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Effectiveness of Video Assisted Teaching Programme Regarding the Prevention and Management of Nipah Virus Infection Among the School Children

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Abstract: *Introduction: Nipah virus (NiV) encephalitis is an emerging infectious disease of public health importance in the WHO South-East Asia Region. Bangladesh and India have reported human cases of Nipah virus encephalitis. Indonesia, Thailand and Timor-Leste have identified antibodies against NiV in the bat population and the source of the virus has been isolated. The status of NiV infection in other SEAR countries is not known although flying bats are found throughout the region. The virus is named after the Malaysian village where it was first discovered and belongs to Henipavirus in the subfamily Paramyxovirinae. The major symptoms of the infection are fever, dizziness, headache and vomiting. Doctors say that the virus is capable of human to human transmission who are staying in close proximity.*
Materials and Methods: A pre experimental research design to find out effectiveness of video assisted teaching program regarding prevention and management of NIPAH virus infection among the school children. The study conducted on 100 samples. Data was collected using structured questionnaire, video was used as an instrument.
Results: The data revealed that, Majority of the respondents 67% school children had inadequate knowledge, 21% of them had moderate knowledge and 12% of them had adequate knowledge in pretest. Whereas post-test data shows that 5 percentage of school children had inadequate knowledge, 41% of them had moderate knowledge and 54 % of them had adequate knowledge. This shows that the video assisted teaching programme was effective. The researcher compared the calculated t- value (12.98) with the critical value (1.984). Since the calculated value is lies beyond the critical value the researcher rejected the Null hypothesis and accepted the alternative hypothesis that is there is a significant change in the knowledge level of pre-test and post-test. So, this is evident that the administration of VAT was significantly effective.
Conclusion: After the detailed analysis of the study findings showed that pre-test finding showed that, most of the children had inadequate knowledge. Regarding the knowledge, there is a huge increase in the knowledge of school children after the administration of video assisted teaching programme. Regarding the association of demographic variables, they didn't show any type of association with their knowledge score..

Keywords: Nipah virus

I. INTRODUCTION

Throughout the history of the world humans have been plagued by diseases of various types and origins. Zoonotic diseases, or diseases which have the capability to jump species, animals to humans or vice versa, have been particularly troublesome and deadly. Zoonotic diseases are unique in that they are mainly caused by pathogens such as fungi, bacteria, parasites, or viruses. These pathogens typically survive in a reservoir host, which have immunity to the pathogen. The list of possible reservoir hosts capable of transmitting disease to humans is expansive; however, the most

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common are apes, insects, rodents, and bats. Diseases are then passed to humans who come in contact with an infected animal through bites or scratches, an infected animal's environment, or animal secretions such as saliva, faces, or mucus. Often these diseases have a higher virulence because of the lack of any immunity within the human population and the ease of transmission. Some more infamous zoonotic diseases are West Nile, Rabies, Ebola, and Dengue fever. As of recent, more and more zoonotic diseases are emerging because of an increase in human and wildlife interaction. An increase in farming and or deforestation has resulted in humans and wildlife into the same habitat. A prime example of this is the emergence of the Nipah virus (NiV) [1].

Nipah virus (NiV) encephalitis is an emerging infectious disease of public health importance in the South-East Asia Region. Bangladesh and India have reported human cases of Nipah virus encephalitis. Indonesia, Thailand and Timor-Leste have identified antibodies against NiV in the bat population and the source of the virus has been isolated. The status of Niv infection in other SEAR

countries is not known although flying bats are found throughout the region. The virus is named after the Malaysian village where it was first discovered and belongs to Henipavirus in the subfamily Paramyxovirinae. The major symptoms of the infection are fever, dizziness, headache and vomiting. Doctors say that the virus is capable of human to human transmission who are staying in close proximity[2].

Typically, patients present with a sudden onset, non-specific flu-like or febrile illness, sometimes with gastrointestinal symptoms. Pneumonia and other respiratory manifestations have also been described as a feature, but their onset appears to be variable. These are typically in addition to other signs and symptoms and vary in frequency according to the outbreak (29% in Malaysia; 75% in Bangladesh). In many of the patients in reported series, symptoms and signs of encephalitis and/or meningitis developed after 3 to 14 days of initial illness. Cerebrospinal fluid abnormalities are similar to those seen in other acute viral CNS infections[3].

Prevention of transmission of infection by airborne and contact routes is required. Studies have shown contamination of surfaces in hospitals during outbreaks, suggesting that there may be a risk of fomite-mediated transmission.

Since Nipah virus infection is an airborne HCID, strict infection prevention and control (IPC) measures are required when caring for both suspected and confirmed patients. Appropriate respiratory isolation is essential for suspected and confirmed cases. The most important complication of Nipah virus infection is encephalitis, which is associated with a high mortality rate; however, the full spectrum of clinical illness is not completely understood. The incubation period is thought usually to be 4 to 14 days, although a period as long as 45 days has been reported[4].

Currently, there are no specific treatments available for Nipah virus disease and care is supportive. Intensive supportive care is recommended to treat severe respiratory and neurologic complications. NiV infection can be prevented by avoiding exposure to sick pigs and bats in endemic areas, and by avoiding consuming fruits partially-eaten by infected bats or drinking raw date palm sap/toddy/juice. In health care settings, staff should consistently implement standard infection prevention and control measures when caring for patients to prevent nosocomial infections. Health care workers caring for a patient suspected to have NiV fever should immediately contact local and national experts for guidance and to arrange for laboratory testing[5].

Nipah virus infection was first recognized in a large outbreak of 265 suspected cases in peninsular Malaysia during September 1998 to April 1999. Most patients had contact with sick pigs or had been in close physical contact with Nipah virus infected patients and then presented primarily with encephalitis. The outbreak was initially thought to be due to Japanese encephalitis, but it was later identified as Nipah virus encephalitis[6].

Outbreaks of Nipah virus encephalitis have been reported almost every year in selected districts of Bangladesh. The Nipah outbreaks have been identified in Naogoan (2003), Rajbari and Faridpur (2004), Tangail (2005), Thakurgaon, Kushtia and Naogaon (2007), Manikgonj and Rajbari (2008), Rangpur and Rajbari (2009), Faridpur, Rajbari and Madaripur (2010) and Lalmohirhat, Dinajpur, Rangpur and Comilla (2011) and Joypurhat, Rajshahi, Rajbari and Natore (2012). Repeated outbreaks of Nipah virus encephalitis were established in some districts. Sporadic cases of Nipah virus encephalitis have been reported, mostly from the west and north-western regions of Bangladesh almost every year, with high mortality and constituting a public health threat. Up to March 31, 2012 a total of 209 human cases of NiV infection in Bangladesh were reported; 161 (77%) of them died[7].

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Outbreak of Nipah virus encephalitis had been reported in the eastern state of West Bengal, bordering Bangladesh, in 2001 and 2007. Seventy one cases with 50 deaths (70% of the cases) were reported in two outbreaks. During January and February 2001, an outbreak of febrile illness with neurological symptoms was observed in Siliguri, West Bengal[8]. Environmental experts claim that Nipah Virus has existed in the bats for centuries and this virus has not undergone an evolutionary change, but the question had deepened that why did this infection spread only now. The increase in the human-bat interaction could be one reason why the NiV outbreak occurred in Bangladesh and India where humans got this virus from drinking date palm juice contaminated by bat urine or saliva.

II. OBJECTIVES OF STUDY

1. To assess the existing level of knowledge of school children regarding prevention and management of Nipah virus infection.
2. To assess the effectiveness of video assisted teaching programme regarding prevention and management of Nipah virus infection.
3. To compare the pre-test and post-test level of knowledge scores of the school children regarding the prevention and management of Nipah virus infection.
4. To determine the association between the knowledge of school children regarding the prevention and management of Nipah virus infection with their socio demographic variables.

III. MATERIALS AND METHODS

A pre experimental research design to find out effectiveness of video assisted teaching program regarding prevention and management of NIPAH virus infection among the school children. The study conducted on 100 samples. Data was collected using structured questionnaire, video was used as an instrument. The study conducted on 100 samples. Data was collected using structured questionnaire and video on teaching program regarding prevention and management of NIPAH virus infection. Data was collected with following structured tool.

Part A: Demographic Performa

The characteristics included in the base line preforms of school children are Age, sex, religion, subject, family income, type of family, area of residence, Source of information, study time

Part B: Structured knowledge questionnaire on Nipah virus infection

It consisted of 30 close ended multiple-choice items to assess the knowledge of the samples. Each item had multiple alternative responses. The correct response was awarded a score of one and incorrect response was given a score of zero. The total score was 30.

Part C: Video Assisted Teaching plan on Nipah virus infection management.

An arbitrary classification of knowledge score was done, which is as follows

Level of knowledge	Score	Percentage
Inadequate	0-10	0-33%
Moderate	11-20	34-66%
Adequate	20-30	67-100%

The content validity of questionnaire was established by experts. The experts were selected on the basis of their expertise, experience and interest in the problem being studied. They were from different specialties i.e. Nursing, Medical Surgical Health Nursing, Education, Research, and Statistics. They were requested to give their opinions on the appropriateness and relevance of the items in the tool. Necessary modifications were made as per the expert's advice. The reliability of tool was 0.82.

Final study was conducted on 100 samples. The sample for the study comprised of childern, who met the designated criteria were selected through convenient sampling technique. Objectives of study was discussed and obtained consent for participation in study. Base line data was assessed by administering a structured assessment questionnaire. Based on the objective and the hypothesis the data was analyzed by using various statistical tests i.e. percentage, mean, t test and chi square test.

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3.1 Statistical methods

The data collected from the participants was planned to be analyzed on the basis of the objectives of the study using descriptive and inferential statistics. Data was organized data in a master data sheet.

Data analysis is the systematic organization of research data and the testing ofresearch hypothesis using that data.

The plan of data analysis was as follows

- Demographic variables would be analyzed in terms of frequency andpercentage.
- The knowledge on stem cell therapy would be analyzed in terms offrequency and percentage.
- Effectiveness of structured teaching programme among school children would be analyzed by mean, standard deviation, mean percentage, meandifference and paired ―t' test.
- The association of knowledge with demographic variables would beassessed by using chi- square test.

IV. RESULTS

Section I: Description of Socio Demographic Data

Findings of section I table 1 shows that, out of 100 subjects 58 % of them was in the age group between 10 and 12 years, 22 % was in between 13 and 14, and the remaining 20 % of subject were in the age group of 15-16 years, among them 45 % were males and 55% were females, 48 % were Hindus, 30% were Muslims, 18 % were Christians and the remaining 4 % were other religions. Majority of subjects under the study, 43% were studying in 5th or 6th standards, 30% were studying in 7th or 8th class and the remaining 27 % were 9th or 10th class. It is observed that 54 % of subjects has a family income less than 20000, 36 subjects had family income between 20000 and 30000, 6 % had family income between 30000 and 40000 and the remaining 4% had a family income more than 40000. 71% were staying in nuclear family, 19 % were staying in joint family and the remaining 10% were staying in extended family, 55% were staying in urban areas where as 45% were staying in rural areas, 64 % had got information from mass media, 28 % had got information from books, only 6 % were getting information from health programmes and the remaining 2% got information from other ways and 42% were spending 1 to 2 hours for their study, 36% were spending less than 1 hour and the remaining 22 % were spending more than 2 hours.

N=100

Variable	Frequency	Percentage
Age		
10-12 ears	58	58%
12-14 years	22	22%
15-16 years	20	20%
Gender		
Male	45	45%
Female	55	55%
Religion		
Hindu	48	48%
Christian	18	18%
Muslim	30	30%
Others	4	4%
CLASS		
5^{th} to 6^{th}	43	43%
7^{th} -8^{th}	30	30%
9^{th} -10^{th}	27	27%
Family income		
<20000	54	54%
20000-30000	36	36%
30000-40000	6	6%

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>40000	4	4%
Type of family		
NUCLEAR	71	71%
JOINT FAMILY	19	19%
EXTENDED	10	10%
Place of Residence		
Rural	45	45%
Urban	55	55%
Source of information		
Mass media	64	64%
Books	28	28%
Health programmes	6	6%
Others	2	2%
Study Time		
<1 Hr	36	36%
1-2 Hrs	42	42%
>2 Hrs	22	22%

Section II: Distribution of respondent's knowledge about Nipah virus in the pre-test and post-test

N=100

Knowledge on	Knowledge score				Student's paired t- test
	Pre-test		Post-test		
	Mean	SD	Mean	SD	
Introduction	2.62	1.30	5.43	1.49	t=11.12, P=0.001*** significant
Past Out Breaks, Causes and Risk Factors	1.85	.90	3.72	.90	t=10.74, P=0.001*** significant
Transmission	1.77	1.31	4.03	1.26	t=9.79, P=0.001*** significant
Signs and symptoms And Diagnosis	.83	.72	1.63	.52	t=7.04, P=0.001*** significant
Prevention and Treatment	4.07	1.49	8.38	2.49	t=12.20, P=0.001*** significant

* Significant at P≤0.05 ** highly significant at P≤0.01 *** very high significant at P≤0.001

Considering introduction of Nipah virus infection aspects, in pre-test, School children are having 2.62 score where as in post-test they are having 5.43 score, so the difference is 2.81. This difference between pre-test and post-test is large and it is statistically significant.

Considering Causes and risk factors of Nipah virus infection aspects, in pre-test, School children are having1.85 score where as in post-test they are having 3.72 score, so the difference is 1.87. This difference between pre-test and post-test is large and it is statistically significant.

Considering transmission of Nipah virus infection aspects, in pre-test, School children are having 1.77score where as in post-test they are having 4.03 score, so the difference is 2.27. This difference between pre-test and post-test is large and it is statistically significant.

Considering Signs and symptoms and diagnosis of Nipah virus infection aspects, in pre-test, School children are having 0.83 score where as in post-test they are having 1.63 score, so the difference is 0.80 This difference between pre- test and post-test is large and it is statistically significant.

Considering prevention and treatment aspects, in pre-test, School children are having 4.07score where as in post-test they are having 8.38 score, so the difference is 4.32. This difference between pre-test and post-test is large and it is statistically significant. Statistical significance was calculated by using student's paired t'test.

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OVERALL EFFECTIVENESS OF VIDEO ASSISTED TEACHING PROGRAMME IN TERMS OF KNOWLEDGE.

N=100

KNOWLEDGE	N	Mean	Standard deviation	df	PAIRED t- value
PRE-TEST	100	11.13	2.76	99	12.98
POST- TEST	100	23.20	2.29		P <0.05

Hypothesis testing

- H^0: There is no significant difference between pre-test and post-test mean of school children
- H^1: There is no significant difference between pre-test and post-test mean of school children

Level of significance (α)=<0.05 Critical value for two tailed test =1.984

The researcher compared the calculated t- value (12.98) with the critical value (1.984). Since the calculated value is lies beyond the critical value the researcher rejected the Null hypothesis and accepted the alternative hypothesis that is there is a significant change in the knowledge level of pre-test and post-test. So, this is evident that the administration of VATP was significantly effective

SECTION III: Association between the pre-test knowledge score of school children and their selected demographic variables

Variables	Category	Sample	Respondents knowledge		P value <0.05	χ2 value
			<Median	>Median		
AGE IN YEARS	10-12 years	58	48	10	5.99 Df =2	0.91 NS
	13-14 years	22	20	2		
	15-16 years	20	18	2		
SEX	Male	45	40	5	3.84 Df =1	0.57 NS
	Female	55	49	6		
RELIGION	Hindu	48	40	8	5.99 Df =2	3.56 NS
	Christian	18	10	8		
	Muslim	30	25	5		
	Others	4	3	1		
CLASS	5^{th} -6^{th}	43	38	5	5.99 Df =2	2.21 NS
	7^{th} -8^{th}	30	24	6		
	9^{th} -10^{th}	27	21	6		
FAMILY INCOME	<20000	54	45	9	7.81 Df =3	3.58 NS
	20000-30000	36	31	5		
	30000-40000	6	4	2		
	>40000	4	3	1		
TYPE OF FAMILY	Nuclear	71	60	11	5.99 Df =2	2.28 NS
	Joint Family	19	12	7		
	Extended	10	5	5		
PLACE OF RESIDENCE	Rural	45	35	10	3.84 Df =1	2.45 NS
	Urban	55	45	10		
SOURCE OF INFORMATION	Mass media	64	56	8	7.81 Df =3	1.56 NS
	Books	28	19	9		
	Health programmes	6	4	2		
	Others	2	2	0		
STUDY TIME	<1 Hr	36	29	7	3.84	2.45

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	1-2 Hrs	42	38	4	Df =2	NS
	>2 Hrs	22	18	4		

Hypothesis testing

H^0 : there is no association between the pre-test knowledge score and the demographic variables of school children

H^1 : there is an association between the pre-test knowledge score and the demographic variables of school children Alfa level <0.05. This hypothesis was used for each of the variables

The researcher calculated the values of chi square in order to find out the association. The researcher compared the calculated value with the critical value for each of the variables. Age (χ2cal=0.98),sex (χ2cal=0.57), religion (χ2cal=3.56), class(χ2cal=2.21), family income (χ2cal=3.58), type of family (χ2cal=2.28), place of residence (χ2cal =2.45), source of knowledge (χ2cal=1.56), study time (χ2cal=2.45),.At the appropriate degrees of freedom, none of the variables has significant association. All the values are less than the critical value, researcher accepted the null hypothesis and rejected the research hypothesis.

V. DISCUSSION

SECTION I: Demographic Profile of Respondents

Majority of subjects i.e. 58 % of them was in the age group between 10 and 12 years, among them 55% were females, 48 % were Hindus, Majority of subjects under the study, 43% were studying in 5th or 6th standards, 54 % of subjects has a family income less than 20000, 71% were staying in nuclear family, 55% were staying in urban areas, 64 % had got information from mass media, and 42% were spending 1 to 2 hours for their study.

SECTION II: Comparison of Pre and Posttest Knowledge

In the pretest, majority of the respondents, in pre-test, were having 2.62 score where as in post-test they are having 5.43 score, so the mean difference is 2.81. This difference between pre-test and post-test is large and it is statistically significant. Hence Video Assisted Teaching program on knowledge about prevention and management of Nipah virus was effective.

SECTION III: Association of Demographic Variables with Pre Test Scores

The chi square test could not find any association between the knowledge about prevention and management of Nipah virus with demographic variables. Hence the hypothesis “there is a significant association between the knowledge about prevention and management of Nipah virus and the demographic variables of the respondents” was rejected.

VI. CONCLUSION

The conclusions were drawn on the basis of the findings of the study that Video Assisted Teaching program on knowledge about prevention and management of Nipah virus was effective.

- **Implications:** The findings of the study have certain important implications for the nursing profession in the field of Nursing Practice, Nursing Education, Nursing Administration, Nursing Research and Community Health Nursing.
- **Nursing Education:** Education is the key component to update and improve the knowledge of an individual. In the present scenario, knowledge on Nipah virus much deficient among the school children. If the same study is conducted among the staff nurses and nursing students, it may contribute knowledge to them. Since the topic is has current importance this should be included in the nursing education.
- **Nursing Administration:** Nurse administrators are the key persons to plan, organize and conduct in- service education programs. Nurse administrator‘s support should be necessary to conduct and evaluate health education programs. They can help to improve the knowledge of the staff nurses working in community departments by providing various teaching programs with the help of various AV aids. They are in a key position to organize, implement and evaluate educative programs which will in turn helps to improve the knowledge as well as to meet the future needs and accelerate the standards of community services.
- **Nursing Practice:** Nursing is an art and a science. As a science, nursing is based upon a body of knowledge that is always changing with new discoveries and innovations. When nurses integrate the science and art of

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nursing into their practice, the quality of care provided to clients is at a level of excellence that benefits clients in numerous ways. They are the key persons of the health team, who plays a vital role in the promotion and maintenance of health. They can provide adequate teaching to both parents and family members so that they will come to know about the recent changes. Hence the nurses should have adequate knowledge to improve the standards of community care.

- **Nursing Research:** The main goal of the nursing research is to improve the knowledge of nursing students through the implementation of evidence-based practice. The study provides a baseline data for conducting other research studies. The study will be a motivation for the budding researchers to conduct similar studies in large scale. The study will be a reference for the research scholars. Further research works can be conducted with every medical condition to identify most effective knowledge imparting strategies

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