to 69 individuals, the 43.47% mentioned that he had been an official source, 36.3% received by health professionals, 8.69% from official bulletins issued by national and international associations health, 7.24% of an unreliable source (personal notes) and 4.34% of social networks and blogs computer.

On knowledge of side effects, 69.56% argued know, and justified part of its decision to reject this variable; 30.43% did not know the effects of the vaccine. Regarding access to the vaccine 47% if he said to get the vaccine, and even did, and 52.99% were unable to obtain health care sites. The 28.20% denote fear of injections and 71.79% denied. The 7.69% of the population rejected the vaccine awarded the fact they were already immune to respiratory illness, or could cause a hypersensitive response in vaccine because they had been exposed to seasonal influenza viruses, and 92.30% considers that there is a relationship between exposure to viruses that cause respiratory diseases and immunity to the H1N1 virus. (Table 7 and 8).

Other factors externaron patients that influenced their decision regarding immunization, are: prevention, labor demand, negligence, birth control, lack of time, not belonging to the risk group, recommendation, vaccine availability. Multiple factors discussed in this

research that influenced the decision of the Assistant population Health Center Pachuquilla to reject or accept particular case the vaccine against human influenza; However, following an approach based on the odds ratio analysis, it was found that only some of them are actually associated with the response variable "vaccine refusal", exposing below: (Table 9).

DISCUSSION

The results from this study show the factors that influenced the decision of patients to refuse the vaccine against human influenza, in the period from January to June 2014. The population trend shows markedly greater population of individuals belonging to the female gender, which those belonging to the male gender, indicating a greater assisting women to medical services and health.

As regards the rejection of the vaccine, there has been a noticeable difference in relation to the work published in 2012 by Dr. Maria Eugenia Jimenez Corona, entitled "Knowledge, attitudes and practices regarding influenza A (H1N1) 2009 and pandemic influenza vaccination: results of a population survey ", since this study was conducted with a sample of 1600 individuals, of which 90.6% agreed to the vaccine, while 9.4% refused. In this research, we worked with a sample of 423 individuals who met the inclusion criteria, of which 72.34% accepted the vaccine, and rejection was marked on 27.65%.

It is remarkable that there is now a higher level of rejection of the vaccine, however, a possible explanation for this occurrence is that in 2009 an epidemiological alert mobilized the health sector to create prevention and vaccination campaigns, coupled with the fear of contagion that developed in people, so the reaction in most of them was to accept the vaccine to be protected, while those who rejected argued ignorance and mistrust on it, argues the research article. Moreover, it is notable that the measures of prevention and care pandemic human influenza, have been left aside, because in previous years was controlled properly, reducing the number of cases of deaths gradually in each epidemiological event, which was generated "confidence" among the population. (21, 22)

Also, this result is associated in relation to other factors, such as education, which is observable that the vast majority of the sample population has a basic education, and to a lesser extent illiterate. However, after analyzing data it has been found that does not fully explain the fact that people reject the vaccine.(23)

Similarly, the occupation of each individual has not been relevant in explaining the main determinants of this level there is no acceptance, although we note that prevails in a 95.3% acceptance by individuals who have an employment.

Regarding the frequency of attendance, nor is there an association that determines this factor influences significantly in the rejection of the vaccine, but allows us to observe that there is greater acceptance rate of immunization by people who attend infrequently a consultation on those who frequently attend a 57.1%

The receiving vaccine information nor has proven to be one of the main factors that explain the fact that people do not get vaccinated, but if you have shown a better response from people who have received education and information about the virus H1N1 and the vaccine has been developed to combat it.(24)

Table 6. Frequency and percentage of attendance to health services to the vaccine against human influenza ah1n1 in the health center Pachuquilla, Hidalgo, January-June 2014

	FrequencyAssistance				
	Always	AlmostAlways	Occasionally	Rarely	FirstAttempt
Individuals	0	10	42	37	28
Proportion	0.00%	8.54%	35.89%	31.62%	23.93%

Source; Direct, 2014

Table 7. Factors involved in the rejection of patients vaccinated against human influenza ah1n1 in the health center Pachuquilla, Hidalgo, January-June 2014

	Information		InformationUnreliable					FearSideEffects	
	Yes	No	OficialSource	Bulletins	Professionals	Websites	Reviews	Yes	No
Individuals	69	48	30	6	25	Three	5	48	21
Proportion	58.97%	41.02%	43.47%	8.69%	36.23%	4.34%	7.24%	69.56%	30.43%

Source; Direct, 2014

Likewise, we emphasize that there is greater acceptance in those who receive information from a reliable source, on those who receive no reliable sources by 32.1% indicating that one of the aspects to be addressed is education for part of health professionals, and international organizations working on the same field, as it has been shown that their participation is reflected in a better response from the population.

In both the factors associated with the vaccine directly as is the fear of side effects, an association that determine its direct influence on the rejection of the vaccine was found, but found that more patients who accept vaccinated if you do not have the fear factor on those who refuse the vaccine for fear 64.6%

Finally, another of the variables for which no association with rejection factor was found, was the availability of the vaccine, as more patients who refuse the vaccine is yet available to those who choose not to search another health center or health institution when not found in their part.

Now, as to the variables that explain why people reject human influenza vaccine, are mainly used in the genre. The study showed that there is a better response from women who accepted a relationship 1.3: 1 the vaccine on those men who attended the Health Center. It is noteworthy that, after analysis of the confidence interval, which is between 1.1687-1.3908 found that this factor largely explains the rejection of the vaccine, which is most likely arises from a male.

The area of focus, meanwhile is also a determinant of vaccine refusal since found a higher rate in patients attending general or dental office on those who come to psychology or psychiatry. This variable is only significant for the sample.

Fear of vaccines, is a factor that has resulted from research interest because it was found to be an important determinant of vaccine refusal. Of 17.73% of patients reported having fear of vaccines and immunization declined 28.20% indicating about one third of the total population.

Finally, the factors that awarded patients as influencing their decision, including the vaccine for prevention or reject the vaccine or not to apply it for lack of time, laziness, not belonging to the risk group, or lack of time, are also important determinants,so the change resides in each individual, and not the role of the health sector.

Table 8. Factors involved in the rejection of patients vaccinated against human influenza ah1n1 in the health center Pachuquilla, Hidalgo, January-June 2014

	Lack of Access		FearVaccines		Immunityagainst Virus	
	Yes	No	Yes	No	Yes	No
Individuals	55	62	33	84	9	108
Proportion	47.00%	52.99%	28.20%	71.79%	7.69%	92.30%

Source; Direct, 2014

Table 9. Associated with the rejection of the vaccine against human influenza in the health center Pachuquilla, Hidalgo factors. January-June 2014

Odds ratio Variable	Or	Location
Education	0.628	no association
Sex	1,275	association
Occupation	0.953	no association
Warning area	1,253	association
Freq. assistance	0.571	no association
Information	0.1796	no association
Fear of effects	0.646	no association
Lack of access	0.0521	no association
Fear of vaccines	2,469	association
Immunity	3.5595	association
Other factors	1,315	association

Source; direct, 2014

CONCLUSIONS

The factors associated with vaccine refusal are, educatión, gender, patient area of focus on attending to where the, fear of vaccines and the popular belief that it has an immunity to the virus by having had a previous lung disease for influenza virus.

Clearly, patient gender or area of focus on attending, are not factors that can be modified in a simple externally as they respond to their nature and their needs, but can be used as a reference for creating strategies disclosure. and this can be a point important to treat to future health campaigns against human influenza, as well as timely and compelling information health authorities.

The population reported a high percentage of rejection of the vaccine against human influenza (27.65%) compared with the literature (9.4%). The main reason why people choose to decline vaccination is fear of vaccines. A particular factor showing a greater rejection rate in women.

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