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Awareness of the Pandemic H1N1 Influenza Outbreak Among Malaysian Dental Students

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Abstract

Introduction: Influenza A (H1N1) is the most recent of the pandemic diseases that has affected the world's population. The aim of this study was to assess knowledge, attitudes and behaviours regarding H1N1 pandemic among Malaysian dental students. **Methodology:** The data was collected using a self-administered questionnaire and results were analysed using SPSS version 15. **Results:** The most common symptoms identified were fever (50.8%), breathing difficulty (41.0%), and cough (39.3%). It was considered to be a moderately dangerous infection by approximately one third of the students (31.1%). Majority (88.9%) of the students agreed that washing hands with soap is the most effective preventive measure. It was followed by travel restriction that was reported by 77% of them as a preventive measure for the pandemic. **Conclusion:** This study concluded that a large number of students did not have complete awareness about disease transmission, preventive measures, vaccinations, and treatments available.

Keywords: Dental Students, H1N1 Virus, Influenza, Knowledge, Malaysian Students, Pandemic, Public Health, Prevention and Control, Questionnaires, Swine Flu

1. Introduction

The U.S. declared Public Health Emergency for 2009 H1N1 Influenza expired on June 23, 2010. On August 10, 2010, the WHO International Health Regulations (IHR) Emergency Committee declared that H1N1 pandemic had ended globally. Yet, throughout the world 2009 H1N1 viruses and seasonal influenza viruses are spreading in many parts of the world. It is most likely that the 2009 H1N1 virus will remain to spread for coming years, like a regular seasonal influenza virus touching our lives everyday[1].

It caused unusual and extensive outbreaks of disease in all seasons especially very high levels of disease in winter months. In is known that H1N1 virus spreads in the same way as seasonal flu spreads. People with influenza with becomes contagious to others through coughing or sneezing. Touching objects infected with flu virus and then touching their face also is a mode of spread of flu virus.

The first mitigation effort for controlling such an outbreak has to be focused on increasing awareness about the various aspects of the pandemic among all categories of citizens. The media used for this should be carefully chosen, so that relevant information reaches people rapidly and in least distorted form. Concerns, knowledge, attitudes, and behaviour of the public plays a critical role even in the post pandemic phase. These facts can be crucial to the betterment of communication and integration attempts by public health officials and clinicians. Awareness can decrease the spreading of the outbreak and in turn may reduce the mortality.

Students involved in health care, medical or dental have more contact with unhealthy people, leading to increased susceptibility for receiving an infection. Close contacts in hostels and relatively low access to media

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may require more diligent communication patterns and reinforcements. Residing in a different country during the outbreak can also affect the awareness or may even lead to distorted information. The present study was aimed to find the knowledge, attitudes and behaviours of the dental students from Malaysia, of H1N1 pandemic that might ensure the validity of the mitigation efforts.

2. Methodology

The present study was a cross-sectional study conducted among the dental students of Melaka Manipal Medical College, Manipal campus in March 2011. Students were briefly explained about the study. A verbal consent was taken from the students. The questionnaires were distributed after a lecture class. Students were instructed to answer it without any discussion and were informed about the purpose of the questionnaire. The demographic information was collected, which included their age, gender, diet, religion, and oral health related behaviour including tooth brushing frequency, dietary, alcohol and smoking habits; global oral health indicator (Table 1). The questions concerning the awareness of pdmH1N1 are included in (Table 2). The proforma included additional questions exploring issues related to the Influenza A/H1N1 flu in addition to the standard questionnaire. Ensuring strict confidentiality and concealment of identity encouraged the students to participate freely and genuinely. Frequency analysis of the data was done using SPSS (Statistical Package for the Social Sciences) software version 15.

3. Results

A total of 70 questionnaires were distributed, of which all were returned duly filled. The mean age of students who participated was 21.3 ± 3.2 years. 38.6% students were males and 61.4 % were females.

(Table 3) represents the frequency of responses regarding awareness of pdmH1N1. 100% students knew about Swine Flu (Influenza A/H1N1), and the most common source of information was newspaper (68.9%), followed by television (55.7%).

64 students (91.8%) correctly answered that pdmH1N1 is caused by virus. The most common signs and symptoms identified were fever (50.8%), breathing difficulty (41%) and cough (39.3%). Approximately one third of students (31.1%) rated H1N1 influenza as

Table 1: Frequency distribution of the students according to the independent variable

Independent Variable	Classification	N (%)
Gender	Female	43 (61.4)
	Male	27 (38.6)
Diet	Mixed	70 (100)
	Vegetarian	
Religion	Hindu	14 (20.0)
	Christian	16 (22.9)
	Muslim	21 (30.0)
	Buddhist	19 (27.1)
Alcohol Intake	Yes	18 (25.7)
	No	52(74.3)
Smoking Status	Smoker	2 (2.9)
	Non smoker	68 (97.1)
Satisfaction with oral health	Yes	41 (58.6)
	No	29 (41.4)
Dental treatment	Yes	60 (85.7)
	No	10 (14.3)
Frequency of cleaning	Twice	50 (71.4)
	More than twice	20 (28.6)

Table 2: Questions concerning the awareness of pdmH1N1

1	Heard about Swine Flu (Influenza A/H1N1)
2	What was your source of information regarding Swine Flu (Influenza A/H1N1)
3	What is pdmH1N1?
4	What is the cause of pdmH1N1?
5	Current status of pdmH1N1 in the world
6	Country commonly affected by pdmH1N1
7	Correct signs and symptoms of pdmH1N1
8	Is it a contagious disease?
9	How does pdmH1N1 spread?
10	How long can an infected person spread pdmH1N1 to others?
11	Is treatment available for pdmH1N1?
12	Is vaccine available for pdm H1N1?
13	Appropriate preventive measures
14	How will you rate the disease on Severity Scale?
15	Are you worried about current outbreak of pdmH1N1?

Table 3: Frequency of responses regarding awareness of pdmH1N1

Variables	Frequency of respondents	Percentage
Source of Information		
Newspaper	42	68.9
TV	34	55.7
Internet	20	32.8
Other	8	13.1
Causes of Influenza A/H1N1		
Bacteria	3	4.9
Virus	56	91.8
Parasite	0	0
Fungi	0	0
Unknown	2	3.3
Total	61	100
Signs and Symptoms of Influenza A/H1N1		
Fever	31	50.8
Cough	24	39.3
Sore Throat	18	29.5
Breathing difficulty	25	41.0
Nausea/ Vomiting	15	24.6
Decreased Appetite	10	16.4
Preventive measures for influenza A/H1N1		
Avoiding pork consumption	30	49.2
Avoiding contact with sick people	43	70.5
Cover nose and mouth	50	82
Washing hand with soap	54	88.5
Travel restriction	47	77
Not going to college	8	13.1
Vaccination of human	43	70.5
Chlorination of water	5	8.2
Arrange awareness program	37	60.7

a moderately severe infection. A close percentage of students (29.5%) also rated it as severely dangerous. The most effective preventive measures identified by the students were washing hands with soap (88.5%), cover nose and mouth (82%), travel restriction (77%), avoiding contact with sick people (70.5%).

There were 36.1% respondents who said that they were not worried about the outbreak of pdmH1N1 and 19.7% individuals were unaware of the availability of the vaccine.

4. Discussion

A new strain of H1N1 influenza virus was involved in the outbreak of the 2009 pandemic usually referred to as 'Swine flu'. This virus was first described in April of 2009. The virus appeared to be a new strain of H1N1 which resulted when a previous triple genetic material mix of bird, swine and human flu viruses. This triple re-assortment was further combined with a Eurasian pig flu virus. The H1N1 virus maintained its characteristic feature of not disproportionately infecting adults older

than 60 years. Even when there were cases of previously very healthy individuals, a small percentage of them developed pneumonia and acute respiratory distress syndrome. So basically this disease manifests itself with symptoms like increased difficulty in breathing and typically occurs three to six days after initial onset of flu symptoms[1].

Owing to the rapid increase in number of cases throughout the world, the pandemic H1N1 influenza gained a pandemic phase level 6 by W.H.O. Information about this pdmH1N1 was covered by various media resources as a mitigation effort.

The current study revealed that all the subjects were aware of pdmH1N1 as against household interview conducted in Arizona where one-third (34%) of the study subjects were not aware that the terms swine flu and H1N1 refers to the same virus[2]. Considering the influence of education on knowledge, a study conducted by Kamate et al., on Indian population revealed that knowledge about H1N1 increased significantly from illiteracy to high school level. However, no significant difference in knowledge was found between graduates and postgraduates, which agreeably makes us understand that high school education was the threshold[3]. Similar effects were observed in a study conducted by Syed Farid-ul-Hasnain et al., in 2009 which stated that education had significant influence on knowledge[4]. A good knowledge about the pandemic H1N1 in the current study can be clearly attributed to the educational background of the study group. The recent development in this field is the syndromic surveillance which has been widely adopted as a real-time monitoring tool for timely response to disease outbreaks. Digital technology has come to much respite for these evaluator methods. During the next wave of the H1N1 pandemic in Fall 2009, two important universities in Washington, DC collected data that were potentially indicative of influenza-like illness cases in students, faculty and staff. The primary objective was to characterize the impact of H1N1 on the campuses with the data available. In addition, it was sought to evaluate the SWOT strengths and weaknesses, opportunities and threats of the data series themselves, in order to inform institutions of advanced education about real-time surveillance systems that are likely to provide the most utility in future outbreaks[5].

The most common source of information was found to be newspaper. This clearly highlights the role media plays as health communication, cautioning the population about the upcoming health concerns. This is in accordance with the study conducted by Rubin et al.,[6]. Nevertheless, in the study by Kamate et al.,[3], on the general population, television was reflected as the most common source of information, which diverges from this study, where newspaper was the major source. It is noteworthy that in this era of electronic multimedia, newspapers are yet a powerful source and must be extensively utilized.

The perception of the severity of infection was variedly distributed from mildly severe to fatal. Majority of the population considered it moderately dangerous, followed by severely dangerous and mildly dangerous. People perceiving higher severity of disease were more likely to follow the mitigation protocol[7,8]. The most effective preventive measures identified by the students were washing hands with soap (88.5%), cover nose and mouth (82%), travel restriction (77%), avoiding contact with sick people (70.5%). In another study performed on hand hygiene and infection control, pre- and peri-H1N1-2009 pandemic in final year Medical Students in Singapore[9] recognized alcohol hand rub[10] as the preferred mode of hand hygiene practice. However, the importance of different routes of influenza transmission (including the role of bioaerosols) and the ability of masks and hand hygiene to prevent transmission remain poorly understood[11].

Also, it is noteworthy that though the knowledge regarding H1N1 is very good among the study subjects, there are still 19.7% students who are unaware of the availability of the vaccine. The influenza A (H1N1) vaccination program among university students and health care professionals observed low adherence during the pandemic influenza outbreak in many parts of the world[12,13,14]. A study aimed to analyze the student's knowledge, attitude and willingness to gauge the acceptance H1N1 vaccination during the post-pandemic period in Vellore Institute of Technology, India showed that the vaccination coverage among university students remained very low (12.7 percent) in the post-pandemic period and genuineity about the safety and effectiveness of the vaccine were key elements in their rejection[15]. There were 36.1% respondents in the present study who said that they were not worried about the outbreak of pdmH1N1. This could indicate a lack of knowledge about the post pandemic, or it could be that the subjects had taken vaccination, or it could merely reflect the confidence

of subjects on the health care system. Whatever may be the reason, the ongoing risk in the post pandemic phase should never be ignored, and active steps must be taken to increase the awareness of people to prevent another outbreak out of negligence.

The H1N1 pandemic was characterized by the emergence of a new influenza virus to which many people had no pre-existing immunity. But the current status has changed, and vaccination is being provided. The lack of knowledge revealed in this study reflects on the poor updating on the part media and health care authorities. This again poses a risk in the post pandemic phase and emphasizes the need to increase the awareness regarding H1N1 post pandemic[16].

5. Conclusion

Pandemic infections which have been once controlled successfully cannot be ignored forever again until another outbreak. This study showed that a large number of students did not have complete awareness about disease transmission, preventive measures, vaccinations, and treatments available. Hence, all information needs to be reinforced from time to time and also all the updates about the recent advances made in terms of prevention, control and treatment of any pandemic infection must reach people. Failure of which may cause harm irrespective of many leaps that medical research may have made. The surveillance allowed us to gather relevant information, crucial for devising appropriate public health interventions. Also, in future disease outbreaks, digital real time systems monitoring individual's perceptions and behaviors should positively be included in the reaction, preparedness and response plans[16].

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