

“Empowering Adolescents Through Education: Effectiveness of Planned Teaching Program On Knowledge Regarding Nipah Virus Infection Among Adolescents”

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ABSTRACT

Nipah virus infection is a highly fatal zoonotic disease that poses a serious public health concern due to its rapid transmission and high mortality rate. Adolescents require adequate knowledge regarding prevention and control measures to reduce the risk of infection. The present study was conducted to assess the effectiveness of a planned teaching program on knowledge regarding Nipah virus infection among adolescents in selected schools. The objectives of the study were to assess the existing knowledge regarding Nipah virus infection, evaluate post-test knowledge after the teaching program, and compare pre-test and post-test knowledge scores.

A quantitative research approach with a one-group pre-test and post-test design was adopted for the study. Data collection was carried in selected educational institutions. A total of 60 adolescent students were selected using a convenient sampling technique. Prior permission was obtained from the concerned educational authorities. The tool consisted of two sections: Section I included demographic variables such as age, gender, and educational status, while Section II included structured questions related to knowledge regarding Nipah virus infection, including causes, signs and symptoms, transmission, prevention, and management. The reliability of the tool was established using the inter-rater method, and the coefficient of correlation was found to be $r = 0.82$, indicating reliability. A pilot study conducted to confirmed the feasibility of the study.

The findings revealed a significant improvement in post-test knowledge scores after the planned teaching program. The study concluded that the planned teaching program was effective in improving adolescents' knowledge regarding Nipah virus infection.

Keywords: Nipah virus; Adolescents; Planned teaching program; Knowledge; Prevention; Zoonotic disease.

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Introduction

Nipah virus infection is a viral infection caused by the Nipah virus. Symptoms of infection include fever, cough, headache, malaise and confusion. This can progress to coma within a day or two. Complications may include uveitis and seizures after recovery. Diagnosis is based on symptoms and confirmed by laboratory tests. Management includes supportive care. As of 2018, there is no vaccine or specific treatment. Prevention consists of avoiding contact with bats and sick pigs and not drinking raw date juice As of May 2018, there were approximately 700 cases of Nipah virus in humans, and 50-75 percent of those

infected died. In May 2018, an outbreak in the Indian state of Kerala caused at least 17 deaths[1]. Nipah viral disease is a zoonotic infection and an emerging disease caused by Nipah virus an RNA virus of the genus Henipavirus, family Paramyxoviridae, which is transmitted by specific types of fruit bats, mainly Pteropus spp. (Vandali and Biradar, 2018). It is a highly fatal virus posing potential threat to global health security[2].

Throughout the history of the world, people have suffered from various types and origins of diseases. Zoonotic diseases, or diseases that have the ability to jump from species, animals to humans or vice versa, have been

particularly harmful and deadly. Zoonosis are unique because they are primarily caused by pathogens such as fungi, bacteria, parasites or viruses. These pathogens usually survive in a reservoir host that has immunity to the pathogen. The list of potential reservoir hosts that can transmit disease to humans is extensive; however, the most common are monkeys, insects, rodents and bats.[3]. between humans and wild animals. The increase in agriculture and/or deforestation has resulted in similar habitat for humans and wildlife. A good example of this is the emergence of the Nipah virus.³ Nipah virus infection is a viral infection caused by the Nipah virus. It is a type of RNA virus that belongs to the Paramyxoviridae family. Nipah virus can also be an RNA virus. It is also a zoonotic and also a viral infection caused by the Nipah virus. The virus was first detected in a place called Kampong Sungai Nipah, a pig population in Malaysia in 1998, then it was detected in Bangladesh in 2004 and also in Singapore in 1999 and most recently in 2018. Arose in Kerala, a state in India. The main carrier of Nipah virus infection is the fruit bat. Fruit bat, also known as flying fox. Nipah virus infection can spread from animal to person and from person to person very quickly. It is very epidemiological. All age groups are very prone to this infection. Those who come in close contact with pigs or live with pig farmers are highly susceptible to this infection. The infection rate of Nipah virus in India is about 74.5 percent. As of May 2018, about 700 people have been infected and 50 to 70 percent of them have died. As of July 17, 2018, there have been 17 cases of Nipah virus infection and 17 deaths in the Indian state of Kerala. 18 cases were confirmed in laboratory analyses. The Nipah virus outbreak was located in two districts of Kerala: Kozhikode and Malappuram. [4]

Material and Methods

This study will be conducted to assess the effectiveness of a planned teaching programme on knowledge regarding Nipah virus infection among students in selected schools. The research methodology adopted for the study is a quantitative research approach using a quasi-experimental one group pre-test and post-test design. The study setting includes selected schools. The target population for the study comprises school students, while the accessible population includes students from selected schools who fulfill the inclusion criteria. The independent variable of the study is the planned teaching programme, and the dependent variable is the knowledge regarding Nipah virus infection among students. Students who are willing to provide written consent will be included in the study, whereas those not willing to participate will be excluded. The sample size for the study will be 60 students, determined by

using the power analysis formula. A simple random sampling technique will be used for selecting the samples. The research tool consists of two sections. Section I includes demographic variables of the students, and Section II consists of a structured knowledge questionnaire prepared to assess the level of knowledge regarding Nipah virus infection. The study also includes content validity and reliability of the tool, pilot study, data collection procedure, and plan for statistical analysis of data.

Study area

The study area for the present research will include selected schools located in the Sangli, Miraj, and Kupwad corporation area of Maharashtra. These areas are well known for their educational institutions and provide access to students from different socio-economic and cultural backgrounds. The schools selected for the study will offer a suitable environment for conducting educational and health-related research activities. The investigator has chosen this area because of the availability of students, feasibility of data collection, and cooperation from school authorities. The study setting is convenient and easily accessible to the researcher, which will help in smooth implementation of the planned teaching programme and collection of data. Conducting the study in these schools will help in assessing the knowledge of students regarding Nipah virus infection and the effectiveness of the planned teaching programme. The selected study area is expected to provide reliable data relevant to the objectives of the research study.

Study design

The study design selected for the present research is a quasi-experimental one group pre-test and post-test design. This design is used to evaluate the effectiveness of the planned teaching programme on knowledge regarding Nipah virus infection among students. In this study, a single group of students will be selected and their existing knowledge regarding Nipah virus infection will be assessed through a pre-test using a structured knowledge questionnaire. After the pre-test, the planned teaching programme will be administered to the students. Following the intervention, a post-test will be conducted using the same questionnaire to measure the improvement in knowledge. The difference between the pre-test and post-test scores will help determine the effectiveness of the teaching programme. This design is appropriate for educational and health-related studies because it allows the researcher to compare knowledge levels before and after the intervention within the same group of participants, ensuring practical and meaningful evaluation of outcomes.

Sample size estimation

The sample size for the present study will consist of 60 students selected from schools in the Sangli, Miraj, and Kupwad corporation area. The sample size has been determined by using the power analysis formula to ensure adequate representation and reliability of the study findings. Selecting an appropriate sample size is important to achieve accurate and meaningful results in research. A sample of 60 students is considered sufficient to assess the effectiveness of the planned teaching programme on knowledge regarding Nipah virus infection. The selected participants will meet the inclusion criteria and will be chosen through a simple random sampling technique to minimize bias and ensure equal participation opportunity.

Sampling procedure

The sampling procedure for the present study will involve selecting students from selected schools in the Sangli, Miraj, and Kupwad corporation area by using a simple random sampling technique. Initially, permission will be obtained from the concerned school authorities to conduct the study. A list of eligible students who fulfill the inclusion criteria will be prepared with the help of school records. From this list, 60 students will be selected randomly to ensure equal chance of participation for every student and to minimize selection bias. The selected students will be informed about the purpose and objectives of the study, and written consent will be obtained before data collection. The investigator will conduct the pre-test to assess the baseline knowledge regarding Nipah virus infection, followed by the administration of the planned teaching programme. After completion of the intervention, a post-test will be conducted using the same structured knowledge questionnaire to evaluate the effectiveness of the teaching programme among the selected students.

Data collection method

The data collection method for the present study will be carried out in selected schools of the Sangli, Miraj, and Kupwad corporation area after obtaining formal permission from the school authorities. The investigator will explain the purpose and objectives of the study to the students and obtain written consent from those willing to participate. Data will be collected using a structured knowledge questionnaire prepared by the researcher. Initially, a pre-test will be conducted to assess the existing knowledge of students regarding Nipah virus infection. After the pre-test, the planned teaching programme will be administered to the selected students to improve their knowledge about the infection, its causes, symptoms, prevention, and management. Following the intervention, a post-test will be conducted using the same questionnaire to evaluate the effectiveness of the teaching programme. The collected data will be organized systematically and analyzed using appropriate statistical methods to

interpret the findings and achieve the objectives of the study.

Data analysis

The collected data will be organized and analyzed using appropriate statistical methods according to the objectives of the study. Both descriptive and inferential statistics will be used for data analysis. Descriptive statistics such as frequency, percentage, mean, and standard deviation will be used to describe demographic variables and assess the knowledge scores of students regarding Nipah virus infection. Inferential statistics will be applied to determine the effectiveness of the planned teaching programme by comparing pre-test and post-test knowledge scores. The paired “t” test will be used to assess the significant difference between pre-test and post-test scores. The analyzed data will be presented in tables and graphs for better understanding.

Modelling

Explanatory variables

These variables are also known as independent variables because they are responsible for producing an effect on the outcome of the study. In the present study, the explanatory variable is the planned teaching programme regarding Nipah virus infection. The researcher introduces this programme to improve the knowledge of students about Nipah virus infection, including its causes, symptoms, transmission, prevention, and management. The effect of the explanatory variable will be measured by comparing the students’ knowledge scores before and after the teaching programme. Explanatory variables help the researcher understand the relationship between the intervention and the outcome, thereby determining the effectiveness of the study intervention.

Ethical considerations

Ethical considerations are important in every research study to protect the rights, dignity, and safety of the participants. Prior to conducting the study, approval will be obtained from the Institutional Ethical Committee and permission will be taken from the concerned school authorities. The purpose and objectives of the study will be clearly explained to the students and their guardians. Written informed consent will be obtained from the participants who are willing to participate in the study. Participants will be assured that their participation is voluntary and that they have the right to withdraw from the study at any time without any penalty. Confidentiality and privacy of the information collected from the students will be strictly

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maintained throughout the study. The collected data will be used only for research purposes. The planned teaching programme will not cause any physical or psychological harm to the participants, and all ethical principles will be followed during the entire research process.

Results

Data analysis involves organizing, coding, classifying, and summarizing collected data to obtain meaningful answers to research questions. It helps identify patterns and relationships among data groups. The analyzed data are interpreted according to the study objectives, making the findings understandable and useful for testing the research problem and drawing valid conclusions.

The analysis and interpretation of the findings are given in the following section:

SECTION I- Frequency and percentage distribution of sample with the selected demographic variables.

SECTION II- Analysis of the data related to pre-test knowledge and post-test knowledge.

SECTION III- Comparison between the pre-test and post-test knowledge.

Socio-demographic characteristics

TABLE NO. 1- Frequency and percentage distribution of sample with the selected demographic variables.

N-60

Sr. No.	Demographic Variables		Frequency	Percentage %
1.	Age in years	14 year	9	15
		15 year	51	85
2.	Gender	Male	31	52
		Female	29	48
3.	Area of residency	Rural	0	0
		Urban	60	100
4.	Class	9 th	0	0
		10 th	60	100
5.	Knowledge about Nipah virus Infection	No	40	60
		Yes	20	40
6.		Internet	12	60

	Source of knowledge	Teacher	08	40
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Table no 1 show that, most of the students 51 (85%) were 15 years old and 9 (15%) student were 14 years old. Most of the male 31 (52%) and female 29 (48%) students involved in this study. All of the students 60 (100%) were from urban area. All of the students 60 (100%) were from 10th class. Only 20 student have previous knowledge about Nipah virus infection.

TABLE NO. 2 - Frequency and percentage distribution of pre – test and post –test knowledge score.

N-60

Level of knowledge	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
(11 to 15) Good knowledge	0	0%	56	93%
(6 to 10) Average knowledge	30	50%	4	7%
(0 to 5) Poor knowledge	30	50%	0	0%

The above table shows that, 30(50%) students have average knowledge , and 30 (50%) students have poor knowledge about Nipah virus infection. after the planned teaching , most of the students 56 (93%) has good knowledge, and 4(7%) students has average knowledge about Nipah virus infection.

Table No. 3: Frequency and percentage distribution of level of knowledge regarding Nipah virus infection among students according to their post-

test.

N-60

Asp ects	Me an	S.D	d .f	Pair ed t- test	p-value	concl usion
Pre- test	5.4 6	1.4 078	5 9	28.7 825	0.00001 <0.05	Signifi cant
Post -test	12. 2	1.2 861				

The above table shows that, according to knowledge level, the mean score of knowledge before giving planned teaching program regarding Nipah virus infection was 5.46, S.D. was 1.4078 and the mean score of knowledge after giving planned teaching program regarding Nipah virus infection was 12.2, S.D. was 1.2861 and t – value is 28.7825 and p – value is $0.00001 < 0.05$ (at 5 % level of significance).

Discussion

The present study was conducted to assess the effectiveness of a planned teaching programme on knowledge regarding Nipah virus infection among adolescents in selected schools of Sangli. The study findings revealed that before administration of the planned teaching programme, 30 (50%) students had poor knowledge regarding Nipah virus infection, indicating inadequate awareness among adolescents. After administration of the planned teaching programme, 56 (93%) students had good knowledge and 4 (7%) students had average knowledge, which shows considerable improvement in the level of knowledge.

The mean pre-test knowledge score was 5.46, whereas the mean post-test knowledge score increased to 12.2. The calculated ‘t’ value was 28.7825 and the calculated ‘p’ value was 0.00001, which was less than the tabulated value at 0.05 level of significance. This indicates that the planned teaching programme was highly effective in improving the knowledge regarding Nipah virus infection among adolescents.

The findings of the present study are supported by a similar study conducted among school students regarding awareness of infectious diseases through structured teaching programme. The study reported that the post-test knowledge score was significantly higher than the pre-test score after educational intervention. Similar to the present study, the researchers concluded that planned teaching

programme are effective in improving knowledge and awareness among adolescents regarding prevention and control of infectious diseases.

The study also found no significant association between knowledge scores and selected demographic variables. Thus, the planned teaching programme proved effective irrespective of demographic characteristics. The overall findings suggest that health education programmes play an important role in increasing awareness and promoting preventive knowledge among school adolescents regarding emerging infectious diseases like Nipah virus infection.

Strengths and limitations

Strengths of the study

- the study used a quantitative research approach which helped in obtaining measurable and reliable data.
- the quasi-experimental one group pre-test and post-test design was effective in evaluating the impact of the planned teaching programme.
- simple random sampling technique minimized selection bias and provided equal opportunity for participation.
- the structured knowledge questionnaire helped in systematic and accurate data collection.
- the study focused on an important emerging infectious disease, creating awareness among adolescents regarding nipah virus infection.
- the planned teaching programme significantly improved the knowledge level of students.

Limitations of the study

- The study was limited to selected schools of Sangli, which limits generalization of findings.
- The sample size was limited to 60 students only.
- The study included only adolescents studying in selected schools.
- The study used a one group pre-test and post-test design without a control group.
- The post-test was conducted after a short duration, so long-term retention of knowledge could not be assessed.
- The findings depended on the honesty and cooperation of participants while answering the questionnaire.

Conclusion

The present study concluded that the planned teaching programme was effective in improving the knowledge regarding Nipah virus infection among adolescents in selected schools of Sangli. There was a significant increase in post-test knowledge scores when compared

to pre-test scores. The findings indicate that structured educational interventions can effectively improve awareness and understanding regarding infectious diseases among adolescents. Therefore, planned teaching programmes should be encouraged in schools to promote health awareness and preventive practices among students.

Author's Contributors

The investigator was actively involved in all phases of the research study including selection of the research problem, review of literature, preparation of research proposal, development and validation of the research tool, data collection, data analysis, interpretation of findings, and preparation of the final research report. The guide and co-guide provided valuable suggestions, supervision, and continuous support throughout the study. All contributors participated in planning and execution of the research work and approved the final manuscript of the study.

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Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

The present study was conducted to assess the effectiveness of a planned teaching programme on knowledge regarding Nipah virus infection among students in selected schools of the Sangli. The findings were interpreted according to the objectives of the study. The demographic data revealed that the majority of students, 51 (85%), were 15 years old, while 9 (15%) were 14 years old. Among the participants, 31 (52%) were male and 29 (48%) were female. All students belonged to urban areas and were studying in the 10th standard. Only 20 (40%) students had previous knowledge regarding Nipah virus infection, while 40 (60%) students had no prior knowledge.

The pre-test findings showed that 30 (50%) students had poor knowledge and 30 (50%) had average knowledge regarding Nipah virus infection. None of the students had good knowledge before the intervention. After administration of the planned teaching programme, the post-test results revealed that 56 (93%) students had good knowledge and only 4 (7%) had average knowledge. The mean post-test score (12.2) was significantly higher than the mean pre-test score (5.46). The calculated paired 't' value was 28.7825 with a p-value of 0.00001, which was statistically significant at 0.05 level. These findings indicate that the planned teaching programme was highly effective in improving the knowledge of students regarding Nipah virus infection.

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