

Original Research Article

A cross sectional study of knowledge, attitude and practices regarding rabies and its management among attendees of anti-rabies clinic of tertiary care hospital of central India

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Received: 08 June 2020

Accepted: 10 July 2020

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ABSTRACT

Background: Rabies is a viral zoonotic disease which affects all warm-blooded animals. Human infection usually occurs following transdermal bite or scratch by infected animal. Rabies is fatal but preventable disease. Around the world, knowledge, attitude and practices studies about rabies have been widely used to understand disease and preventive measures.

Methods: A cross-sectional study was conducted in the anti-rabies clinic of the tertiary care hospital of central India from January 2020 to March 2020. Data was collected using pre-designed, semi structured questionnaire from 424 participants. Descriptive statistics and chi square test were applied.

Results: A total 424 attendees participated in our study. Mean age of participant was 35.94 (± 15.3) years, 60.37% were male and 39.63% were female. Overall, 53.77% of participants had adequate knowledge and 60.38% had positive attitude and 68.63% had adopted adequate practices towards rabies. A significant association was found between knowledge score and age, gender, education and occupation. Attitude score was significantly associated with age, gender, occupation and education. A significant association was found between practice score and age, gender and education.

Conclusions: The study showed that majority of participant had adequate knowledge, positive attitude and adopted appropriate practices about rabies. However there exists some knowledge gaps among participants on treatment and preventive measures. Their knowledge, attitude and practices with respect to prevention and management of rabies can be improved by providing proper health education.

Keywords: Attitude, Anti-rabies clinic, Knowledge, Practices, Rabies

INTRODUCTION

Rabies is highly fatal but preventable viral disease of central nervous system. It is caused by *Lyssavirus* type 1 of the family *Rhabdoviridae*. Rabies is primarily a zoonotic disease of warm-blooded animals particularly carnivorous such as dogs, cats and jackals that causes fatal encephalopathy.¹ It is transmitted to human usually by bites or licks of rabid animals.

Rabies is estimated to cause 59,000 death annually worldwide, with 95% of cases occurring in Asia and Africa. Rabies is neglected tropical disease affecting poor and vulnerable population living in remote areas. Every year, more than 29 million people worldwide receive post exposure prophylaxis to prevent hundreds of thousands of rabies death annually.² Still, rabies is the 10th biggest cause of death due to infectious disease worldwide.³

India reports about 20,000 rabies cases and 17.4 million animal bites annually.⁴ One of the reasons for such high number of rabies cases is due to lack of awareness in the population about rabies and its prevention. Many cultural practices and myths are prevalent in community for wound management of animal bite such as application of vegetable oil, salt, lime, chilli powder instead of washing wound with soap and water. Community awareness about rabies, wound management and proper post exposure prophylaxis is very crucial in rabies prevention and control.⁵ Rabies is 100% fatal disease which can be prevented by timely and appropriate anti rabies prophylaxis. An irregular supply of anti-rabies vaccine and immunoglobulin at primary health care facilities of rural areas are also responsible for the same.

Knowledge attitude and practice studies on rabies have been widely conducted used around the world, and the knowledge so gained helped in changing attitudes and adopting proper practices to minimise disease burden.⁶ Our study focused on community awareness regarding rabies and its prevention and to identify knowledge gaps, behaviour pattern and cultural beliefs that may pose barriers in control of rabies.

This study was conducted at the anti- rabies clinic of the tertiary care hospital of central India to assess the knowledge and practices towards rabies prevention and control among the attendees of anti-rabies clinic.

Objective of the study was to assess knowledge, attitude and practice regarding rabies and its management among attendees of anti-rabies clinic of the tertiary care hospital of central India and to identify factors associated with it.

METHODS

It was a cross sectional study conducted in the anti- rabies clinic under the department of community medicine of the tertiary care hospital of central India from January 2020 to March 2020. All the new cases aged 18 years and above who visited anti-rabies clinic were included in the study. <18 years old attendants and follow up visitors (repeat visitors) were excluded from the study. Sample size was calculated, assuming 50% knowledge among animal bite victims and considering relative allowable error as 10%. The sample size came out to be 400. Participants enrolled in the study were 424.

Data collection methods

Data was collected using semi structured, pre designed questionnaire at the time of visit to the clinic. The participants were briefed about the purpose of the study and informed written consent was obtained prior to the interview. The method consists of questions regarding sociodemographic variables, knowledge, attitude and practice of rabies and its management.

KAP scoring

The questionnaire consists of set of questions used to constitute indicators of participant level with respect to each of the dimensions namely knowledge, attitude and practices regarding rabies and its management. Questions regarding knowledge component covered the cause, sources and mode of transmission, clinical feature of rabies, outcome, variety of animals affected by rabies, prevention and control. Scoring was done as one for each right answer and zero for wrong and unanswered question. Score was given for 16 question based on knowledge. Mean score i.e. 8 was taken as cut off for deciding adequacy of knowledge. The participant who obtained score ≤ 8 were considered having inadequate knowledge and those who obtained more than mean score i.e. 8 were considered having adequate knowledge.

Question related to attitudes covered attitude towards wound management and attending hospital following animal bite. Score was given for 6 question based on attitude. The participant who obtained score less than mean i.e. ≤ 3 were considered having negative attitude and those who obtained more than mean score were considered having positive attitude.

The practice component included questions regarding management of dog bite Score was given for 8 question based on practice component. The participant who obtained score less than mean i.e. ≤ 3 were considered having inappropriate practice and those who obtained more than mean score were considered having appropriate practice.

Statistical analysis

Data thus collected was entered in Microsoft Excel and was analysed using IBM SPSS version 21 statistical software. Descriptive statistics like mean, standard deviation and percentage were used to describe socio-demographic variables. Analysis for qualitative variables was done using Chi-square test and p-value < 0.05 was taken as significant.

RESULTS

A total of 424 attendee participated in our study. Out of them 256 (60.37%) were male and 168 (39.63%) were female. Maximum participant was from age group 18 to 30 years. The overall mean age (\pm SD) of the study population was 35.94 (\pm 15.3) years. Most of the participant were residing in urban area 360(84.9%) and 275 (64.85%) were employed.

Among them 251 (59.2%) were Muslims and 173 (40.8%) were Hindus. 129 (30.42%) of the participants were educated up to primary school followed by secondary school 112 (26.41%) (Table 1).

Table 1: Socio-demographic characteristics of study participant.

Characteristics	Number	Percentage
Age in years		
18-30	192	45.28
31-45	132	31.13
46-60	53	12.5
>60	47	11.08
Gender		
Male	256	60.37
Female	168	39.63
Religion		
Hindu	173	40.8
Muslim	251	59.2
Education		
Illiterate	67	15.8
Primary	129	30.42
Secondary	112	26.42
High school	76	17.92
Graduate	40	9.43

Most of the participants were victims of dog bite 391 (92.2%). Out of 391 dog bite cases, 296 (75.7%) were bitten by street dogs and 95 (24.3%) were bitten by pet dogs. Maximum bites were of category 2 (77.85%) with unprovoked bite 298 (70.28%). The most common site of bite was lower limb 201 (47.4%) followed by upper limb 157(37.03%), trunk 51 (12.03%) and face 15(3.54%) respectively. Doctors, hospital were first source of information i.e. 167 (39.39%) for most participants,

followed by internet 124 (29.25%), family and friends 109 (25.7%) and radio and newspaper 24 (5.66%).

Out of 424 participants only 53.77% had adequate knowledge while 46.23% had inadequate knowledge and 68.63% adopted appropriate practices and 60.38% had positive attitude towards rabies and management (Table 2).

Table 2: Knowledge, attitude and practices towards rabies.

Dimension	Level	Frequency	Percentage
Knowledge	Adequate	228	53.77
	Inadequate	196	46.23
Attitude	Positive	256	60.38
	Negative	168	39.62
Practice	Appropriate	291	68.63
	Inappropriate	133	31.37

Knowledge of participant about rabies and its management.

In our study it was found that 368 (86.79%) of participant were familiar with the disease, 354 (83.49%) knew mode of transmission of rabies and 398 (93.87%) knew that dog was the source of infection and 39 (9.2%) knew about other animals as source of rabies. 98 (23.1%) of participant knew clinical feature of rabies in human and 264 (62.26%) knew about most dangerous site of bite. 89 (20.9%) of participants had adequate knowledge about wound management.

Table 3: Association between attendee’s knowledge score and socio-demographic characteristics.

Socio-demographic characteristics	Knowledge		Total N (%)	Chi square, d.f. , P-value
	Adequate N (%)	Inadequate N (%)		
Age group in years				
18-30	102 (53.1)	90 (46.9)	192 (100)	13.48, 3, 0.003
31-45	83 (62.9)	49 (37.1)	132 (100)	
46-60	28 (52.8)	25 (47.2)	53 (100)	
>60	15 (31.9)	32 (68.1)	47 (100)	
Gender				
Male	161 (62.89)	95 (37.11)	256 (100)	21.60, 1, 0.00001
Female	67 (39.8)	101 (60.2)	168 (100)	
Religion				
Hindu	95 (54.9)	78 (54.9)	173 (100)	0.15, 1, 0.69
Muslims	133 (53)	118 (47)	251 (100)	
Occupation				
Employed	183 (66.5)	92 (33.5)	275 (100)	51.35, 1, 0.00001
Unemployed	45 (30.2)	104 (69.8)	149 (100)	
Education				
Illiterate	29 (43.3)	38 (56.7)	67 (100)	32.946, 4, 0.00001
Primary	50 (38.8)	79 (61.2)	129 (100)	
Secondary	80 (71.4)	32 (28.6)	112 (100)	
High school	41 (53.9)	35 (46.1)	76 (100)	
Graduate	28 (70)	12 (30)	40(100)	

Table 4: Association between attendee’s attitude score and socio-demographic characteristics

Socio- demographic characteristics	Attitude		Total N (%)	Chi square, d.f. P-value
	Positive N (%)	Negative N (%)		
Age group in years				
18-30	132(68.75)	60(31.25)	192 (100)	33.39, 3, 0.00001
31-45	87(65.9)	45(34.1)	132 (100)	
46-60	24 (45.28)	29 (54.72)	53 (100)	
>60	13 (27.65)	34(72.34)	47 (100)	
Gender				
Male	167 (65.23)	89 (34.76)	256 (100)	6.37, 1, 0.011
Female	89 (52.97)	79 (47.02)	168(100)	
Religion				
Hindu	107 (61.84)	66 (38.15)	173 (100)	0.26, 1, 0.606
Muslims	149 (59.36)	102 (40.63)	251 (100)	
Occupation				
Employed	187 (68)	88 (32)	275 (100)	19, 1, 0.000013
Unemployed	69 (46.3)	80 (53.7)	149 (100)	
Education				
Illiterate	27(40.3)	40 (59.7)	67 (100)	24.403, 4,0.00006
Primary	69 (53.48)	60 (46.52)	129 (100)	
Secondary	75 (66.9)	37 (33.1)	112 (100)	
High school	54 (71.05)	22 (28.95)	76 (100)	
Graduate	31 (77.5)	9 (22.5)	40 (100)	

Table 5: Association between attendee’s practice score and socio-demographic characteristics.

Socio-demographic characteristics	Practice		Total N (%)	Chi square, d.f., P-value
	Appropriate N (%)	Inappropriate N (%)		
Age group in years				
18-30	157 (81.7)	35 (18.3)	192 (100)	60.92, 3, 0.00001
30-45	93 (71.5)	39 (29.5)	132 (100)	
45-60	29 (54.7)	24 (45.3)	53 (100)	
>60	12 (25.5)	35 (74.5)	47 (100)	
Gender				
Male	187 (73)	69 (27)	256 (100)	5.84, 1, 0.0155
Female	104 (62)	64 (38)	168 (100)	
Religion				
Hindu	120 (69.4)	53 (30.6)	173 (100)	0.072, 1, 0.787
Muslims	171 (68.1)	80 (31.9)	251 (100)	
Occupation				
Employed	180 (65.5)	95 (34.5)	275 (100)	3.67, 1, 0.553
Unemployed	111 (74.5)	38 (25.5)	149 (100)	
Education				
Illiterate	34 (50.7)	33 (49.3)	67 (100)	44.03, 4, 0.00001
Primary	77 (59.7)	52 (40.3)	129 (100)	
Secondary	102 (91.1)	10 (8.9)	112 (100)	
High school	47 (61.8)	29 (38.2)	76 (100)	
Graduate	31 (77.5)	9 (22.5)	40 (100)	

Table 6: Association between attendee's knowledge, attitude and practices towards rabies.

Variable	Knowledge		Total N (%)	Chi square, d.f., P – value
	Adequate N (%)	Inadequate N (%)		
Attitude				
Positive	163 (63.67)	93 (36.32)	256 (100)	25.465, 1, 0.00001
Negative	65 (38.7)	103 (61.3)	168 (100)	
Practice				
Appropriate	172 (59.1)	119 (40.9)	291 (100)	10.614, 1, 0.001
Inappropriate	56 (42.1)	77 (57.9)	133 (100)	

284 (66.98%) had knowledge about vaccine for animal bite and only 39 (9.2%) had knowledge regarding full course of vaccination. 32 (7.5%) had idea about anti-rabies immunoglobulin and 12 (2.83%) were aware about pre-exposure prophylaxis. A significant association was found between knowledge score and age group 18- 30 years, male gender. There was significant association between knowledge score and education and those who were employed. Participant with higher education levels (70%) had higher percentages of adequate knowledge compared with those who are illiterate (43.3%) and those who had only finished primary school (38.8%). The association between knowledge score and religion was found to be insignificant (Table 3).

Attitude of participants towards rabies

258 (60.85%) of participant said they would wash they would immediately with soap and water after animal bite and 379 (89.39%) would consult doctor after animal bite. 214 (50.47%) of participant thought that animal bite is serious and 131 (30.9%) were of attitude that rabies can cause death. When asked what would be their immediate reaction following animal bite, 241 (56.84%) said they would run away while 123 (29%) would kill the animal. A significant association was found between attitude score and younger age group, male gender. There was significant association between attitude score and education and those who were employed. The association between attitude score and religion and was found to be insignificant (Table 4).

Practice of participant towards rabies and its management

Among our study participant 69 (16.27%) had pet dog and among them only 43 (62.32%) had vaccinated their pet dogs. 32(7.5%) of participants had previous history of animal bite and among them only 21 (65.62%) had completed full course of post exposure prophylaxis. 264 (62.26%) had practice of washing their wound with soap and water before visiting hospital and only 106 (25%) had practice of washing the wound with soap and water for 15 minutes. 408 (96.23%) of the participant agreed to consult health professional if bitten by dogs.

The association between practice score and age group, gender and education was found to be statistically significant. The participant belonging to younger age group i.e. 18-30 years (81.7%) had appropriate practice as compared to elder (25.5%). The association between practice score and religion and occupation was found to be insignificant (Table 5).

Chi square test was done based on individual scores to determine the association between knowledge, attitude and practice. There was highly significant association between knowledge and positive attitude. Similarly, significant association was found between knowledge and appropriate practice (Table 6).

DISCUSSION

A cross sectional study was conducted among 424 attendees visiting the anti-rabies clinic of the tertiary care hospital from January 2020 to March 2020. It was observed that out of 424 participants, 45.28% belonged to age group 18-30 years similar to the studies of Chandan et al (47.75%) and Tripathy et al (61%).^{7,8} Our study included (60.37%) of males similar to studies of Jain et al (72%) and Chandan et al (85%).^{7,9} In our study about 30.42% were studied up to primary school similar to the studies of Ganasva et al (29.4%) and Tripathi et al (52.5%).^{8,10} Majority of animal bite cases belonged to category 2 (77.8%) whereas in the study conducted by Gansava et al (83.8%) were category 2.¹⁰

In our study out of 424 participants, only 53.77% had adequate knowledge while 46.23% had inadequate knowledge and 68.63% adopted appropriate practices and 60.38% had positive attitude towards rabies and management. Similar finding was observed in a study conducted by Chandan et al where it was seen that 51% of study participant had good knowledge score and 51% had good attitude scores and 45% had good practice scores.⁷ In another study conducted by Kishore S et al 59.9% respondents had moderate knowledge score, 81.4% had satisfactory attitude score and only 39.5% had good practice scores.¹¹

In our study it was found that 86.79% of participant were familiar with the disease and 93.87% knew that dog was the source of infection and only 9.2% participant knew

other animal as source of infection. Similar finding was observed in a study conducted by Tripathy et al where it was found that 98.2% knew dog as source of infection and only 10.11% knew other animal as source of infection.⁸ Majority of the participant i.e. 77% did not know about clinical features of rabies. On the contrary, study conducted by Kishore et al it was found that though majority of knew the presenting feature of rabies in human.¹¹

In our study knowledge about wound management, importance of full course of post exposure prophylaxis, and importance of immunoglobulin after dog bite were known to 20.9%, 9.2% and 7.5% respectively. This might be because majority of participant were educated up to primary school or secondary school. In another study conducted by Kishore et al it was found that though majority of knew about first aid, but they did not have knowledge about use of anti-rabies immunoglobulin.¹¹

In our study a significant association was found between knowledge score and younger age groups, male gender and those who were employed. Statistically significant association was observed between knowledge score and educational levels whereby higher level of education were associated with adequate knowledge. In the study conducted by Chandan et al knowledge score was statistically significantly associated with age and socio-economic status.⁷ In another study by Ali et al from Ethiopia knowledge score was significantly associated with sex and education level.¹²

In our study, a positive attitude towards animal bite was seen in 60.38% of the participant and 89.39% would seek treatment from doctor and 60.85% opined that they would wash the wound. In a study conducted by Chandan et al, it was observed that 51% of the participant would wash their wound with soap and water and 77% would consult doctor.⁷ A significant association was found between attitude score and age, male gender, higher education and those who were employed. In another study by Chandan et al attitude score was significantly associated with age, education and socio-economic status.⁷ A significant association was found between attitude score and age and education level in the study conducted by Ali et al.¹²

Association between practice score and age group, gender and education was found to be statistically significant. In another study by Chandan et al practice score was significantly associated with age, education, religion and socio-economic status.¹⁷ A significant association was found between practice score sex and education level in the study conducted by Ali et al.¹²

A significant association was found between knowledge and positive attitude, and between knowledge and appropriate practice. In the study conducted by Ali et al from Ethiopia there was strong positive correlation; between knowledge and attitude, between knowledge and practice and attitude and practice scores.¹² This suggests

that adequate knowledge on rabies and management leads to positive attitude and appropriate practice in prevention of rabies.

CONCLUSION

The study showed that majority of participant had adequate knowledge and adopted appropriate practices about rabies. However there exists some knowledge gaps among participants on treatment and preventive measures. Their knowledge, attitude and practices with respect to prevention and management of rabies can be improved by providing proper health education.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Jadhao A, Mamilwar A. A cross sectional study of knowledge, attitude and practices regarding rabies and its management among attendees of anti-rabies clinic of tertiary care hospital of central India. *Int J Community Med Public Health* 2020;7:3202-8.