

Knowledge and risk perception among health care workers regarding infection control measures during swine flu epidemic in Al Ahsa Governorate in Eastern Province, KSA

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Abstract

Background: Determining knowledge and risk perception of health care workers regarding infection control measures in swine flu outbreak in Al Ahsa Governorate, KSA. **Methods:** A survey study was conducted among health care workers in hospitals and primary health care workers in Al Ahsa Governorate, KSA. All participants were provided a self administered questionnaire. Participation rate was 65% among all groups, physicians were (98) 15.1%, nurses were (430) 66.2% and technicians were (122) 18.7%. **Results:** Six hundred and fifty health care workers were participated in our study. Clinics has informed health care workers of preparedness plan of h1n1 flu had agreed by physicians of 28 (28.6%), 100 (23.3%) of nurses. I have attended infection control training was agreed by 65 (66.3%) of physicians and 275 (64%) of nurses. Attending infection control meetings was agreed by 65 (66.3%) of physicians and 243 (56.5%) of nurses and 68 (55.7%) of technicians with no statistical significance was found $p=0.180$. **Conclusion:** Awareness and training of the health care workers is needed to increase perception regarding h1n1 infection control program

Key Words: Risk perception, infection control, H1N1, health care workers

INTRODUCTION

H1N1 is a novel influenza A virus that resulted in one of the most widespread pandemics in recent history.^[1] The novel influenza A (H1N1) outbreak was officially declared a pandemic by the World Health Organization (WHO) on 11 June 2009, at which time a phase 6 pandemic was declared, when sustained community spread of swine flu occurred in multiple WHO regions.^[2]

H1N1 influenza pandemic has become a public health threat due to its associated morbidity and mortality. Among those at high risk for being infected with influenza H1N1, health care workers have been identified as the priority group, whose preparedness is a critical element in the response to the pandemic.^[3] Health care workers involved in public health education, epidemiological surveillance and management, not all health care workers are ready or prepared to work with infectious patients.^[4]

In nearly all countries with a preparedness plan, health care workers are listed as the priority group for infection control measures and vaccination.^[5-6] Health care workers (HCWs) are the key players in any response to pandemic influenza, and will be in the front line of exposure to infection.

Planners cannot assume that HCWs will be willing to work normally even if they are able to do so.^[7-8]

A number of studies have been conducted to explore the

willingness of HCWs to work during influenza pandemics. These studies have suggested that at the time of an epidemic, the potential levels of absenteeism could be as high as 28 % in Germany, 33% in Australia.^[9-10]

It is debatable whether professionals have a duty to work normally during a pandemic or other emergency,^[7-11] and it is also debatable to what extent this duty could or should be enforced if it exists. Despite significant medical gains of the last century, the danger posed by emerging infectious diseases has become even greater in our increasingly interconnected world.^[12]

The current study was aiming at determining knowledge and risk perception of health care workers regarding infection control measures in swine flu outbreak in Al Ahsa Governorate, KSA

METHODS

A survey study was conducted among health care workers in hospitals and primary health care workers in Al Ahsa Governorate, KSA. Health care workers (Physicians, nurses, technicians) were invited to participate in the study. Data collection started February 2011 to September 2011. The total number of health care workers was 1007, participation rate was 65% among all groups, physicians were (98) 15.1%, nurses were (430) 66.2% and technicians were (122) 18.7%. Higher participation among nurses compared to other groups. All participants were provided a self administered questionnaire. Consent of the Health authorities and an informed consent of the participants were provided before delivery of the questionnaires. Both genders were included in our study; also, nationals and non nationals were included. A self administered questionnaire of 3 sections was constructed in order to determine knowledge and risk perception of health care workers regarding infection control measures in swine flu outbreaks in Al Ahsa, KSA. The self

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administered questionnaire was constructed in both Arabic and English versions to accommodate with nationals and non nationals who cannot speak or read Arabic. Both questionnaires were tested and a pilot study of both Arabic and English versions were conducted on 15 health care workers nationals and non nationals. The pilot study was of help in formulating and structuring the questions in English and slang Arabic language. The questionnaire included basic demographic data (age, sex, occupation, and years of experience and date of graduation). Closed questions in order to investigate knowledge and risk perception of health care workers regarding infection control measures in swine flu outbreaks. A likert scale with 3 points for responses was used, confidentiality of responses was assured.

Statistical Analysis

All responses were divided into a scale of three (agree, disagree, do not know). Descriptive analysis was done in the form of frequency, percent, mean and standard deviation. Initial comparisons between physicians, nurses and technicians were done using the Student t-test for continuous variables and Pearson's chi-square test for categorical variables. Level of significance was set at $p < 0.05$. All data variables were encoded and statistical analysis were performed using the Statistical Package for Social Science (SPSS) version 19.

RESULTS

Six hundred and fifty health care workers were participated in our study. Physicians were (98) 15.1%, nurses were (430) 66.2% and technicians were (122) 18.7%. The mean age of physicians was (39.9 ± 10.2) , compared to (29.01 ± 6.6) for nurses and (31.8 ± 6.6) for technicians. The mean of years of experience among physicians was (14.5 ± 9.2) compared to (6.3 ± 5.7) and (8.6 ± 6.7) among nurses and technicians respectively. Figure I show the gender distribution among different groups of health care workers.

Figure I: Distribution of health care workers according to Gender.

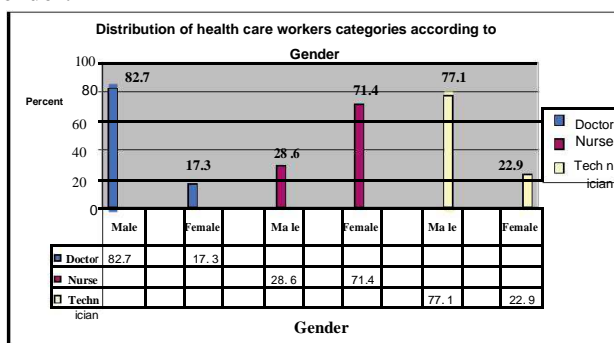


Figure II: Distribution of health care workers according to their job

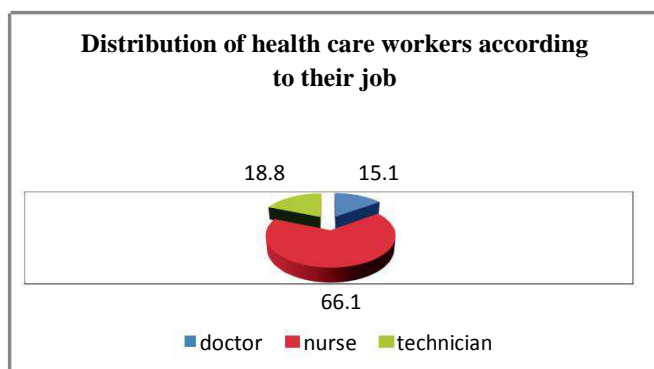


Table 1 shows that agreement of stress and risk from work among technicians is much higher than among physicians and nurses regarding being afraid of falling ill with swine flu and that risk at work is not acceptable, the difference is highly significant statistically ($p < 0.01$), while accepting risk of swine flu as part of job is much higher among physicians (77.6%) than other categories (52.8%) and (58.2%). Surprisingly, technicians (82%) had higher agreement than other categories (78.6%) of physicians and nurses (78.1%) regarding risk of exposure to h1n1 at work. Physicians who agree to have infection control committee were 81 (82.7%) compared to 376 (87.4%) of nurses and 108 (88.5%) of technicians, no statistical significance was found $p = 0.718$. If unsure of use of protective equipment 19 (19.4%) disagree compared to 62 (14.4%) among nurses and 21 (8.2%) among technicians with no statistical significance was found $p = 0.510$. Been recommended by their clinics to receive flu vaccination agreed by 68 (69.4%) by physicians compared to 283 (265.8%) of nurses and 81 (66.4%) of technicians with no statistical significance was found $p = 0.899$. Knowing that they have infection control staff in their clinic only 2 (2%) of physicians do not know compared to 32 (7.4%) of nurses and 6 (4.9%) of technicians with no statistical significance was found $p = 0.092$. Regarding knowing that their clinic has preparedness plan for h1n1 flu outbreak, 27 (27.6%) of physicians disagreed compared to 83 (19.3%) of nurses and 17 (23.8%) of technicians, with no statistical significance was found $p = 0.235$. Clinics has informed health care workers of preparedness plan of h1n1 flu had agreed by physicians of 28 (28.6%), 100 (23.3%) of nurses and 35 (28.7%), with no statistical significance was found $p = 0.547$. I have attended infection control training was agreed by 65 (66.3%) of physicians and 275 (64%) of nurses and 85 (69.7%) of technicians with no statistical significance was found $p = 0.492$. attending infection control meetings was agreed by 65 (66.3%) of physicians and 243 (56.5%) of nurses and 68 (55.7%) of technicians with no statistical significance was found $p = 0.180$. A statistically significant difference was found among h1n1 vaccinated 235 (9.4 ± 7.4) health care workers versus non vaccinated 415 (7.2 ± 6.8) according to years of experiences ($p = 0.000$).

DISCUSSION

Vaccination of H1N1 was declined by 50 (51%) of doctors, 311 (72.3%) of nurses and 54 (44.3%) of technicians, in a study by Wong et al (2010) 194 (73%) of participants of community nurses did not want to receive new influenza H1N1 vaccine when it was available mainly because of fear of side effects and concern regarding effectiveness of vaccine.^[13] In our study vaccination was declined more by nurses and technicians (Table 2) most probably due to the misconceptions regarding the purpose of vaccination and may be they were in need for more health education programs to increase the vaccination uptake. Around 18% of critical care health care workers reported that they were unlikely to work during a pandemic¹⁴. Additionally, similar proportion was reported by Daugherty et al (2009), while in another study done by Balicer et al (2006) 163 (53.8%) indicated that they would likely report to work in the event of an influenza pandemic compared to our study in which 77.6% of physicians accepted risk of h1n1 compared to 52.8% and 52.2% among nurses and technicians respectively^{15,4}. Another study in (2011) found that there was no significant difference in mean ages of vaccinated and unvaccinated health care workers (34.5 ± 8.2) and (35.2 ± 9.1) years ($p = 0.347$), while in our study there was a statistical significant difference in mean ages of unvaccinated versus vaccinated health care workers (30.1 ± 7.8) and (33 ± 8.5)

Table 1: Work related concerns of health care workers in Al Ahsaa Governorate

	Doctor	Nurse	Technician	P value
I would be afraid of falling ill with h1n1				0.000
Agree	62 (63.3)	306 (71.2)	104 (85.3)	
Disagree	35 (35.7)	113 (26.3)	12 (9.8)	
Do not know	1 (1)	11 (2.6)	6 (4.9)	
the risk I would be exposed to at work is not acceptable				0.007
Agree	33 (33.7)	198 (46)	66 (54.1)	
Disagree	62 (63.3)	202 (47)	47 (38.5)	
Do not know	3 (3.1)	30 (7)	9 (7.4)	
I would accept that the risk of contracting h1n1 is part of my job				0.000
Agree	76 (77.6)	227 (52.8)	71 (58.2)	
Disagree	22 (22.4)	180 (41.9)	44 (36.1)	
Do not know	0	23 (5.3)	7 (5.7)	

Table 2: infection control preparedness among health care workers in Al Ahsaa Governorate

	Doctor	Nurse	Others	P value
I have received training for infection control at my clinic				0.002
Agree	64 (65.3)	304 (70.7)	66 (54.1)	
Disagree	30 (30.6)	95 (22.1)	48 (39.3)	
Do not know	4 (4.1)	31 (7.2)	8 (6.6)	
I received adequate personal protective equipment training				0.013
Agree	67 (68.4)	313 (72.8)	70 (57.4)	
Disagree	29 (29.6)	100 (23.3)	47 (38.5)	
Do not know	2 (2)	17 (4)	5 (4.1)	
my clinic has informed me of their h1n1 flu outbreak preparedness plan				0.01
Agree	56 (57.1)	246 (57.2)	48 (39.3)	
Disagree	32 (32.7)	136 (31.6)	52 (42.6)	
Do not know	10 (10.2)	48 (11.2)	22 (18)	

Table 3: Risk perception among health care workers

	Doctor	Nurse	Others	P value
I have participated in infection control audits				0.043
No	45 (45.9)	244 (56.7)	57 (46.7)	
Yes	53 (54.1)	186 (43.3)	65 (53.3)	
I have received h1n1 vaccination				0.000
No	50 (51)	311 (72.3)	54 (44.3)	
Yes	48 (49)	119 (27.7)	68 (55.7)	
bought anti h1n1 flu medication				0.000
No	50 (51)	316 (73.5)	57 (46.7)	
Yes	48 (49)	114 (26.5)	65 (53.3)	
bought masks				0.000
No	33 (33.7)	219 (50.9)	39 (32)	
Yes	65 (66.3)	211 (49.1)	83 (68)	

($p=0.000$). Additionally, health care workers who felt under risk had a shorter duration of employment (11.5 ± 8.7 versus 14 ± 10.1 years, $p=0.005$)¹⁶. Similar results were noticed in the current study as health care workers who felt risk of infection had a shorter duration of employment (7.5 ± 6.7 and 8.8 ± 7.5 , $p=0.003$). In the current study, it was found that mean of duration of employment among vaccinated and unvaccinated was statistically significant (7.2 ± 6.8 and 9.4 ± 7.4 , $p=0.000$). One of the main reasons of vaccination campaign failure was the propaganda that was done by the Media.¹⁷ Ritvo et al (2010) stated that about 90% of respondents supported the obligation of health care workers to report to work and face associated risk during an influenza pandemic unless they had a serious health condition, additionally¹⁸, another study by Ma et al (2011), reported that a total of 572 respondents (82.3%) expressed willingness to care for h1n1 patients¹⁴. While comparing with our study, accepting risk of swine flu as part of job was much higher among physicians (77.6%) than other categories (52.8%) and (58.2%) respectively. The most common reasons for unwillingness to care for h1n1 patients included concern about infections of family members and themselves also.

In our study it was found that attending infection control training was agreed by 65 (66.3%) of physicians and 275 (64%) of nurses and 85 (69.7%) of technicians with no statistical significance was found $p=0.492$, and attending infection control meetings was agreed by 65 (66.3%) of physicians and 243 (56.5%) of nurses and 68 (55.7%) of technicians with no statistical significance was found $p=0.180$. In Ma et al (2011) 356 (51.2%) reported experience caring for H1N1 patients, among whom 305 (85.7%) finished the H1N1 training program before caring for H1N1 patients.¹⁷ In our study, doctors that bought mask were 66.3% compared with 49.1% among nurses compared with 38% of public subjects that had worn a face mask in public during the previous influenza season. Wearing a face mask in public was associated with various self-reported hygiene

Practices.

CONCLUSION

Awareness and training of the health care workers is needed to increase perception regarding h1n1 infection control program. Further research regarding emerging infectious diseases in KSA needed to verify infection control measures regarding infectious diseases.

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