

## SHORT ARTICLE

## How does Nursing Students Knowledge and Attitude correlate in relation to Rabies? An institutional based Cross-Sectional study in Assam

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### Abstract

**Introduction:** Rabies is a vaccine-preventable viral disease. Every year, Rabies causes 18 000-20 000 deaths in India and dogs are responsible for 99 % of all human deaths. **Objectives:** 1) To assess the knowledge and attitude about rabies among the nursing students. 2) To assess whether there is any difference of knowledge and attitude about Rabies among different academic year of the nursing students. 3) To assess whether there is any relation between scores of knowledge and attitude. **Material & Methods:** A cross sectional study was conducted among 142 students of B.Sc. Nursing College, Dibrugarh, Assam in January 2022 using Google form containing pre designed structured closed ended questionnaire by convenience sampling. Knowledge and attitude was assessed by a scoring system. Results were expressed in proportion, percentage, mean, standard deviation. ANOVA and Spearman's correlation was applied. **Results:** Mean knowledge & attitude score was 15.7±3.6 and 23.6±2.6. Majority (82.4%) of the students had good knowledge about rabies. Almost all (97.9 %) students had positive attitude towards rabies. There was no significant difference between knowledge score and attitude score among different academic year of the students. Knowledge was positively correlated with attitude of the students. **Conclusion:** The study revealed good knowledge and positive attitude regarding rabies among the students.

### Keywords

Rabies; Animal Bite; Vaccine; Wound Management

### Introduction

Rabies is a vaccine-preventable viral disease. Every year, Rabies causes 18 000-20 000 deaths in India (1) and dogs are responsible for 99 % of all human deaths. (2) Every year, more than 29 million people worldwide receive a post-bite vaccination. This is estimated to prevent hundreds of thousands of rabies deaths annually. (3) As per National Rabies Control Program, 6644 clinically suspected human Rabies case and deaths have been reported in India from 2012 to 2020. (4) Nursing students are future health care providers, so they should have adequate knowledge about Rabies which will improve their attitude and attitudes will improve their practices on animal bite management.

### Aims & Objectives

- 1) To assess the knowledge and attitude about Rabies among nursing students.
- 2) To assess whether there is any difference of knowledge and attitude about Rabies among different academic year of the nursing students.
- 3) To assess whether is any relation between scores of knowledge and attitude.

### Material & Methods

**Study Area:** BSc College of Nursing, Assam Medical College & Hospital, Dibrugarh.

**Type of Study:** Cross Sectional Study.

**Study population:** 1st, 2nd & 3rd Year nursing students.

**Study Period:** January 2022.

**Sample Size & Sampling Procedure:** 142 students by convenience sampling.

**Inclusion criteria:** Students available on the day of study and who gave consent to participate in the study.

**Exclusion criteria:** Students who were sick on the day of study and who not willing to participate.

**Data Collection tool:** Online predesigned structured closed ended questionnaire in English designed on Google forms. Questionnaire consisted of 18 questions on knowledge about Rabies epidemiology, Prevention, wound care management and 6 questions on attitude (5 point likert scale) about rabies. Knowledge & attitude was assessed by scoring system. For Knowledge, each correct answer/yes was given a score of 1 & every wrong answer/don't know was given a score of 0 with maximum score of 26 (multiple responses for some questions) and minimum score of 0. Scoring pattern (Good 13-26, Average 7-14, Poor 0-6). For Attitude, scores of 5 to 1 was assigned ranging from strongly agree to strongly disagree (Maximum score 30 points, minimum score 6 points). Students who scored 50% & above were considered to have Positive Attitude.

**Data Collection Method:** Prior permission was taken from Principal of the Nursing college before the start of the study and digital consent was obtained from the students via google form. Link of Google form questionnaire was sent to class representative of each academic year through WhatsApp and asked to share the link among their batch mates via their class WhatsApp group.

**Data Analysis:** Descriptive statistics was calculated to represent the data. ANOVA applied to find out mean difference between knowledge and attitude score among different academic year of the students. Spearman's correlation was done to find out the relationship between knowledge score and attitude score. P value > 0.05 considered statistically significant. Data was downloaded in MS Excel spreadsheet and imported to SPSS version 20.0 software for analysis.

## Results

The mean age of the students was 20.8±1.2 years. Almost all (94.4%) students knew that Rabies is caused by virus. Majority (90.1%) of the students knew that dog is the most common source of Rabies and majority (94.3%) of the students knew that Rabies is transmitted through animal bite. Regarding clinical features in human, almost three fourth (73.2%) of the students knew only about hydrophobia. Majority (95.8%) of the students mentioned change in behavior and half (55.6 %) of the students mentioned excess salivation as a symptom of rabies in animal. Only 61.3 % of the students correctly knew about the period of observation in animal as 10 days following animal bite. Regarding Fatality of Rabies it was known to 79.6 % of the students and majority (93.0%) of the

students were aware that Rabies is a preventable disease. ([Table 1](#))

Majority (93.7%) of students were aware about the availability of Rabies vaccine. Three fourth (76 %) of students correctly knew about the vaccination schedule. The correct site of vaccination (deltoid) and route of vaccination (intramuscular/intradermal) was known to majority (91.7% & 86.5 %) of the students. More than half (59.4 %) of the students knew that anti rabies vaccine can be given before animal bite and only 36.1% of the students knew that anti rabies vaccine can be given safely in pregnancy. Less than three fourth (69.7%) of the students were aware of Rabies Immunoglobulin. Majority (88.7%) of the students were aware about vaccination of pet animals. ([Table 2](#))

Nearly three fourth (71.8%) of the students knew about different categories of animal bite wound. Regarding wound care management, most (67.6%) of the students knew that following animal bite, the wound should be washed with soap & water and less than half (40.8 %) of the students knew that antiseptic solutions can also be applied. ([Table 3](#))

Majority (71.8%) of the students strongly agreed that person with animal bite should consult a doctor, only half (50.7%) of the students strongly agreed that Person bitten by animal should take anti rabies vaccine, more than half (54.9%) of the students agreed that animal bite is serious, more than half (58.4%) agreed that vaccinating susceptible dog/cat can prevent Rabies, only (24.6%) of the students agreed that to prevent Rabies, dog population should be controlled and more than half (54.2 %) of the students agreed that person with animal bite should follow diet restrictions. ([Table 4](#))

Majority (82.4%) of the students had good knowledge and almost all (97.9 %) the students had positive attitude about rabies. Mean knowledge score was more among 2nd year students and mean attitude score was more among 3rd year students but there was no statistically significant difference between knowledge score and attitude score among different academic year of the students. ([Table 5](#))

Knowledge of the students was positively correlated with attitude of the students ( $r=0.232$ ,  $P=0.006$ )

## Discussion

In our study, (90.1%) of the students knew that dog is the most common source of Rabies which is almost similar to a study by Chopra De et al (5) where 96 % of the staff nurses were aware. In our study, 94.3% of the students knew that Rabies is transmitted through animal bite which is contrary to the findings by Chopra De et al (5) where all staff nurses knew about mode of transmission. In our study, 93.7% of students were aware about the availability of Rabies vaccine which is contrary to the findings by Chopra De et al (5) where all staff nurses were aware about availability of Rabies vaccine. In our study, 91.7% of

students knew that site of rabies vaccination is deltoid which is higher than the findings by Chopra De et al (5) where 68 % staff nurses were aware of vaccination site as deltoid. In our study, fatal nature of Rabies was known to 79.6 % of the students which is higher than a study done by Panat S et al (6) where only 55 % of the students were aware about the fatal nature of Rabies. In our study, 93.0% of the students were aware that Rabies is a preventable disease which is higher than a study done by Panat S et al (6) where 72 % of the students were aware that Rabies is a preventable disease.

In our study, 71.8% of the students knew about different categories of animal bite wound which is higher than a study done by Panat S et al (6) where 67 % of the students were aware about categories of animal bite wound. In our study, 67.6% of the students knew that following animal bite, the wound should be washed with soap & water which is lower than the findings of the study by Panat S et al (6) where 80% of the students knew that wound should be washed immediately with soap and water. In our study, (40.8 %) of the students knew that following animal bite, antiseptic solutions can also be applied which is higher than a study done by Panat S et al (6) where only 14 % of the students were aware of application of antiseptic solutions.

In our study, 86.5 % of the students reported intramuscular as route of vaccination which is higher than a study done by Panat S et al (6) where 46 % knew about intramuscular regimen of Rabies vaccination. In our study, only 36.1% of the students knew that anti rabies vaccine can be given safely in pregnancy which is contrary to the findings by Panat S et al (6) where 62 % of the students knew that anti rabies vaccine can be given in Pregnant women.

**Conclusion**

The overall knowledge of the students was good but there was lack of knowledge about preventive measures like pre exposure prophylaxis, ARV in pregnancy and Rabies immunoglobulin. Also knowledge about animal bite wound management was lacking. Although all students had positive attitude towards rabies, positive attitude on

certain aspects like anti rabies vaccine should be given to a person bitten by animal, vaccination of animals and controlling dog population for rabies prevention was lacking.

**Recommendation**

Nursing Students should be sensitized through reorientation training as they will be working in hospitals as health care providers.

**Limitation of the study**

Sample size is small and as the study has been conducted in only one college, so findings cannot be generalized.

**Relevance of the study**

The present study revealed that although majority of students had good knowledge, they should be educated periodically on recent updates on rabies management which will further improve their knowledge.

**Authors Contribution**

CB: Study concept, study design, data acquisition, data analysis, data interpretation, manuscript editing. SS: Study concept, study design, drafting the article, revising the article critically and final approval.

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**Tables**

**TABLE 1 DISTRIBUTION OF STUDENTS REGARDING THEIR KNOWLEDGE ABOUT RABIES EPIDEMIOLOGY**

Variables	Responses
<b>Causative agent</b>	<b>No. (%)</b>
Virus	134(94.4)
Bacteria	08(5.6)
<b>Source of infection</b>	
Dog	128(90.1)
Animal other than dog	14(9.9)
<b>Mode of transmission*</b>	
Animal bite	134(94.3)
Scratch	46(32.4)

Licks	20(14.1)
<b>Clinical features of rabies in human *</b>	
Fear of water	104(73.2)
Fear of air	13(9.1)
Behave like animal	40(28.2)
Become Mad	47(33.)
<b>Clinical features of rabies in animals *</b>	
Excessive Salivation	79(55.6)
Sudden change in behavior	136(95.8)
Change in voice	14(9.9)
<b>Period of observation in animals</b>	
10 days	87(61.3)
Less than 10 days	17(12.0)
More than 10 days	27(19.0)

Don't know	11(7.7)
<b>Rabies is a fatal disease</b>	
Yes	113(79.6)
No	18(12.7)
Don't Know	11(7.7)
<b>Rabies is preventable</b>	
Yes	132(93.0)
No	10(7.0)

*\*Multiple Responses; \*\* Figures in parenthesis indicate percentage*

**TABLE 2 DISTRIBUTION OF STUDENTS REGARDING THEIR KNOWLEDGE ABOUT RABIES PREVENTION**

Variables	Responses
	No. (%)
<b>Heard of any vaccine for animal bite (N=142)</b>	
Yes	133(93.7)
No	09(6.3)
<b>Schedule of vaccination(N=133)</b>	
Yes	101(76.0)
No	32(24.0)
<b>Site of vaccination (N=133)</b>	
Deltoid	122(91.7)
Abdomen	09(6.8)
Thigh	22(16.5)
Gluteus	10(7.5)
Don't know	21(15.8)
<b>Route of vaccination(N=133)</b>	
Intramuscular/intradermal	115(86.5)
Don't know	18(13.5)
<b>Anti Rabies Vaccine can be given before animal bite (N=133)</b>	
Yes	79(59.4)
No	54(40.6)
<b>Anti Rabies Vaccine is safe during Pregnancy (N=133)</b>	
Yes	48(36.1)
No	40(30.1)
Don't know	45(33.8)
<b>Heard of Rabies Immunoglobulin(N=142)</b>	
Yes	99(69.7)
No	43(30.3)
<b>Vaccination of Pet animal necessary (N=142)</b>	
Yes	126(88.7)
No	16(11.3)

*\*Multiple responses\*\* Figures in parenthesis indicate percentage*

**TABLE 3 DISTRIBUTION OF STUDENTS REGARDING THEIR KNOWLEDGE ABOUT RABIES MANAGEMENT**

Variables	Responses
	No. (%)
<b>Category of animal bite wound</b>	
Yes	102(71.8)
No	40(28.2)
<b>Wound care management *</b>	
Wash wound with soap & water	96(67.6)
Wash wound with water	59(41.5)
Apply antiseptic	58(40.8)
Apply dressing	34(24.0)

Apply turmeric/mud/lime	10(7.0)
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*\*Multiple responses; \*\* Figures in parenthesis indicate percentage*

**TABLE 4 DISTRIBUTION OF STUDENTS REGARDING THEIR ATTITUDE ABOUT ANIMAL BITE & RABIES**

Variables	Responses
	No. (%)
<b>Person with animal bite should consult doctor</b>	
Strongly Disagree	03(2.1)
Disagree	01(0.7)
Neither Agree nor Disagree	02(1.4)
Agree	34(23.9)
Strongly Agree	102(71.8)
<b>Person bitten by animal should take anti rabies vaccine</b>	
Strongly Disagree	03(2.1)
Disagree	03(2.1)
Neither Agree nor Disagree	05(3.5)
Agree	59(41.5)
Strongly Agree	72(50.7)
<b>Animal bite is serious</b>	
Strongly Disagree	0.(2.1)
Disagree	03(2.1)
Neither Agree nor Disagree	04(2.8)
Agree	78(54.9)
Strongly Agree	54(38.0)
<b>Vaccinating susceptible dog/cat can prevent Rabies</b>	
Strongly Disagree	03(2.1)
Disagree	08(5.6)
Neither Agree nor Disagree	17(12.0)
Agree	83(58.5)
Strongly Agree	31(21.8)
<b>To prevent Rabies, dog population should be controlled</b>	
Strongly Disagree	13(9.2)
Disagree	48(33.8)
Neither Agree nor Disagree	35(24.6)
Agree	35(24.6)
Strongly Agree	11(7.7)
<b>Person with animal bite should follow diet restrictions</b>	
Strongly Disagree	03(2.1)
Disagree	21(14.8)
Neither Agree nor Disagree	25(17.6)
Agree	77(54.2)
Strongly Agree	16(11.3)

*\*\* Figures in parenthesis indicate percentage*

**TABLE 5 KNOWLEDGE & ATTITUDE OF THE STUDENTS**

Variables	1 <sup>st</sup> Year students (N=59)	2 <sup>nd</sup> Year students (N=41)	3 <sup>rd</sup> Year students(N =42)	Total(N=142)P value
<b>Knowledge Score</b>				0.480
Average	11(18.6)	07(17.0)	08(19.0)	25(17.6)
Good	48(81.4)	34(83.0)	34(81.0)	116(82.4)
Mean Score	15.3±3.8	16±3.5	15.9±3.5	15.7±3.6
<b>Attitude</b>				0.274
Positive	57(96.6)	40(97.6)	42(100.0)	139((97.9)
Negative	02(3.4)	01(2.4)	00	03(2.1)
Mean Score	23.3±2.7	23.6±2.8	24.1±2.3	23.6±2.6

*\*ANOVA*