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Assess the knowledge regarding NIPAH VIRUS disease among students

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Abstract
A descriptive study to assess the knowledge regarding Nipah virus disease among students in selected colleges of Pune city. The objectives of our study were, to assess the knowledge regarding Nipah virus among students in selected colleges of Pune city and to associate the findings with selected demographic variables. Nipah virus is a deadly infection which can be transmitted from animals to human and human to human. The spreading of the infection is very high all over the world. Recently it has outbreak in Indian state of Kerala and it led to the death of many peoples. The infection was mainly spread by the fruit bats. In the society the awareness and preventive measures of this disease is very less. So that peoples were very highly prone to get this disease. At first it occurred in Malaysia, Singapore and last in Bangladesh. The spread of the infection has occurred again because of the changes in the environment that includes deforestation, over population etc. This led to the fruit bats to leave their natural habitat and came to the cities and this led to the spreading of this infection. A quantitative research approach was done with descriptive research design among 200 undergraduate students from the selected colleges of Pune city. In the present study investigates about the knowledge regarding Nipah virus disease among undergraduate students by using the non-probability convenient sampling method. The sample size of this study was 200. We had 200 participants responding to the answer of the questionnaire which contains about the knowledge regarding Nipah virus. The participants of this study are students from the college of pharmacy and engineering. The validity of the tool was done by 8 experts from Bharati Vidyapeeth college of Nursing. The experts had advised to make some corrections in the tool which was to be finalized. The reliability was done on 20 samples in Smt. Kashibai Navale College of Pharmacy on 1st year and 2nd year batches of pharmacy students by using Spearman Brown formula: the result of the correlation coefficient was 0.82. Hence research tool was reliable for the research. Pilot study was done on 20 samples in Smt. Kashibai Navale College of engineering on 1st year and 2nd year batches. The pilot study was feasible. The final study was done on 26/11/18 in JSPM college of Pharmacy and 28/11/18 in Trinity college of Engineering. The result of the study was showing that average level of knowledge in the undergraduate students.

Keywords: NIPAH, VIRUS, demographic, engineering

Introduction
Nipah virus is one of the type of RNA virus belonging to which the category of the family genus of Paramyxoviridae. It is one of the viral zoonotic infection caused by the RNA virus naming RNA virus that is Nipah virus [4, 14].
Nipah virus was firstly identified in the country that includes Singapore and Malaysia country in the year 1998, in the year of 2004 in Bangladesh and again in the year of 2018 in Kerala also. This is a viral as well as zoonotic infection. Nipah virus infection was firstly emerged in Kampung Sungai Nipah village of Malaysia. The name Nipah is came from the name of village names Sungai Nipah [4, 14, 1].
In Malaysia, Nipah virus infection was firstly seen among pigs. The emergence of Nipah infection in Malaysia and Singapore was very high with major and severe encephalitis, respiratory problem. The encephalitis was a very common problem affected in the people residing in Malaysia and Singapore which was occurred with high fatality rate in the peoples. In India, it was firstly occurred in the state of Kerala in Kozhikode city [4, 1].
Nipah infection is very rapidly transmitted from animal to human and human to human transmission. It is very hugely epidemiologic disease. Studies said that almost all age group peoples are prone to get this infection. Those who are engaged with pigs or living with pig farmers are very vulnerable to get this infection [4, 14]. The main bearer of Nipah virus infection is fruit bats. The fruit bats are also known as 'flying foxes'. Nipah virus infection is being

spread by the fruit bats sweat, saliva, urine, and blood also. When they eat half of the fruit and remaining half of fruit is being eaten by someone. They may urinate it and the peoples who ate that fruit can get easily infected to Nipah virus infection. The fruit bats commonly eats mango, date palm sap etc. Sometime an infected water by fruit bats is also infected by Nipah virus carrier factor [4, 14].

The pig populations are getting infected by fruit bats this is because of the eating their infected fruit which has been eaten by a bats and also by drinking infected water by bats. Fruit bat is an initiator of Nipah virus. The growth of virus is carried out in fruit bats. The people can easily infected when they coming in contact with infected person when they sneeze or cough on them. It is also known to be droplet infection which is responsible for getting Nipah virus infection in the peoples. With a direct contact into infected object by Nipah virus is also leads to the spreading and expansion of the infection. The incubation period of Nipah virus is 5 to 14 days. It comes immediately and suddenly and become a serious condition still now itself [4, 14].

The common symptoms of Nipah virus infection is extreme coughing, terrible headache, breathing difficulty, encephalitis (inflammation of meninges layer). Terrible headache is the most common in the Nipah virus infection and drowsiness, fatigue, weakness are also included. The drastic symptoms and major Nipah virus infection can lead to coma or death [14]. As of May 2018 about 700 human were infected and about 50 to 70 per cent of them were died due to this infection. There was 17 deaths in Indian state of Kerala were reported. 74.5% is the mortality rate of Nipah virus disease in India [4].

Not only fruit bats and pigs are responsible for the spreading or source of Nipah virus infections. There can be other animals are also taking part in the spreading of the infection. The main factor which is responsible for the transmission of nipah virus infection is human beings. Environmental and over population can leads into the spreading of Nipah virus infection. Improper disposal of waste materials and unhygienic environment can lead in the breeding of Nipah virus infection [4, 14].

Still there is no any vaccine, medication or any special treatment is available for curing of Nipah virus disease. There is only an intensive supportive care is available to treat or prevent for further complications associated with Nipah virus infection. Diagnosis of Nipah virus infection is based on the confirmed laboratory testing. Still it is one of the non-curable disease. The only way is by avoiding crowded areas, eating half eaten infected fruits, drinking infected water and preventive measures are only helpful for avoiding the further complications [4, 14, 1].

Background of the study
The Nipah virus infection is a virally transmitted infection caused by Nipah virus. It is a type RNA virus that belonging to the category of the genus family of Paramyxoviridae. Nipah virus is also known to be as RNA virus. It is also a zoonotic and also viral infection caused by Nipah virus. The virus was firstly identified in the place called Kampung Sungai Nipah, which is a village in Malaysia among the pig population in the year of 1998, then again in 2004 it was identified in Bangladesh and also in Singapore in 1999 and very recently in 2018 it has emerged in Kerala, a state in India [4, 14].

The main bearer of Nipah virus infection is fruit bats. The fruit bats which is also known as flying foxes. Nipah virus

infection can transmitted from animal to human and human to human very rapidly. It is a very highly epidemiologic. All age group people are very prone to get this infection. Those who are closely engaged with pigs or living with pig farmers are very prone to get this infection [4].

About 74.5 per cent is the mortality rate of Nipah virus infection in India. As of May 2018 about 700 human beings were infected and 50 to 70 per cent of them were died. There was 19 Nipah virus infected cases in 17th July 2018 and 17 deaths cases were reported from the state Kerala in India. The 18 cases were confirmed by the testing in the laboratory. The Nipah virus outbreak was being localized into two districts of Kerala: Kozhikode and Malappuram. The pre valance of the diseases is <1/1000000 [4, 14].

In Malaysia, Nipah virus was seen among the pig population and because of the infected pigs, the farmers had also suffered from Nipah virus infection through the close contact with pigs. The common signs and symptoms of Niaph virus infection is severe encephalitis, respiratory problems, extreme drowsiness and weakness [4, 8].

Nipah virus has an incubation period of 4 to 14 days. It can spread immediately from animal to animal, human to human and also animal to human transmission. It can become a serious and also a fatal condition in the world [4].

Nipah virus infection is transmitted by fruit bats that means flying foxes through their saliva, urine and their blood. They mostly eats the fruits such as date palm sap, mangoes etc. Not only fruit bats, pigs, and other animals are also responsible for causing this infection Nipah disease [14].

The Nipah virus appears to be maintained in fruit bats which is in the family classification of the Pteropus genus, which can infect a human through a direct exposure to their saliva or excreta including contaminated food especially palm tree sap. Bats may also transmit the virus through the intermediate hosts such as pigs, which can develop respiratory diseases and may pass the virus into the human beings. In cats, dogs, and horse the serological evidence of infection has also been noted. The human to human transmission has also been occasionally noted through the exposure of body fluid [4, 14, 8].

The pig population are infected by fruit bats through eating the infected fruits which have been infected bat and drinking infected water. Fruit bat is the beginner of Nipah virus infection. The breeding of Nipah virus is carried out in the body of fruit bats. The people can get infected easily when they come in contact with infected person when people are sneezing or coughing on them. The droplet infection is also common carrier of Nipah virus infection. The direct contact with infected object by Nipah virus can leads to the spreading of the infection very rapidly [8].

The common diagnostic examinations include cell culture, serological testing by enzyme linked immunosorbent assay (ELISA) or indirect fluorescent antibody (IFA), and reverse transcription polymerase chain reaction (RT-PCR). Because no any type of commercial assays are now available here. These tests are typically performed only in a few specialized laboratories [4, 14].

The main factor which is responsible for the transmission of Nipah virus is human beings. The increased pollution in the environment and increased population is also leading into the transmission and spreading of the infection. The breeding of virus is take placed due to the polluted environment, unhealthy environment and also due to the irregular disposal of waste materials.

Now also the researches are going on in the name of nipah

virus because of its severity of spreading of infection. According to Silvia Angeletti, Massimo Ciccozzi conducted a study in the year of 2016. In their study a phylogenetic and also an evolutionary analysis is carried out which has been used to help in in understanding the starting, origin and epidemiology of the virus. [16] According to D.D. Kulkarni, C. Tosh in the year 2013 done a study regarding the present situation of Nipah virus infection. In their study they explained about the outbreak, historical background, etiology, host ranges, regarding the cases and the death records, route of transmission of disease, the clinical signs which are presented in animals, disease in human being and diagnostic test and their facilities [7]. Same like this all studies other so much researches are going on in the name of Nipah virus.

Those who are infected with Nipah virus infection are should be isolated and precautions must be taken by using the protective equipment like face shields, masks, double gloves, surgical gowns and aprons should be used to prevent nosocomial transmission. No any antiviral medications are available for the treatment. The only management is the intensive supportive care [14].

Still there is no any medication, vaccinations or any other particular treatment is available for the curing of the infection. An intensive supportive care is only available now for treating and preventing the further complications. Still itself it is one of the untreatable disease, the only way is to avoid crowded areas, not eating infected fruit and polluted water. This can prevent the further complications [4, 14].

Need of the study
Nipah virus is considered as a recently and newly emerging disease this is because its outbreak has occurred relatively in the last twenty years. It is one of the public threat to the health this is because its severity can affect the wide range of animals and this leading in to the major disease and deaths in people [4, 14].

According to world health organization data, the mortality rate of infection is 75% which is a worldwide rate. As quickly as, the infection has infected to 263 peoples and that resulting in 196 death cases since 2001. In the last year of 2018 about 700 peoples were infected with the disease and in that 50-70% of them were died. There was 17 death cases were reported in the Indian state of Kerala [4].

The fast rapidly increasing population of human beings in India are The fast growing human population in India are leading in the high connection between the humans and animals that merged with the changes in the environment and irregular sanitation has made India the world's top livestock disease hotspot.

Almost the 75% of all human diseases are passed on by animals and then by humans. In this case the controlling and managing of zoonosis is very important for the developing counties. A huge expansion of roads, developments in the agricultural areas and the intensity of wildlife trade has caused the infectious agents to rise from the wildlife. Therefore, Nipah virus is one of the good example of newly emerging zoonotic disease.

The Nipah virus is spread into the pig population and then very rapidly into the human population is believed to be that it can be due to the changes in the ecological conditions. Due to the increase in the urban population and deforestation had affected the natural habitat of bats. This made the bat population to leave from their natural habitat and come to the agricultural areas. It made the spread of Nipah virus into the

pig population in high intensity of infection and then spread to human beings.

The outbreak of Nipah infection is emerged during the winter season and spring season that is December to May period. This could be related to the breeding period of bats, the increased shedding by bats and the season of date palm sap harvesting [14]. Destruction of forest and natural habitats can cause more spreading of such diseases. The breakout of Nipah infection in South-east Asia region a specific seasonal pattern and there is a limited geographical area. So to prevent this we all have to be together to say "No to deforestation and save wildlife and natural habitat".

Thus to assess the knowledge among students is very important aspect in this condition. Because the severity of the disease has come across the Costal regions of India also. So there is a need to know and aware about this particular disease. If they doses not have adequate knowledge we can help them to know about it. There is no any vaccinations and specific treatment is available for this serious health threating disease. Thus the precaution and prevention is must for the spreading of this vulnerable disease.

People should be need to remember that not only animals, human beings is also responsible for the spreading of the disease. A public awareness campaign should be establishes is much important for proving the awareness. The world need to pay attention to this rare and deadly viral disease is much important. It is an emergency alert all over the world.

Research objectives
- To assess the knowledge of Nipah virus disease among students in selected colleges of Pune city.
- To associate the findings with selected demographic variables.

Methodology
A non-experimental descriptive study research design was adopted to conduct the study among 200 students of selected colleges of Pune city with non-probability convenient sampling technique.

Sample criteria
Inclusion criteria: College students which belongs to the First Year and Second year batches.

Exclusion criteria: College students which belongs to the First Year and Second year batches.

Description of tool: The tool used was self -structured questionnaire, which includes 2 sections:

Section I: It deals with the frequency and percentage of the selected demographic characteristics.

Section II: It deals with the analysis of the data related to the knowledge of undergraduate students regarding Nipah virus disease.

Section III: It deals with the association of the knowledge regarding Nipah virus among undergraduate students with demographic variables.

Results
200 students were selected for data collection from selected colleges of Pune city

Section-I

Table 1: Frequency and percentage distribution of the samples according to demographic characteristics (N=200)

SR. NO.	Characteristics	Frequency	Percentage
1.	**Gender**		
	Male	150	75
	Female	50	25
2.	**Age**		
	18-20 years	100	50
	21-23 years	100	50
	24-26 years	0	0
	27 & above	0	0
3.	**Stream of Education**		
	Nursing	0	0
	Engineering	100	50
	General BSc	0	0
	Pharmacy	100	50
4.	**Any Previous Knowledge**		
	Yes	94	47
	No	106	53
5.	**As Per Source**		
	Internet	13	6.5
	Newspaper	44	22
	Social media	37	18.5
	Books	0	0

Table no.1 shows the frequency and percentage distribution of the selected demographic variables. Majority students 75% are males, equal percentage in the age group of 18-20 years and 21-23 years, equal percentage in the stream of education of engineering and pharmacy, majority 53% students have no any previous knowledge and there is 18.5% students got information from source of social media.

Section II Assessment of knowledge in undergraduate students regarding Nipah virus

Table 2: (N=200)

Level of Knowledge	Frequency	Percentage
Poor	42	21%
Average	158	79%
Good	0	0%

Table No.2 shows that 42 students have poor knowledge and they are 21%. 158 students have average knowledge and they are 79%. No any students have good knowledge regarding Nipah virus disease.

Section III
Association of knowledge regarding Nipah virus among undergraduate students with demographic variables

Table 3: (N=200)

Demographic variable	Knowledge			Fisher's exact	P value	Result
	Poor	Average	Good			
1. Gender						
a) Male	39	111	0	9.041591	0.01088	Associated
b) Female	3	47	0			
2. Age						
a) 18-20	22	78	0			
b) 21-23	20	80	0	9.041591	0.171252	Not associated
c) 24-26	0	0	0			
d) 27 & above	0	0	0			
3. Education						
a) Nursing	0	0	0			
b) Engineering	38	62	0	34.84027	4.626	Not associated
c) General BSc	0	0	0			
d) Pharmacy	4	96	0			
4. As per previous knowledge						
a) Yes	20	74	0	0.008179	0.995919	Not associated
b) No	22	84	0			
5. As per source						
a) Internet	5	8	0			
b) Newspaper	8	36	0	2.666487	0.84939	Not associated
c) Social media	7	30	0			
d) Books	0	0	0			

*Significant at 0.05 level of significance

Table no.3 shows the data related to the association of the knowledge regarding Nipah virus disease among undergraduate students with selected demographic variables under the study.
Here the gender were found to have significant association with the knowledge. Males show more knowledge than females which may be due to some interest shown by the boys in this topic. Age, education, previous knowledge and source of knowledge where found to have no association with the knowledge they have.

Discussion
During the study regarding Nipah virus we got an average

result from the undergraduate students. So, we got to know that the knowledge regarding Nipah virus is very less among the undergraduate students. As it is a worldwide disease the society and Public should get enough knowledge of the awareness and preventive measures to prevent the spread of Nipah virus.

Conclusion
While doing this study the findings we got about the knowledge regarding Nipah virus is an average rate among the students. When we did the analysis of the study that led to the following conclusion that the overall knowledge of the undergraduate students have only an average knowledge

regarding Nipah virus.

Limitations of The Study
- Study will be limited to the students who are studying in first year and second year batches.
- Study will be limited to the selected undergraduate colleges of Pune city.
- The information provided by the students may or may not be true.

Recommendations
- A similar study may be again conducted on a large sample their by finding can generalized large setting.
- A study may be conducted to assess the effect of implementation of nursing care at the hospital set up.
- Educational intervention can be used to assess the knowledge among large group of samples and in large setting.
- A comparative study should be done in male and females and in other stream of education.

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