

Health-Related Practices among Some Egyptian School Children during The H1N1 Pandemic

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ABSTRACT

Background: Swine influenza was recognized as a threatening health problem in the world. Thus, The Ministry of Health and population in Egypt took aggressive actions to prevent this serious health hazard. Several interventions were directed to schools. **Objective:** The aim of this study was to assess H1N1 healthy practices in schools, identify knowledge, attitude and practice (KAP) of school children and teachers, regarding health education (HE) messages and to assess the school environment. **Methods:** A descriptive study was conducted in four schools in Giza governorate: three language/private and one public. A structured questionnaire assessed the school students KAP (n=300). Training on prevention of H1N1 was received by 75% of the school team. A semi-structured in depth interview explored the perception of school team (n=32) regarding H1N1 and an observation checklist assessed the school environment. **Results:** The study revealed that the Health Education Campaign raised health awareness of students about personal cleanliness especially hand washing (46.9%). Additionally, 87.5% of the school staff admitted improvement of the school environment during implementation of this campaign. Primary grade students were generally better in following instructions and obeying orders regarding personal cleanliness than those in preparatory grades ($p<0.01$). Vaccination did not achieve complete coverage (9.7%). **Conclusion and Recommendations:** Health education is reasonably effective in promoting some healthy practices in schools and among students. H1N vaccination coverage is jeopardized by the mass media interferences. There is great need for plans to emergency epidemic conditions and for continuous school environment supervision. Mass media should provide accurate information.

Key words: Health education, H1N1, School health

INTRODUCTION

The total number of human cases of swine flu reported by the United States was 12 till the end of 2009. However, more than 214 countries have reported lab-confirmed cases of H1N1 influenza A.⁽¹⁾ In response to the swine influenza situation, in April 2009, the WHO raised the pandemic alert level to phase 5, which is consistent with human-to-human spread of the virus in at least two countries in one region.⁽²⁾ Center for Disease

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Control and Prevention (CDC) set the main general preventive measures against H1N1 as follows: health education, hand washing, social distancing, use of masks, screening, practicing respiratory etiquette, avoid touching eyes, mouth and nose and staying home when ill.⁽³⁾

The Egyptian Ministry of Health and Population (MOHP) implemented many actions against H1N1 at the country level. Active surveillance of the disease was held at the national level. Also, a state of alert in all ports quarantines was set. Awareness seminars were held at the level of divisions and departments in all provinces, also at the level of all primary health care units. A public information campaign was carried out to raise awareness among citizens. Training of health workers and application of terminal level workshops for central departmental prevention team on how to prepare for the emerging H1N1 pandemic were conducted.⁽⁴⁾

Schools present a potential hazard for spread of infection, especially droplet

infections, thus interventions carried out at schools would have a positive effect on the health and health behavior of school children, their families and the community at large. Recognizing the importance of schools, the MOHP implemented several interventions in line with the main WHO preventive guidelines. Vaccination was recommended for all students. School closure was considered when a confirmed case was discovered. The plan of action addressing specific roles and responsibilities of schools was published on the website of the MOHP.⁽⁴⁾ This study was conducted in an attempt to critically evaluate the measures taken against H1N1 in some Egyptian schools.

Study objectives:

1. To assess H1N1 healthy practices in the sampled schools.
2. To identify knowledge, attitude and practices (KAP) of school children and school personnel related to H1N1.

METHODS

This is a cross sectional study conducted

during the scholastic year 2009/10 in four Egyptian schools; three language/private schools and one public school. The study included the following groups:

A) School Students:

A convenience purposeful sample including three classes from the 5th primary grade and two from the 2nd preparatory grade were selected in the language/private schools. From the public preparatory school, one class was selected from each of the first, second and third grades. The total sample size was 300 students (210 from the language/ private schools and 90 students from the public school). Both males and females were presented.

B) School staff:

The sample included available school staff on the days of the interview namely teachers, head of the school, or head of the level and social workers: 18 teachers, 5 social workers and the headmaster from the language schools and 7 teachers and one social worker from the public school.

C) Medical staff:

Interviews were conducted with the school physician in the language school, the school nurse in the two private schools, and the health visitor in the public school.

D) Study tools:

A structured questionnaire was used to assess knowledge, attitude and practice (KAP) of school children, as regards actions specifically introduced to guard against pending H1N1 infection. The questionnaire was self-administered in presence of the researcher in a classroom setting where each question was read and students asked to write down their answer.⁽⁴⁾ Clarification was given as needed.

For the school staff, a KAP questionnaire included some questions related to staff training and the contents of the training course. A Semi-structured in depth questionnaire for the staff focused on their opinion (attitude) about the procedures performed for prevention of the disease, about the school environment, class crowding, the

students' attendance, school closure, vaccination and about the contents of health education messages delivered to students.⁽⁵⁾ The school staff opinion about the positives and negatives of H1N1 campaign and their recommendations was also explored.

The medical staff questionnaire was designed to identify their role and to verify the implementation of preventive activities.

An observational checklist covering the school surrounding, the condition of the classrooms, bathrooms, playground, school workers and medical services was completed by the researcher for each school.⁽⁵⁾ Tools were revised by experts for validity and were pretested.

Statistical analysis

Quantitative data were analyzed using the Statistical Package of Social Science (SPSS), version 16. Content analytic techniques were used for the analysis of the qualitative data obtained from the semi-structured in- depth interviews of health care providers.

Ethical considerations:

Ethical approval was obtained from The National Ethical Committee of the Ministry of Health and Population at the Central Administration for Research and Health Development.

Verbal consents were obtained from all interviewed school staff team, and from students before completion of the questionnaires. All the participants were informed about the contents of the questionnaire and the aim of the study, and were assured of confidentiality of their data.

Limitations of the study

- Difficulty in obtaining agreement from both the Ministry of Health and Ministry of Education jeopardized random selection of the schools.
- Difficulty in completing the questionnaires within the busy school day for the students and staff.
- Afraid of not fulfilling the requirements, the school administration was hesitant to

cooperate until they were fully assured of confidentiality.

RESULTS

The observational checklist revealed that the Language School and one of the Private Schools fulfilled all the items required for a healthy school environment and practices. The other Private and Public School had a hazardous external environment (refuse and street vendors). In addition, classrooms and bathrooms were not clean in this Private school. The rooms allocated for medical service in both the Public and the other Private school were neither adequately ventilated nor illuminated and lacked gloves and masks. These two schools had crowded playgrounds

and students were not clean enough. The interviewed school staff (32) included 25 teachers, six social workers and one manager. Before the scholastic year, 24 (75%) received training on prevention of H1N1 (19 teachers, 4 social workers and the manager). Training included knowledge about mode of transmission of H1N1, signs and symptoms, what to do for a suspected case, care for the case at home, and what to do when the case returns to school. However, training was not even the most important source of information; in fact it was the source in 28.0% of cases only; TV was the most common source (96.9%) (Table1).

Table 1. Source of H1N1 related information among 32 school team members*

	Frequency	Percent (%)
Training	9	28.0
TV	31	96.9
Radio	12	37.5
Press	12	37.5

* More than one source could be reported by the interviewee.

School teachers mentioned that they provided health education to the students emphasizing personal cleanliness and hand washing (mentioned by half of the teachers); importance of good ventilation, avoiding crowded place, tissue use after coughing or sneezing, and mask use (mentioned by one third of teachers); advice to seek early medical advice upon feeling of any pending disease; and following with TV related programs (also mentioned by one third of teachers).

The attitude of the school team in relation to actions implemented in school was

presented in Table 2. Efficiency in health education and decrease in crowding of the classes were the most recognized positive actions (90.6% each). School closure as a preventive measure was accepted by just less than half of the teachers, being more among the trained. Preventive procedures initiated at the start of the year and continued with the same efficiency through the second semester of the scholastic year were recognized by only 21.9%. It was noticed that the trained staff had higher expectations than the non-trained (Table 2).

Table 2. Relation between training of school team and their attitude towards general prevention of H1N1

	Trained (n=24)		Non-trained (n=8)		Total (n=32)	
	No.	%	No.	%	No.	%
Methods of prevention						
Accept	9	37.5	6	75.0	15	46.9
Improvement of school environment						
Accept	20	83.4	8	100.0	28	87.5
Decrease of class crowding						
Accept	21	87.5	8	100	29	90.6
Average class crowding						
Accept	18	75.0	7	87.5	25	78.1
Continuity of preventive procedures						
Accept	7	29.1	0	0.0	7	21.9
Efficiency of health education procedures						
Accept	21	87.5	8	100.0	29	90.6
School closure						
Accept	13	54.1	2	25.0	15	46.9
Healthy practices						
Accept	21	87.5	6	75.0	27	84.4

Students' practices differed between Public, Private and language schools (Table 3). Hand washing was the most frequent practice. It was highest in the Public school, followed by the Language school, and least in the Private school. The difference was statistically significant ($P < 0.01$). Mask use was

markedly higher in the Public school ($P < 0.01$).

Students' practices also differed between primary and preparatory schools. Primary school students were better in hand washing, using tissue on sneezing or coughing, and mask use. Differences were not statistically significant.

Table 3. Relation between type of school and students' knowledge and practice to guard against H1N1

	Public (n= 90)		Private (n= 130)		Language (n= 80)		Total (n= 300)	
	No.	%	No.	%	No.	%	No.	%
Hand washing before eating**	73	81.1	67	51.5	76	95.0	216	72.0
Hand washing after eating**	74	82.2	76	58.5	76	95.0	226	75.0
Use soap on washing	83	92.2	119	91.5	73	91.2	275	91.6
Use tissues on sneezing	71	78.9	112	86.1	56	70.0	239	80.0
Use tissue on coughing	54	60.0	94	72.3	16	20.0	164	55.0
Cover nose on sneezing	59	65.5	56	43.0	69	86.2	184	61.0
Cover by:								
Hand	51	56.6	64	49.3	51	63.7	166	55.0
Arm	39	34.4	56	43.0	19	23.8	114	38.0
Clothes	0	0.0	10	7.7	10	12.5	20	7.0
Hand washing after sneezing or coughing	72	80.0	43	33.0	50	62.5	165	55.0
Mask use**	72	80.0	48	37.0	22	27.5	142	47.0

** chi square test was statistically significant ($p < 0.05$)

Vaccination coverage was very low (9.7%). Primary students had a significantly higher rate of vaccination (14.7%) as compared to only 7.1% in preparatory level ($P < 0.01$). Causes for non- vaccination were mainly due to parents refusal (55.6%) followed by fear of

side effects (35.3%). The majority of children in all schools (70.3%) opposed taking the vaccine. There was no statistical difference between public and language/private schools or between primary and preparatory grades regarding causes of refusal of vaccination.

Training of school staff resulted in having only 4 (16.6%) accepting vaccination. All the non-trained did not accept vaccination (Table 4). It is worth mentioning that mass media and national television supported rumors about side effects of the vaccine.

The health staff included one doctor in the language school (working three days/week), one nurse in one private school and a health visitor in each of the other private school and

the public school. The nurse and the health visitors work in the school daily. All the health staff received a training course on H1N1. All mentioned that there were health education activities in their schools. They all knew the school procedures on case suspicion, supervision of the process of infection control notification of any suspected case to the health office and making a daily report of any suspected case.

Table 4. Relation between type of school and students' practice and attitude towards H1N1vaccination

	Public (n=90)		Private (n=130)		Language (n=80)		Total (n=300)	
	No.	%	No.	%	No.	%	No.	%
Vaccinated	8	9.0	17	13.1	4	5.0	29	9.7
Cause of non-vaccination*								
Parents refusal	47	52.2	71	54.7	49	61.25	167	55.7
Fear of side effects	43	47.8	36	27.7	27	33.75	106	35.3
Child absence	0	0.0	23	17.6	4	5.0	27	9.0
Child opinion on vaccination								
Agree	0	0.0	1	0.8	0	0.0	1	0.4
Don't know	34	37.8	38	29.2	16	20.0	88	29.3
Don't agree	56	62.2	91	70.0	64	80.0	211	70.3

*More than one answer was allowed

DISCUSSION

During the scholastic year, students spend in schools more time than they spend anywhere else; this provides opportunities for practicing good behavior that will stand with them for life and can be reflected on their families and community. On the other hand the school environment, unless properly handled, may be hazardous. Requirements for a healthy school are considered in the health promoting schools.⁽⁶⁾ School health interventions are detailed in an Egyptian School Health Practice Manual directed to the school health team.⁽⁷⁾

The H1N1 pending epidemic stimulated intensive preventive actions presented in improvement of school environment, decreasing the number of students per class, health education for hand washing, respiratory etiquette (covering nose and mouth during coughing or sneezing, use of tissue, and proper dispensing), and mask use.

Our results revealed that two of the four

schools fulfilled healthy school environment and practices with some deficiencies observed in the other two schools. A healthy school environment is a key component of the school health program, even before the H1N1 directed activities⁽⁵⁾.

School staff and health care providers were trained to support implementation. Concomitantly a national awareness program was launched through mass media. The perceived seriousness of the event stimulated TV talk shows and newspapers comments. This was reflected as TV being the most important source of information (96.9%), even among the trained school team. The importance of TV as a source of information in Egypt is reflected by the fact that 96% of Egyptian women are exposed at least once to TV as mentioned by the Egyptian Demographic Health Survey (EDHS) 2008.⁽⁸⁾

Health education in schools was the main pillar for preventive practices. The

efficiency of health education procedures was accepted by 90.6% of staff. In a study including 1445 school students from two governorates in Egypt during the period 2004–2006, only 21.1% and 68.4% admitted the presence of any health education in the school; the school staff mentioned that health education activities were negligible; while the health visitors in the schools referred to the absence of a health education plan.⁽⁵⁾ Health education was emphasized in the Egyptian school health program even before the H1 N1 crisis; however, it was not properly implemented.

H1N1 related interventions resulted in improvement of several practices. It was noticeably reflected on hand washing which is considered as a corner stone for preventive activities.⁽⁹⁾ In a study to assess healthy behavior among 942 Korean university students, only 30% of the participants reported increasing the frequency of their hand washing practices.⁽¹⁰⁾ The difference from our

study may be related to the fact that the schools were providing facilities to practice hand washing. It may also be due to the younger age of our students being more perceptive to health education; in fact primary school children had a higher percentage of hand washing.

The present study was done in the second semester; a warning sign was the recession in preventive interventions; continuity of preventive activities through the second half of the scholastic year was accepted by only 21.9% of the school team. All the preventive measures should be part of the routine school practices whether there is a pending health hazard or not. Sustainability is a very important issue that has to be maintained through continuous monitoring, and supervision.

The Ministry of Health was aiming at a high coverage by H1N1 vaccine; however, only 9.7% received the vaccine. In general, Egyptian culture is agreeing to vaccinations as a preventive measure. This is evident from the

high vaccination coverage of young children.⁽⁴⁾ Non-vaccination against H1N1 was attributed to fear of side effects or parents refusal which is also for the same reason. Too many discussions of this issue on TV and other mass media could be behind this phenomenon and was also the source of unreasoned fear as mentioned by some of the staff. A study conducted at the Center for Behavioral Research of Cancer in Australia showed that mass media campaigns were widely accepted by large groups of populations regarding messages delivered to them.⁽¹¹⁾

CONCLUSION

The H1N1 campaign succeeded in promoting some healthy practices in schools and among students; however, sustainability even in the same scholastic year is questionable. Health education is reasonably effective. Vaccination coverage is jeopardized by the mass media interferences.

RECOMMENDATIONS

1. Enforce the implementation of a comprehensive school health program

following Ministry of Health guidelines which should be always implemented whether there are pending hazards or not.

2. Health education for behavioral changes initiated at a young age is a corner stone for a healthy life style that could be maintained through the future generations. A comprehensive health education program should be properly planned and implemented in schools using different approaches
3. Proerly planned interventions for cost-effective positive achievements should be maintained through regular monitoring, supervision and periodic evaluation.
4. Mass media is a double edged weapon. Media need to be properly controlled to avoid wrong health messages or unnecessary confusions.

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