

SHORT ARTICLE

Knowledge, Attitude and Practice regarding Influenza A (H1N1) among senior secondary school students of Kanpur city in north IndiaBhola Nath¹, Tanu Midha², Ranjeeta Kumari³, Sanjay Gupta⁴¹Associate Professor, Department of Community Medicine, VCSGMS&RI, Srinagar, Uttarakhand; ²Assistant Professor, Department of Community Medicine, Government Medical College, Kannauj, Uttar Pradesh; ³Assistant Professor, Department of Community Medicine and Family Medicine, AIIMS, Rishikesh, Uttarakhand; ⁴Professor and Head, Department of Community Medicine, GGSMC, Faridkot, Punjab

Abstract	Introduction	Methodology	Results	Conclusion	References	Citation	Tables / Figures
--------------------------	------------------------------	-----------------------------	-------------------------	----------------------------	----------------------------	--------------------------	----------------------------------

Corresponding Author

Address for Correspondence: Dr Bhola Nath, Associate Professor, Department of Community Medicine, VCSGMS&RI, Srinagar, Uttarakhand
E Mail ID: bholanath2001@gmail.com

Citation

Bhola Nath, Tanu Midha, Ranjeeta Kumari, Sanjay Gupta. Knowledge, Attitude and Practice regarding Influenza A (H1N1) among senior secondary school students of Kanpur city in north India. *Ind J Comm Health* 2014;26(3):303-307.

Source of Funding : Nil, **Conflict of Interest:** None declared

Article Cycle

Submission: 15/07/2014; **Revision:** 07/09/2014; **Acceptance:** 17/09/2014; **Publication:** 20/09/2014

Abstract

Background: Knowledge regarding Influenza A (H1N1) and its transmission and measures of prevention and control are important for individual protection as well as to contain the spread of the disease. **Objective:** To study the knowledge, attitude and practice regarding Influenza A (H1N1) among senior secondary school students of Kanpur. **Study Design:** A cross-sectional, questionnaire-based study. **Material and Methods:** This study was conducted among students of Class XI and XII of a leading private school in Kanpur. All the students present in the class at the time of the survey were included in the study. **Results:** Of the 483 students included in the study, 208 (43.1%) knew that it was a viral disease. Of all the students, 303 (62.7%) knew about the mode of transmission. Around 336 (69.6%) of the students knew that fever >38°C was a major symptom. Less commonly occurring symptoms such as diarrhoea (20.9%) and vomiting (14.3%) were known to few students. **Conclusion:** Knowledge regarding Influenza A (H1N1) needs to be enhanced among senior secondary school students through appropriate awareness programs.

Key Words

Influenza A (H1N1); Knowledge; Kanpur

Introduction

Influenza occurs in all countries and affects millions of people every year [1]. The Influenza A (H1N1) viral strain implicated in the 2009 flu pandemic in humans was earlier referred to as 'swine flu' because initial testing showed many of the genes in the virus were similar to influenza viruses normally occurring in North American swine [2,3].

According to WHO, recent swine flu virus from Mexico may have the potential to spread quickly and kill people, may cause worldwide pandemic. Swine flu is a disease caused by virus that infects people, birds, pigs and other animals such as ferrets. On June 11, 2009, WHO declared pandemic phase 6 response to the spread of influenza A (H1N1) virus [4]. By 20th January 2010, worldwide 208 countries had reported 1,458,544 laboratory confirmed cases of influenza A

(H1N1) 2009, including 14,378 deaths and of these, 28,401 cases and 1,152 deaths occurred in India; 1,267 cases and 17 deaths in the state of Uttar Pradesh; and 36 cases and 5 deaths in Kanpur city [5,6,7].

Of the 25 cases and 5 deaths which were reported in Kanpur city in 2009, 9 cases and 4 deaths were in the age-group 15-24 years indicating that this age-group was most susceptible for the disease as well as for death occurring due to the disease. Most of the cases had been reported from urban localities like Rawatpur, Tilak Nagar, Arya Nagar, Ranjeet Nagar, Sarvodaya Nagar and Gwaltoli [7].

Aims & Objectives

Therefore, the present study was undertaken among students of Classes XI and XII in a private CBSE school, which catered to the students coming from these

areas, with the objective of assessing their knowledge, attitude and practice regarding Influenza A (H1N1).

Material and Methods

The present cross-sectional study was conducted among 483 students of Class XI and XII in one of the private school, in Kanpur, in the month of November 2009. All the eight sections, four each of class XI and XII, in the school, were included in the study. A total of 514 students were enrolled in class XI and XII. All the students present in the class at the time of the survey were included. A total of 483 students were thereby included in the study.

A pre-tested questionnaire was used to elicit information regarding awareness of Influenza A (H1N1). Informed verbal consent was taken from all the students. The questions were explained to the students before asking them to fill out the questionnaire.

Data was compiled using the software SPSS 16.0.1 for Windows. Data was analysed using percentages and Pearson's Chi-square test for comparing proportions. Two-tailed p-values less than 0.05 were considered significant.

Results

A total of 483 students were included in the study. Of these, 291 (60.2%) were boys and 192 (39.8%) were girls. Girls (70.3%) were more aware than boys (57.7%) that Influenza A (H1N1) is transmitted via the respiratory route ($p < 0.01$) [Table 1]. Only 38.1% of students had the knowledge that Influenza A (H1N1) is curable. Around 39.2% of the boys as compared to 16.1% of the girls knew that a helpline number exists wherein all information regarding Influenza A (H1N1) is available ($p < 0.01$).

Around 69.6% of the students responded correctly for fever $> 38^{\circ}\text{C}$ as a symptom of influenza and 50.7% for cough and/or sore throat [Table 2]. Diarrhoea (20.9%) and vomiting (14.3%) as a symptom of Influenza A (H1N1) was known to few students. Around 25.1% of the students felt that all persons infected with Influenza A (H1N1) are at high risk of complications and mortality, whereas 43.1% and 64.6% of the students knew that children and elderly are at high risk, respectively.

About 67.0% of the boys knew that a vaccine is available for prevention of Influenza A (H1N1) as compared to 35.4% of the girls [Table 3]. Regular handwashing as a method of prevention was known to 42.7% of the students whereas taking a healthy diet was known to 35% of the students. Around

31.3% of the students felt that a patient of Influenza A (H1N1) should wear an N95 mask. Oseltamivir as drug of choice was known to 67.7%.

Among our study group, only 30.0% of the students had increased the frequency of handwashing and only 7.7% had changed their frequency of disinfecting things [Table 4]. Around 14.9% had started avoiding using public transport and 25.5% had started using a handkerchief while coughing or sneezing. These behaviour changes were more common among girls ($p < 0.01$).

Television was the main source (68.6%) of information for the students followed by internet (56.9%) and peer group (47.6%).

Discussion

The result of our study regarding knowledge of the etiological agent of the disease was comparable to that of another study done in Udaipur (Rajasthan, India) (40.4%) while it was low in comparison to that of a study from Saudi Arabia (95.4%) [8,9]. Similarly knowledge regarding the mode of transmission was lower as compared to that of the Saudi Arabian study (95.5%) which could be because of differences in the age group and educational status of the study population.

Knowledge regarding the major symptoms of Influenza A (H1N1) was fairly good, but that regarding other less frequent symptoms was very poor. The lack of knowledge regarding the susceptibility of various groups of individuals such as children, pig farmers and homeless may put the students at a higher risk of contracting the infection if they come in contact with these high risk groups. Studies from Malaysia and Europe have also reported these groups at 'high risk' of infection [10]. However knowledge regarding vaccine as a method of prevention was fairly good. The practice of handwashing had increased, although the improvement in diet as a method of prevention was not given much importance. Similar findings have been reported in other studies also [8,11,12,13]. The frequency of cleaning and disinfecting things had increased but it was not comparable to the results of a study done in England, Scotland, and Wales [13]. This could be due to the difference in living standards of the study population. Avoidance of public transport was lower as compared to that reported in Udaipur [8]. Television and internet were found to be important sources of information in ours as well as in other studies [12].

The present study was done in one of the best schools of Kanpur but the knowledge level was not very good or even proportionate to the level of alarm raised by the outbreak, therefore we require more extensive health education and awareness programmes using other means of communication along with television and internet for providing a more consistent change in the practices. Also the non-medical preventive behaviours like handwashing, social distancing and healthy eating habits need to be reinforced through inter-personal communication which can be very easily done in schools.

Conclusion

The baseline level of knowledge about swine flu among the students of 1st & 2nd year was good. The good thing about the knowledge regarding swine flu among them was, they know about the mode of transmission of disease which could help in prevention of disease. Further we also concluded that similar interventions are needed to increase the awareness among other government colleges.

Limitation of the study

There are two limitations that need to be acknowledged regarding the present study. The number of subjects is limited for broad generalizations. It is essentially a purposive sampling therefore generalization of the results must be done with caution. A community based study would give better estimates of the level of awareness.

Relevance of the study

Since Swine flu is emerging disease and spreads very fast and simple preventive measures at an early stage will be very useful in containment of the disease which could only be achieved by raising the level of awareness.

Authors Contribution

BN: Concept design; TM: Acquisition of data; RK: Drafting Guidelines; SG: Analysis and interpretation of data.

References

1. Davenport FM, Alfred S. *Viral infections of Humans: Epidemiology and Control*. Plenum Medical. New York 1977.
2. Pandemic influenza (H1N1) 2009. CD Alert. Monthly Newsletter of National Institute of Communicable Diseases,

3. Directorate General of Health Services, Government of India. 2009 Aug- Sept;13(2).
3. Special Issue: Human Swine Influenza: a pandemic threat. CD Alert. Monthly Newsletter of National Institute of Communicable Diseases, Directorate General of Health Services, Government of India. 2009 March – April;12(8).
4. Statement to the press by WHO Director-General Dr Margaret Chan 11 June 2009. Available from http://www.who.int/mediacentre/news/statements/2009/h1n1_pandemic_phase6_20090611/en/http://www.who.int/mediacentre/news/statements/2009/h1n1_pandemic_phase6_20090611/en/index.html [Last Accessed on 17.09.2014]
5. Available from http://en.wikipedia.org/wiki/2009_flu_pandemic_by_country dated 20th January 2010.
6. Consolidated Status of Influenza A H1N1 as on 20th January 2010. Press Information Bureau, Government of India. Ministry of Health and Family Welfare. Available from <http://pib.nic.in/release/release.asp?relid=57126>. [Last Accessed on 17.09.2014]
7. Report of District Surveillance Unit-Kanpur Nagar. Integrated Disease Surveillance Project. Office of Chief Medical Officer, Kanpur Nagar.
8. Kamate SK, Agrawal A, Chaudhary H, Singh K, Mishra P, Asawa K. Public knowledge, attitude and behavioural changes in an Indian population during the Influenza A (H1N1) outbreak. *J Infect Dev Ctries*. 2009 Nov 30;4(1):7-14. PubMed PMID: 20130372. [[PubMed](#)]
9. Balkhy HH, Abolfotouh MA, Al-Hathloul RH, Al-Jumah MA. Awareness, attitudes, and practices related to the swine influenza pandemic among the Saudi public. *BMC Infect Dis*. 2010 Feb 28;10:42. doi: 10.1186/1471-2334-10-42. PubMed PMID: 20187976; PubMed Central PMCID: PMC2844401. [[PubMed](#)]
10. Goodwin R, Haque S, Neto F, Myers LB. Initial psychological responses to Influenza A, H1N1 ("Swine flu"). *BMC Infect Dis*. 2009 Oct 6;9:166. doi: 10.1186/1471-2334-9-166. PubMed PMID: 19807908; PubMed Central PMCID: PMC2765446. [[PubMed](#)]
11. Fiore AE, Neuzil KM. 2009 influenza A(H1N1) monovalent vaccines for children. *JAMA*. 2010 Jan 6;303(1):73-4. doi: 10.1001/jama.2009.1929. Epub 2009 Dec 21. PubMed PMID: 20026596. [[PubMed](#)]
12. Akan H, Gurol Y, Izbirak G, Ozdatli S, Yilmaz G, Vitrinel A, Hayran O. Knowledge and attitudes of university students toward pandemic influenza: a cross-sectional study from Turkey. *BMC Public Health*. 2010 Jul 13;10:413. doi: 10.1186/1471-2458-10-413. PubMed PMID: 20626872; PubMed Central PMCID: PMC2918554. [[PubMed](#)]
13. Rubin GJ, Amlôt R, Page L, Wessely S. Public perceptions, anxiety, and behaviour change in relation to the swine flu outbreak: cross sectional telephone survey. *BMJ*. 2009 Jul 2;339:b2651. doi: 10.1136/bmj.b2651. PubMed PMID: 19574308; PubMed Central PMCID: PMC2714687. [[PubMed](#)]

-----X-----

Tables

TABLE 1 KNOWLEDGE OF STUDENTS REGARDING INFLUENZA A (H1N1)

	Boys (n=291)		Girls (n=192)		Total (n=483)		P-value
	No.	%	No.	%	No.	%	
Influenza A (H1N1) is viral disease	115	39.5	93	48.4	208	43.1	0.06
Mode of transmission – Respiratory route	168	57.7	135	70.3	303	62.7	<0.01*
Influenza A (H1N1) is curable	112	38.5	72	37.5	184	38.1	0.87
Know Influenza A (H1N1) helpline no.	114	39.2	31	16.1	145	30	<0.01*

TABLE 2 KNOWLEDGE OF STUDENTS REGARDING CLINICAL PRESENTATION OF INFLUENZA A (H1N1)*

	Boys (n=291)		Girls (n=192)		Total (n=483)	
	No.	%	No.	%	No.	%
Symptoms						
Fever >38°C	201	69.1	135	70.3	336	69.6
Cough/Sore throat	158	54.3	87	45.3	245	50.7
Bodyache/Headache	134	46.0	97	50.5	232	48.0
Fatigue	126	43.3	98	51.0	224	46.4
Rhinorrhoea	100	34.4	56	29.2	155	32.1
Diarrhea	71	24.4	60	31.3	131	27.1
Loss of appetite	73	25.1	27	14.1	101	20.9
Vomiting	37	12.7	32	16.7	69	14.3
High risk cases						
Concomitant medical problems	159	54.6	117	60.9	276	57.1
Children	120	41.2	88	45.8	208	43.1
Elderly	190	65.3	121	63.0	312	64.6
Immunocompromised	199	68.4	122	63.5	321	66.5
Pig farmers	166	57.0	114	59.4	281	58.2
Homeless	100	34.4	79	41.1	179	37.1
All cases	68	23.4	53	27.6	121	25.1

TABLE 3 KNOWLEDGE OF STUDENTS REGARDING METHODS OF PREVENTION AND CONTROL OF INFLUENZA A (H1N1)*

	Boys (n=291)		Girls (n=192)		Total (n=483)	
	No.	%	No.	%	No.	%
Methods of Prevention						
Vaccine	195	67.0	68	35.4	263	54.5
Chemoprophylaxis	164	56.4	70	36.5	234	48.4
Regular Hand washing	120	41.2	87	45.3	206	42.7

Table Continue...

Distance from patient	199	68.4	122	63.5	321	66.5
Avoidance of public transport	91	31.3	88	45.8	178	36.9
Eat well/drink fluids	99	34.0	70	36.5	169	35.0
Use of N-95 mask						
Everybody	141	48.5	100	52.1	242	50.1
Attendant/close contact of pt.	126	43.3	123	64.1	250	51.8
Health personnel	106	36.4	118	61.5	224	46.4
Patient of Influenza A (H1N1)	75	25.8	76	39.6	151	31.3
Drug of Choice						
Oseltamivir (Tamiflu)	208	71.5	120	62.5	327	67.7
Amantadine	97	33.3	44	22.9	141	29.2
Ribavirin	67	23.0	37	19.3	104	21.5
<i>*Multiple response</i>						

TABLE 4 ATTITUDE AND PRACTICES OF STUDENTS REGARDING PREVENTION OF INFLUENZA A (H1N1)

	Boys(n=291)		Girls(n=192)		Total(N=483)		p-value
	No.	%	No.	%	No.	%	
Do not come to school if suffering from flu	71	24.4	25	13.0	96	19.9	<0.01
Keep distance from classmates suffering from flu	56	19.2	49	25.5	105	21.7	0.10
Avoid using public transport	34	11.7	38	19.8	72	14.9	0.01
Increased the frequency of disinfecting things	12	4.1	25	13.0	37	7.7	<0.01
Use a handkerchief when sneezing or coughing	42	14.4	81	42.2	123	25.5	<0.01
Wash their hands frequently	46	15.8	75	39.1	145	30.0	<0.01
Started taking a more nutritious diet	22	7.6	13	6.8	35	7.2	0.74