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## RESEARCH ARTICLE

### AN EXPERIMENTAL STUDY: THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME (STP) ON KNOWLEDGE AND ATTITUDE REGARDING PREVENTION AND CONTROL OF SWINE FLU (H1N1) AMONG SCHOOL STUDENTS

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#### ABSTRACT

**Introduction:** Swine Flu is a respiratory tract infection from the hogs. This infection is a worldwide virus outbreak which can kill the human race. It has affected nearly 42,592 people and claimed over 2,990 lives in India. **Methodology:** An experimental study with Pre-test, Post-test Control group design was conducted to evaluate effectiveness of structured teaching programme (STP) on knowledge and attitude regarding prevention and control of swine flu (H1N1) among school students at selected school of Rajasthan. Simple Random Sampling technique was used to select 60 samples through lottery method to receive STP. Structured knowledge questionnaire and Attitude Scale were the tools. **Result:** Study found a statistically significant ( $P$  0.00003) increase in Post-test knowledge score  $18.46, \pm 2.04$  of the experimental group from pre-test knowledge scores of  $10.2, \pm 2.21$ . The mean post-test knowledge score of experimental group ( $18.46, \pm 2.04$ ) was statistically significantly ( $P$  0.0145) higher than the mean post-test knowledge scores of control group ( $18.46, \pm 2.04$ ). In experimental group, mean post-test attitude score ( $57.16, \pm 6.69$ ) increased statistically significant ( $P$  0.0068) from mean pre-test attitude scores ( $46.36, \pm 5.69$ ). Similarly the mean difference ( $10.1$ ) between mean post-test attitude scores ( $57.16, \pm 6.69$ ) of experimental group and control group ( $47.06, \pm 5.63$ ) was statistically significant ( $P$  0.0186). Correlation ( $r = 0.67$ ) between post-test Knowledge and attitude scores of school students in experimental group were statistically significant ( $P$  0.000051). Post test knowledge and attitude score was independent of demographic variables. **Conclusion:** The structured teaching programme was found effective to improve the knowledge and attitude of school students regarding prevention and control of swine flu. This suggests the importance of adopting health education strategies through various mass media regarding swine flu.

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## INTRODUCTION

Swine Flu is a respiratory tract infection from the hogs. This kind of virus can kill the human race. This infection is a worldwide virus outbreak. Outbreaks are common in pigs year round and infection in humans is a result of close contact with infected animals. A flu deadly disease occurs when a new influenza virus emerges for which people have little or no immunity and for which there is no vaccine. The disease spreads easily person-to-person, and can be cause with serious illness, and can spread out across the country and even worldwide in a very short span of time. Human-to-human transmission of Swine flu can also occur, mainly through

coughing or sneezing of people infected with the influenza virus to an uninfected individual. People may also become infected by touching something with flu viruses on it and then they touch their mouth or nose (1). The effects of a pandemic can be lessened if preparation is made ahead of time. Medical researchers around the world have admitted that the swine flu virus could mutate into something as deadly as the Spanish flu and are watching carefully the last outbreak of swine flu in 2009 in order to create a contingency plan for a possible pandemic imminent global. Many countries have taken precautionary measures and education to reduce the chances of this happening (2).

The problems of the haves differ substantially from those of the have-nots. Individuals in developing societies have to fight mainly against infectious and communicable diseases. Children in developing countries are the worst victims of all sorts of diseases, especially the disease of the respiratory tract. Majority of Indians live in overcrowded, poorly ventilated and less cleaned environment which encourages spread of infection (3). Evidence to date suggests that the H1N1 flu is a major threat. Some patients develop severe respiratory symptoms and need respiratory support (such as a ventilator to breathe for the patient). Patients can get pneumonia (bacterial secondary infection) if the viral infection persists, and some can develop seizures. Death often occurs from secondary infection of the lungs; appropriate anti viral need to be used in these patients. The usual mortality (death) rate for typical influenza A is about 0.5%, while the 1918 epidemic had an estimated mortality rate ranging from 2%-20%. Swine flu in Mexico (as of April 2009) has had about 160 deaths and about 2,500 confirmed cases, which would correspond to a mortality rate of about 6%. By June 2009, the virus had reached 74 different countries on every continent except Antarctica, and by September 2009, the virus had been reported in most countries. (4) World Health Organization declared the end of the 2009 H1N1 pandemic we have, moved towards a seasonal pattern of H1N1 transmission and no out of season outbreak. As the 2009 H1N1 virus is expected to continue to circulate for several years. On March, 30, 2011 the CDC encourage vaccination at this time for all persons 6 months to older age (65 and above), because of ongoing persistent 2009 H1N1 activity (5). The recent outbreak of swine influenza (H1N1) was in late 2015. In India it has affected nearly 42,592 people and claimed over 2,990 lives.

The largest number of reported cases and deaths were in the North-Western India including states like Delhi, Madhya Pradesh, Rajasthan and Gujarat. In India 2018, cases 14,992 and claimed over 1,103 lives. (5) As per data compiled by the National Centre for Disease Control (NCDC), Rajasthan is the worst affected state with at least 1,856 (40%) of the total cases being reported from the state as of 2019 January 27. The state has witnessed 72 deaths in the past one month (6). Students do not have complete knowledge and understanding regarding health care and health promotion. The health professionals play a high priority on continual assessment and review of students knowledge and attitude regarding prevention and control of swine flu (H1N1), educating the students are one of the most vital role of them. Young children are at more risk and the viruses are easily transferred to them by touching or handling the utensils which was handled by the infected person. People with swine flu can spread it to others up to about 6 feet away. School is considered as a best setting. The school years are a time of increasing risk for negative health related outcomes. Hence it is important to provide structured teaching programme of school students regarding prevention and control of swine flu (H1N1) (4). Today's students are the pillars of tomorrow's world. School age children represent about 25% of total population. The very size of the population suggests that health care of the school children can contribute to the overall health status of the country. In view of the above and from the investigator's experience during working in school, the students are much worried about the severity of illness, and are trying to know about the solution for swine flu H1N1 illness. This made the researcher to do this study by providing structured

teaching programme (STP) on swine flu to understand different preventive strategies to prevent and control swine flu among school students.

## METHODOLOGY

An experimental Pre-test Post-test Control group Research design was considered to be appropriate to for evaluating the effectiveness of the structured teaching programme on swine (H1N1) in the school students.

**Population:** school students studying in Adinath public School, Alwar, Rajasthan.

**Sample size:** 60 (30 in control, 30 in experimental group).

**Sampling method:** Simple Random Sampling through lottery method of randomization was used to assign experimental & control group.

**Variables:** Independent variable - structured teaching programme on swine flu (H1N1), dependent variables - knowledge and attitude. Demographic variable: - Age, Sex, Religion, Type of family, Monthly income of family (per month), Dietary habit, Source of information and Parent's education.

**The tool of the study:** consisted of two sections:

**Section A: socio demographic data** -It comprised of the items seeking information on sample characteristics which includes age, sex, religion, type of family, monthly income of family (per month), dietary habit, has information/knowledge related to swine flu, source of information related to swine flu and Parent's education.

**Section B:** it consisted of two parts.

**Part I:** Structured knowledge questionnaire which contained 25 knowledge multiple choice questions (MCQs).

**Scoring:** score 1 was awarded for correct response whereas 0 for incorrect one. Maximum possible score was 25 whereas minimum was 0. Knowledge score was categorized in: Poor knowledge (0-5), Fair knowledge (6-10), Good knowledge (11-20) and excellent knowledge (21-25) category.

**Part II:** A structured attitude scale (5-point Likert scale) included 15 statements (08 positive and 07 negative). Maximum possible score was 75 and minimum 15. Categorization of the Attitude score: - Negative attitude (15-35), Undecided attitude (36-54), and Positive attitude (55-75). To ensure the content validity, the tool was submitted to 09 experts (Nursing and Medical). Experts were selected on the basis of their clinical expertise, experience, and qualification & interest in the problem area. They were requested to judge the items on the basis of their relevance, clarity, feasibility, content, and appropriateness of the items and tools for the purpose of the study. Suggestions of the experts were incorporated into tools and modified accordingly. The Structured knowledge questionnaire & the attitude rating scale were administered to 10 school students to establish the reliability. The reliability coefficient of structured knowledge questionnaire was calculated by Kuder-Richardson 20 formula which was found 0.83 and attitude rating scale by Cronbach alpha formula computed 0.91.

**Ethical consideration:** Ethical approval from the research committee of Rajkumari Amrit Kaur College of Nursing & administrative approval from the director of Bal Bharti Public School and principal of Adinath public School, Aiwari, Rajasthan was taken to conduct the final study from 16<sup>th</sup> Dec, 2019 to 7<sup>th</sup> Jan, 2020. Consent was taken from the school students who are willing to participate in the study. In order to obtain their confidence & a free frank response, the school students were explained the nature & purpose of the study & their expected participation in the study. Confidentiality & Anonymity were maintained throughout the study.

**Data collection procedure:** Knowledge questionnaire & attitude scale were administered on day 1 for both the groups, experimental & control to pre-test. It took 45 minutes. The structured teaching programme (STP) was administered only to the experimental group in the form of power point presentation which took about 45 min. Post-test was done on day 8 for both the groups which took about 45 minutes.

**Data analysis:** Data were analyzed using IBM SPSS version 24. The data presented in tables and figure using mean, standard deviation, *t* test for comparison of means, chi square ( $X^2$ ) for association and Pearson's "r" for correlation.

## RESULTS

Table-1. Shows majority of the students (experimental group 86.66%, control group 83.33%) were of the age of group of 13-15 years. All the participants were Hindu by religion. Majority (50% in experimental group and 53.33% in control group) of student's monthly family income were 15,000-20,000. Majority students were vegetarian (80% in experimental group and 73.33% in control group). Majority of students (70%) were aware of swine flu. Majority of students 52.38% got the information from multimedia (Radio, television, newspaper) regarding swine flu. Table 2. Shows that the frequency in pretest knowledge score category Poor(0), fair (16), good(14), excellent(0) were improved to post test knowledge score category of Poor(0), fair(1), good(26) and excellent(3) respectively. Similarly the frequency of pretest Attitude score category negative (6), undecided (19) and positive (5) were changed into post test attitude category of negative (0), undecided (4) and positive (26) after STP administration. Table 3. Shows that mean difference (0.60) between pretest knowledge scores of experimental group (10.20, ±2.21) & control (10.80, ±2.48) group was statistically insignificant ( $P$  0.857) whereas statistically significant ( $P$  0.00003) increase in Post-test knowledge score of the experimental group (18.46, ±2.04) was found from pre-test knowledge scores of 10.2, ±2.21 with mean difference of 8.26. The mean post-test knowledge score of experimental group (18.46, ±2.04) was statistically significant ( $P$  0.0145) higher than the mean post-test knowledge scores of control group (18.46, ±2.04). The mean pre-test attitude scores of experimental group (46.36, ±5.69) and control group (45.67, ±6.07) had mean difference of 0.06 which was statistically insignificant ( $P$  0.9457). Mean post-test attitude score of experimental group (57.16, ±6.69) and pre-test attitude scores of experimental group (46.36, ±5.69) had statistically significant ( $P$  .0068) mean difference of 10.8 after STP administration. Similarly the mean difference (10.1) between mean post-test attitude scores (57.16, ±6.69) of

experimental group and mean post-test attitude scores of control group (47.06, ±5.63) was statistically significant ( $P$  0.0186). These findings showed that STP was effective in enhancing the knowledge and attitude of school students on swine flu. Table 4. Shows that post-test mean knowledge and Attitude score of the experimental group, were independent of socio-demographic variables of the study ( $P > 0.05$ ). Table 5. Shows statistically significant ( $P$  0.000051) positive correlation ( $r = 0.67$ ) between post-test Knowledge & attitude scores of school students in experimental group.

## DISCUSSION

The present study found that the students were not having adequate and correct information regarding swine flu and were having unfavourable attitude. Majority (52.38%) of students got the information regarding swine flu from multimedia (Radio, television, newspaper). In domestic studies the most important information sources about swine flu were determined as television/radio, newspaper and journals (8). Study reported that students knew causative agent and other name of swine flu respectively and television (>35%) was major source of information in the groups. (9) Transmitting valid information to patients in hospital and to public about swine flu act as a mediator to prevent the spreading of disease (10). Information about swine flu virus mostly conveyed to the medical students is by the professors in a health institution. It is suggested that residents and students of a medical college learn mostly from their professors and internet (11). During the period of epidemic health institutions are in close contact with the media. As a result health institutions easily transmit the knowledge by various forms of media like print media, electronic media (12). The health care providers are one of the important risk groups to infection and vaccination is priority for them (13). Induction of health education programme to enhance the knowledge to create awareness among the students can play a vital role. The present study found the structured teaching programme (STP), effective in the improvement of knowledge and attitude of the school students regarding swine flu. The study found a statistically significant ( $P$  0.00003) increase in Post-test knowledge score (18.46, ±2.04) of experimental group from pre-test knowledge scores of 10.2, ±2.21. Knowledge score of experimental group (18.46, ±2.04) was statistically significantly ( $P$  0.0145) higher than the mean post-test knowledge scores of control group (18.46, ±2.04). These findings are consistent with the study where Para Medical Workers possessed good knowledge, attitude and practices regarding Swine flu and this fact should be utilized while designing and guiding containment strategies against existing Swine flu epidemic (14). Post administration of STP, the study found statistically significant ( $P$  0.0186) improvement in the attitude of experimental group with post-test attitude score (57.16, ±6.69) from mean pre-test attitude scores (46.36, ±5.69). Similarly post-test attitude scores (57.16, ±6.69) of experimental group (57.16, ±6.69) was significant ( $P$  .0068) higher than that of control group (47.06, ±5.63). Structured teaching program on prevention and control of swine flu was effective in improving the knowledge & attitude of the school students (15, 16).

Table 1. Description of sample characteristics

Variables	Variable characteristics	Experimental group (n=30)		Control group (n=30)	
		f	%	f	%
Age in years	13-15	26	86.6%	25	83.3%
	16-18	4	13.3%	5	16.6%
Sex	Male	17	56.6%	16	53.3%
	Female	13	43.3%	14	46.6%
Religion	Hindu	30	100%	30	100%
	Muslim	0	0%	0	0%
	Christian	0	0%	0	0%
	Sikh	0	0%	0	0%
Type of family	Nuclear family	23	76.6%	21	70%
	Joint family	7	23.3%	9	30%
Monthly family income (Rs.)	< 10000	3	10%	2	6.6%
	10,001-15,000	5	16.6%	4	13.3%
	15,001-20,000	15	50%	16	53.3%
	>20,001	7	23.3%	8	26.6%
Dietary habit	Vegetarian	24	80%	22	73.3%
	Non veg.	6	20%	8	26.6%
Do you have knowledge regarding Swine flu?	Yes	22	73.3%	20	66.6%
	No	8	26.6%	10	33.3%
If yes, what is the source of information?	Neighbor, family member	6	27.3%	6	30%
	Multimedia	13	59.1%	9	45%
	Health organization and professional	3	13.6%	5	25%
	Family History of swine flu	0	0%	0	0%
	Illiterate	0	0%	0	0%
Parent's education	Primary education	2	6.6%	2	6.6%
	Secondary education	4	13.3%	4	13.3%
	Graduation & above	21	70%	20	66.7%
	Professional education	3	10%	4	13.3%

Table 2. Frequency distribution of pre-test &amp; posttest knowledge score in experimental group

Knowledge Category	C.I.	Frequency distribution in experimental group (n=30)		Frequency distribution in control group (n=30)	
		Pre-test	Posttest	Pre-test	Posttest
Poor	0-5	0	0	1	0
Fair					
Good					
Excellent	6-10	16	1	14	13
	11-20	14	26	15	17
Attitude Category	21-25	0	3	0	0
Negative	15-35	6	0	24	16
Undecided					
Positive					
Positive	36-54	19	4	4	12
	55-75	5	26	2	2

C.I. - class interval

Table 3. Pre and posttest Knowledge and Attitude score

Mean Knowledge Score	Mean Difference		“t” value	P value
	Pre-test	Post-test		
Experimental (n=30)	10.20,SD ±2.21	18.46,SD ±2.04	8.26	4.86
Control (n=30)	10.80,SD ±2.48	11.26,SD ±2.85		0.00003*
Mean difference	0.60	7.20		
“t” value	0.18	2.52		
P value	0.857	0.0145*		
Mean Attitude Score				
Experimental (n=30)	46.36, SD ±5.69	57.16, SD ±6.69	10.8	2.63
Control (n=30)	45.67, SD ±6.07	47.06, SD ±5.63		0.0068*
Mean difference	0.06	10.1		
“t” value	0.057	2.42		
P value	0.9457	0.0186*		

\*statistically significant at 0.05 level of significance.

Post-test mean knowledge and Attitude score of the experimental group, were independent of socio-demographic variables of the study like age, sex, religion, type of family and monthly family income etc. ( $P > 0.05$ ) whereas there was a statistically significant ( $P = 0.000051$ ) positive correlation ( $r = 0.67$ ) between post-test Knowledge & attitude scores of school students in experimental group.

This is in-line with other studies that there is no association of knowledge and attitude with selected factors but if knowledge increases the attitude changes positively.(12) Thus the nurses can play a significant role in educating the school students regarding prevention and control of swine flu to enhance their knowledge and favorable attitude. (17, 18)

**Table 4. Association between post-test knowledge scores with selected demographic variables**

Variable characteristics		Post-test knowledge scores of experimental group (n=30)				Post-test Attitude scores of experimental group (n=30)			
		Below median	Above Median	df	X <sup>2</sup>	Below median	Above Median	df	X <sup>2</sup>
Age (Years)	13-15	10	16	1	0.19**	12	14	1	1.15**
	16-18	2	2			3	1		
Sex	Male	9	8	1	2.73**	8	9	1	0.13**
	Female	3	10			7	6		
Religion	Hindu	12	18	3	0.0**	15	15	3	0.0**
	Muslim	0	0			0	0		
	Christian	0	0			0	0		
	Sikh	0	0			0	0		
Type of Family	Nuclear	8	15	1	0.15**	10	13	1	1.67**
	Joint	3	4			5	2		
Monthly family income (Rs.)	<10000	3	0	3	0.63**	2	1	3	1.76**
	10001 – 15000	1	4			3	2		
	15001-20000	5	10			7	8		
	>20000	3	4			2	5		

X<sup>2</sup> - Chi-square value. df- degree of freedom \*\*Non-significant, \* significant at 0.05 level of significance.

**Table 5. Correlation between post-test knowledge scores & post-test attitude score of school students of experimental group. N=30**

Group	Variables	Mean	SD	“r” value	P value
Experimental Group	Knowledge scores	18.46	2.04	0.67	0.000051*
Group	Attitude scores	57.16	6.69		

Karl Pearson Co-efficient of correlation \*statistically significant at 0.05 level of significance

Similar findings reported in the study which proves the effectiveness of health awareness programme. (19) Health education module (HEM) was effective in improving the knowledge among school children regarding prevention of swine flu. (20). It was highlighted that the educational programme was effective in improving knowledge of mothers in vaccination for flu and thus improving the children survival.(21)This showed that the intervention had better improvement in the knowledge of the school children (22)

## CONCLUSION

The STP was effective in enhancing the knowledge and attitude of school students regarding swine flu. This suggests the importance of adopting health education strategies for educating the students regarding swine flu through various mass media and methods of teaching. The school teachers and health professionals can play a high priority role on continual assessment and review of student's knowledge and attitude regarding prevention and control of swine flu (H1N1) and other communicable diseases. Educating the students is one of the most vital role to be played by them.

**Limitations:** Although the study has reached its aims, there were some unavoidable limitations. The present study was confined to single setting only to selected school students of Alwar district of Rajasthan. It was applied to limited sample size so findings of the study cannot be generalized.

**Recommendations:** Study can be replicated on larger samples to validate the findings and for generalization. Similar studies can be conducted in different settings. A comparative study can be done between various groups. A descriptive survey with large sample size can be done.

**Conflicts of interest:** Authors declare no conflicts of interest in the study.

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