



## Knowledge of the B.Sc. Nursing students regarding Nipah Virus Infection in Haryana, India

Rajesh Kumar, Reena Chahal and Renu Phogat

<sup>1</sup> M.Sc. Medical Surgical Nursing, Nursing Tutor, Govt. College of Nursing, Safidon, Jind, Haryana, India

<sup>2,3</sup> M.Sc. Pediatric Nursing, Nursing Tutor, Govt. College of Nursing, Safidon, Jind, Haryana, India

### Abstract

**Introduction and Background:** Infection with the Nipah virus is fatal infection of epidemic potential. It can be transmitted through animal to human or human to human route. Even with a case fatality rate of 94.7%, early treatment and prompt control activities by medical professionals can save more lives. In the past, India has witnessed the outbreak of the disease in some states. With this background it is important to assess the knowledge of B.Sc. nursing students regarding Nipah virus infection.

**Material and Methods:** In this interventional study 80 B. Sc. nursing students were selected conveniently from selected nursing colleges in Haryana. A 25 items questionnaire was used to assess the knowledge of undergraduate nursing students regarding Nipah virus infection. Pretest was conducted before providing structured information module followed by post test conducted 7 days after the administration of structured information module to assess the effectiveness of intervention.

**Result:** Majority of the B.Sc. Nursing students (70%) belonged to the age group of 17-20 years and were female (81.25%). 27.5% of the students were studying in BSc Nursing I Year course followed by 26.25% in B. Sc. Nursing II year course. Majority 85% of the students had no previous exposure to knowledge regarding Nipah virus. In the pre-test, 63% of the students had poor knowledge followed by 11% had average knowledge and only 6% had good knowledge. In the post-test 67% of the students had good knowledge followed by 10% had average knowledge and 3% had poor knowledge.

The mean pretest knowledge score was  $11.32 \pm 2.22$  that is less than the 50% of the maximum score. It increased significantly in posttest to  $21.63 \pm 4.32$  which signifies the effectiveness of structured information module.

**Conclusions:** The study showed that structured information module was effective to enhance the knowledge of nursing students regarding Nipah virus infection.

**Keywords:** Nipah virus infection, knowledge, B.Sc. Nursing students

### Introduction

Nipah virus is a recently emergent deadly zoonotic virus, which belongs to the family paramyxoviridae. It was first isolated and identified in 1999 in Malaysia (Sungai Nipah village) and Singapore, during an outbreak of encephalitis and respiratory illness among pig farmers [1-3]. It is a zoonotic RNA virus that belongs to the family Paramyxoviridae and genus Henipavirus, whose reservoir host is fruit bats of the Pteropodidae family [2].

This outbreak alerted the global public health community to the severe pathogenic potential of this unique virus. The virus is named after the Malaysian village where it was first discovered. The knowledge about Nipah virus was limited to Malaysia, Singapore and Bangladesh, until the recent and first outbreak in Kerala in 2018 followed by another very recent outbreak in 2019.

First outbreak of Nipah virus in India occurred in Siliguri in January and February 2001 in which 66 human cases were reported and 45(68%) were died. Second outbreak in India occurred in the year 2007 which reported 5 cases and all died. During 2018, 19 cases were identified in Kerala out of which 17 were died. In 2019 outbreak, only a single non-fatal case of Nipah virus infection was reported in Kerala [1-3].

Fruit bats belonging to the family *Pteropodidae* and pigs are the natural host for Nipah virus and the infection is spread by sweat, saliva, urine, and blood of them. The pig populations are getting infected by fruit bats this is because of the eating the fruit and also drinking water infected by bats. Therefore, those who are engaged with pigs or living with pig farmers are very vulnerable to get this infection [2-3].

Studies reported that almost all age group peoples are prone to get this infection. The transmission of NiV virus occurs from infected pigs to human (Malaysian NiV outbreak), infected bats to human (consumption of raw date palm sap contaminated with infectious bat excretions) and also human to human transmission (seen in the family and care givers of Nipah virus infected person) [4].

Increasing age and respiratory symptoms are indicators of infectivity of Nipah virus [5]. Person to person transmission of Nipah virus is frequently reported in India and Bangladesh.

It requires direct contact with an infected source for its spread. The period of incubation ranges from 6 to 14 days however; it may be as long as 45 days [6]. World Health Organization has added Nipah virus infection to its list of "priority diseases" along with more well-known conditions

like Ebola, Zika, and SARS [7-8].

The spread of the virus is very rapid and fatal, with a case fatality of 40-70% [3]. After the infection patient may suffer from severe headache, fever, vomiting, sore throat, and myalgia with altered sensorium and mental confusion. These symptoms may advance to coma within 24-48 hours that may eventually lead to death of the patient. Even after complete recovery, persistent convulsions and personality changes are residual neurological consequences which are present in about 20% of the patients [9].

When the patient is in initial stages of Nipah virus infection it is difficult to diagnose as it is asymptomatic at first. Real time polymerase chain reaction from body fluids may be useful diagnostic test in the early stages of infection. Enzyme linked immune sorbent assay may be undertaken later on to detect antibody. There is no proven effective treatment at present and primary treatment is intensive supportive care. The management aspects include the use of drug Ribavirin to alleviate the symptoms of nausea, vomiting, and convulsions [10] and passive immunization by human monoclonal antibody targeting Nipah G glycoprotein.

B.Sc. Nursing students have vast curriculum requirement in terms of clinical posting therefore, they spend a great deal of time in clinical areas and are the vital part of the health care team. However, because of the novelty of Nipah virus and its recent transmission in human it is not incorporated in to the nursing curriculum which increases the susceptibility of this population to get this infection.

George PS et al. reported that majority of the medical students were aware about the Nipah virus infection and 97% were aware about the recent outbreak in Kerala. 43.5% of the students had good knowledge regarding the epidemiology and treatment of Nipah virus infection and 47.20% had acceptable knowledge on Nipah virus. 33.60% of the students had good attitude regarding the preventive aspects of Nipah virus infection [13].

Similarly, Binub K [9] also reported that medical students had good attitude and 50% of them had good knowledge about the disease. Most of the students have been aware about the virus through social media (40.5%) as a major source of information followed by newspaper or news (34%), (17.5%) internet and (8%) by awareness programme. Shrestha A et al. [11] also reported that 44.4% nursing students had adequate knowledge about Nipah Virus infection whereas 55.6% had inadequate knowledge in pretest. After the intervention all the participants had adequate knowledge regarding Nipah virus infection.

Varghese AD et al. [13] reported that 65.5% of the health care workers were found to have good and 34.3 % had poor awareness regarding Nipah virus infection. The highest level of awareness was observed among doctors (89.2%) followed by laboratory staff (83.3%) and nurses (61%). Ammu KJ et al. [12] assessed the knowledge regarding Nipah virus disease among 200 undergraduate students and found that 21% students have poor knowledge and 79% have average knowledge about Nipah virus disease.

According to the World Health Organization data the mortality rate of Nipah virus infection is 75% worldwide. It has caused death of 17 people in Kerala, India in the year of 2018 including a nurse [2, 3]. Therefore, looking at the high fatality of this infection and in absence of proven treatment

and vaccine till date it is important to assess the knowledge of B.Sc. nursing students regarding Nipah infection and to provide them required knowledge about it that may help them to prevent possible infection with Nipah virus.

There is paucity of research work in this direction therefore, present study was undertaken to evaluate the effectiveness of structured information module on knowledge regarding Nipah virus infection among B.Sc. nursing students.

## Material and Methods

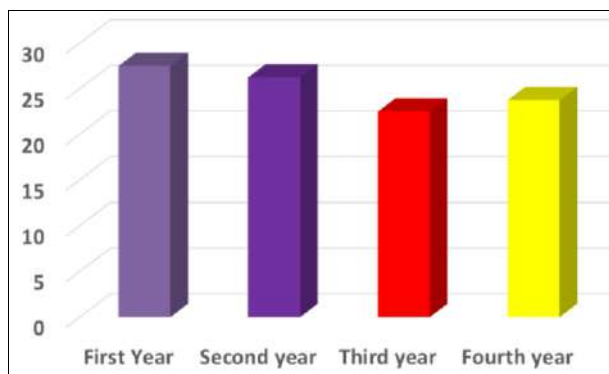
Pretest post-test design was used in this quantitative interventional study. Sample of the study was recruited using convenience sampling technique. A total of 80 B.Sc. nursing students were selected for the study. The study was conducted at selected nursing college of Jind, Haryana. The population under study was B.Sc. nursing students of the selected college.

Those B.Sc. Nursing students who were willing to participate, able to understand English and were available during the period of data collection were included in the study. A structured sociodemographic sheet was used to collect sociodemographic data of the students. A structured knowledge questionnaire consisting of 25 multiple choice questions was used to assess the knowledge regarding Nipah virus infection. One mark was awarded for each correct answer and score range was 0-25. Scoring of marks was done as following; 1-8: Poor; 9-18; Average and 19-25; Good. Content validity of the tool was established by the experts in the field of nursing. Test retest reliability coefficient was 0.92. Pretest was conducted before administering structured information module followed by post test was conducted 7<sup>th</sup> days after the training to assess the effectiveness of structured information module. Written permission for the data collection was obtained from the institutional authority to conduct the study.

## Result

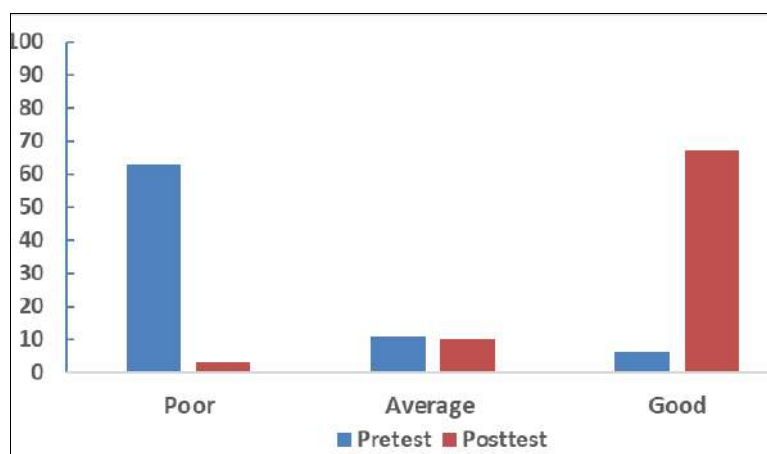
**Table 1:** Frequency percentage Distribution of the Sociodemographic variables of Nursing Students N=80

Sociodemographic Variables	f	%
<b>Age in years</b>		
17-20 years	56	70
21 and above	24	30
<b>Gender</b>		
Male	15	18.75
Female	65	81.25
<b>Year of the study</b>		
First Year	22	27.50
Second year	21	26.25
Third year	18	22.5
Fourth year	19	23.75
<b>Marital status</b>		
Married	10	12.5
Unmarried	70	87.5
<b>Previous exposure to knowledge</b>		
Yes	12	15
No	68	85



**Fig 1:** Percentage Distribution of B.Sc. Nursing Students as per year of study

As illustrated in table 1 and figure 1, 70% of the B.Sc. nursing students belonged to age group of 17-20 years.



**Fig 2:** Comparison of pretest v/s posttest knowledge categories among B.Sc. Nursing Students

As shown in table 2 mean pretest knowledge score was  $11.32 \pm 2.23$  in the pretest that is less than the 50% of the maximum score. The mean post-test knowledge score was  $21.63 \pm 4.32$ . T statistics revealed that p value was less than 0.05 that means structured information module was effective to enhance the knowledge of the students regarding Nipah Virus.

**Table 3:** Association of selected variables with post-test Knowledge Score N=80

Selected Variables	Knowledge Score		T Statistics
	Mean	SD	
Age			
17-20 Years	20.9	4.52	t=0.74
21 and above	21.7	4.21	P=0.46
Gender			
Male	21.95	3.42	t=0.82
Female	20.89	4.67	P=0.41
Marital status			
Married	19.20	2.76	t=1.57
Unmarried	21.58	4.64	P=0.11

The association of post test knowledge score with selected variables explored that B.Sc. Nursing students scored significantly higher compared to Post basic B.Sc. Nursing Students. Similarly, fourth year students scored significantly

Majority of the student were female 81.25%). Almost equal numbers of the students belonged to class B.Sc. Nursing I Year (27.50), 26.25% were in B.Sc. Nursing II year, 22.5% were in B.Sc. Nursing III year and 23.75% were in Fourth year. Majority of the students (87.5%) were unmarried followed by 12.5% were married. Only 15% of the students had previous exposure to Nipah Virus and Majority of the students were not exposed previously to Nipah virus knowledge.

**Table 2:** Percentage distribution of students as per level of knowledge in pretest v/s post test N=80

Knowledge score	Pre-test		Post-test I		t Statistics
	Mean	SD	Mean	SD	
	11.32	2.23	21.63	4.32	
					t=18.96 P=0.0001**

higher than their first year counterparts. No significant association was found between post test knowledge score and other selected variables.

## Discussion

The present study reported female students' dominance in the sample. On the other side, Suchitra AR<sup>[13]</sup> in a study reported male student's dominance. In the present study, majority of students (70%) belonged to the age group of 17-20 years and majority of (85%) the students didn't have previous exposure to knowledge regarding Nipah virus. Similar findings has been reported by previous researchers [9, 10, 13]. In the pre-test, 63% of the students had poor knowledge followed by 11% had average knowledge and only 6% had good knowledge. In the post-test 67% of the students had good knowledge followed by 10% had average knowledge and 3% had poor knowledge. Other researchers [9, 10, 13] also reported that teaching/training was effective to enhance the knowledge of nursing students. Aayoushma Shrestha et al.<sup>[9]</sup> reported that 44.4% of the respondents had adequate knowledge and 55.6% had inadequate knowledge in pretest. After expose to awareness programme there was increase in the knowledge of the respondents. Considering the facts that Nipah virus infection is fatal and there is no vaccine available to prevent the infection it's the awareness that may be beneficial to protect the nursing students from this deadly infection during periodic outbreaks.

## Recommendations

- Similar study can be conducted on large population involving students from various academic streams
- Similar study can be conducted using virtual learning platforms or innovating teaching learning medium.

## Nursing Implications

- Nipah virus infection should be incorporated as a learning objective in to nursing curriculum.
- Refresher courses/ seminar can be organized for the same

## Conclusion

The results indicates that the structured information module was effective in enhancing the knowledge of B. Sc. nursing students regarding Nipah virus infection.

**Conflicts of interest:** None

## Acknowledgement:

None

## References

1. Vijayreddy Vandali, Rekha B Biradar. Nipah virus (NiV) infection: A systematic Review. JOJ Nursing & Health Care. 2018 May;8(1):769-777.
2. WHO, Nipah virus - India, emergencies preparedness, response, Disease outbreak news, 7 August 2018. Available from [https://www.who.int/news-room/fact-sheets/detail/nipah-virus#:~:text=The%20incubation%20period%20\(interval%20from%20have%20been%20reported%20in%20survivors](https://www.who.int/news-room/fact-sheets/detail/nipah-virus#:~:text=The%20incubation%20period%20(interval%20from%20have%20been%20reported%20in%20survivors) accessed on 30/05/2021.
3. Pramila Walpita, Jennifer Barr, Michael Sherman, Christopher F. Basler, Linfa Wang. Vaccine potential of nipah virus- like particles. Availbale from <https://www.topmastersinhealthcare.com/faq/what-is-nursing-administration/> accessed on 12/05/2021.
4. Syed A. Nipah Virus outbreak in the World. Int. J. Adv. Res. Biol. Sci. 2018;5(9):131-8.
5. Nikolay B, Salje H, Hossain MJ, Khan A, Sazzad HMS, Rahman M. Transmission of Nipah virus – 14 years of investigations in Bangladesh. N Engl J Med. 2019;380:1804–1814.
6. Nipah Virus. World Health Organization. 30 May 2018. Available from [https://www.who.int/news-room/fact-sheets/detail/nipah-virus#:~:text=The%20incubation%20period%20\(interval%20from,have%20been%20reported%20in%20survivors](https://www.who.int/news-room/fact-sheets/detail/nipah-virus#:~:text=The%20incubation%20period%20(interval%20from,have%20been%20reported%20in%20survivors) accessed online on 30/05/2021.
7. Miller K. What to Know About the Rare and Deadly Nipah Virus. 2018 May 29. Available from <https://www.self.com/story/nipah-virus-outbreak-facts> accessed on 30/05/2021.
8. Aster MIMS. Nipah Virus - The Facts You Need to Know. 2018 May 24. Available from <https://astermims.com/blog/read-more/884/nipah-virus-the-facts-you-need-to-know> accessed on 30/05/2021.
9. Binub K. Medicos: knowledge and attitude on Nipah at Malappuram district, India. Int. J Community Med Public Health. 2019;6(2):784-8.
10. Ribavirin effective in treating Nipah, say Pune scientists. Times of India 5 June 2018. Available from <https://timesofindia.indiatimes.com/india/ribavirin-effective-in-treating-nipah-say-pune-scientists/articleshow/64456461.cms#:~:text=PUNE%3A%20Scientists%20at%20the%20National,the%20liver%20or%20hepatitis%20C> accessed on 14/05/2021
11. Aayoushma Shrestha, Maiya Ranjitkar. Effects of Educational Intervention Regarding Nipah Virus Infection among Bachelor Level Nursing Students. International Journal of Science and Research. (IJSR) 2018 September;7(9):889-892.
12. George PS, Ramaiah NMM. Knowledge and attitude about Nipah virus infection among medical students, Mysuru, India. Int. J Community Med Public Health 2020;7:3213-7.
13. Varghese AD, Mathew G, Kumar SC, Benjamin AI. Awareness regarding Nipah infection among health-care workers in a Medical College Hospital in Kerala. J Curr Res Sci Med. 2019;5:33-8.
14. Ammu KJ, Anita Namdev Zurange, Daliya Mary David, Yogesh B Ingle, Suraj Jadhav, Audumbar Jadhavar and Vinita Jamdade. Assess the knowledge regarding NIPAH VIRUS disease among students. The Pharma Innovation Journal. 2019;8(5):506-510.
15. Rati SA, Pujari J, Indi S, et al. Impact of alertness programme on knowledge regarding nipah virus infection among health care providers residing at Vijayapur. Int J Health Sci Res. 2020;10(10):189-194.

### How to Cite This Article

Kumar R, Chahal R and Phogat R. Knowledge of the B.Sc. Nursing students regarding Nipah Virus Infection in Haryana, India. International Journal of Advance Research in Nursing. 2022;5(2):215-218.

### Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.