

Title: PERCEPTION REGARDING ANIMAL BITE: A COMMUNITY BASED STUDY IN A RURAL AREA OF WEST BENGAL

Author: Arnab Ghosal¹, Saurav Naiya², Tanushree Roy³, Soumalya Roy⁴, Deepanjan Roy⁵, Aparajita Dasgupta⁶

1. Demonstrator, Department of Community Medicine, COMJNM Hospital, WBHUS, Kalyani.
2. Assistant Professor, Department of Community Medicine, COMJNM Hospital, WBHUS, Kalyani.
3. Post Graduate trainee, Department of Anatomy, NBMC&H, Darjeeling
4. Assistant Professor, Department of Community Medicine, Sikkim Manipal Institute of Medical Sciences, Sikkim
5. Assistant Professor, Department of Community Medicine, IQ City Medical College, Durgapur
6. Professor, HOD, Department of Community Medicine, All India Institute of Hygiene and Public Health, Kolkata

Keywords Animal bite, Rabies, Perception, Utilization of Health Care

Abstract To find out the perception regarding animal bite in a rural community. To ascertain the first aid measures & treatment adopted by people after animal bite. To elicit the awareness of people regarding anti rabies vaccines and health service utilization following animal bite.

Original Article

PERCEPTION REGARDING ANIMAL BITE: A COMMUNITY BASED STUDY IN A RURAL AREA OF WEST BENGAL

Arnab Ghosal¹, Sourav Naiya², Tanushree Roy³, Soumalya Roy⁴, Deepanjan Roy⁵, Aparajita Dasgupta⁶

ABSTRACT

Research question: What is the perception of people about animal bites and its first aid measures with anti-rabies vaccines?

Objectives: 1) To find out the perception regarding animal bite in a rural community. 2) To ascertain the first aid measures & treatment adopted by people after animal bite 3) To elicit the awareness of people regarding anti rabies vaccines and health service utilization following animal bite.

Methodology: This was a cross sectional community based study. There were 257 families in 3 small hamlets around Nasibpur health centre. One adult member of each household was included in the study.

Results: 64.9% of the individuals were aware about rabies and 50.6% knew about its transmission by dog bite. Only 16.3% would like to apply first aid measure and 73.2% would like to visit the doctor and the rest either would do nothing or adopt some religious practices to prevent the development of rabies following animal bite. On multi variate analysis there was significant association of good perception with those aged <45 years AOR (95% CI) 23.82 (10.24-55.44), with Hindus AOR (95% CI) 2.203 (1.14-4.25) and those who had more than grade IV education AOR (95% CI) 3.26 (1.16-9.13).

Conclusion: It was found that knowledge & attitude of the community towards dog bite was not up to the mark.

Key words: Animal Bite, Rabies, Perception, Utilization Of Health Care

Introduction

Rabies is a deadly disease but mostly preventable. Most of the deaths are due to ignorance and lack of access to affordable services¹. It is reported that at least 87 countries are at risk of rabies, mainly rural areas of Africa and Asia. Rabies occurs in more than 150 countries and territories. Worldwide, more than 55,000 people die of rabies every year. 40% of people who are bitten by suspect rabid animals are children under 15 years of age. Dogs are the source of 99% of human rabies deaths. Wound cleansing and immunization within a few hours after contact with a suspect rabid animal can prevent the onset of rabies and death. Every year, more than 15 million people worldwide receive a post-exposure preventive regimen to avert the disease – this is estimated to prevent 327000 rabies deaths annually².

In India 20,000 deaths occur annually due to rabies. As per the rural survey (1997) 19,147 deaths would occur due to rabies³. India is the largest contributor to rabies mortality in the world. Dog bites are considered responsible for 99% of rabies cases². Rabies is an enzootic and epizootic disease of worldwide importance. It is estimated that number of deaths due to rabies may be 10 times more than those reported. Although 2 million bites occur each year in India more than 95% of these cases are bitten by dogs⁴. People are not aware of the disease which could occur if they do not manage dog bites⁵. There are many myths and false beliefs associated with wound management. These include application of oils, herbs, and red chillies on the wounds inflicted by rabid animals. Though costly, potent vaccines are available to prevent such deaths in

¹Demonstrator, Department of Community Medicine, COMJNM Hospital, WBHUS, Kalyani

²Assistant Professor, Department of Community Medicine, COMJNM Hospital, WBHUS, Kalyani

³Post Graduate Trainee, Department of Anatomy, NBMC&H, Darjeeling

⁴Assistant Professor, Department of Community Medicine, Sikkim Manipal Institute of Medical Sciences, Sikkim

⁵Assistant Professor, Department of Community Medicine, IQ City Medical College, Durgapur

⁶Professor, H.O.D., Department of Community Medicine, All India Institute of Hygiene & Public Health, Kolkata

many communities there is more faith in indigenous medicines that are of unproven efficacy and there is the practice of not washing the wound properly because of fear that it would get infected⁶

There are very few community level studies on the perception regarding dog bites and available studies in review of literature were mainly from post bite cases admitted to hospital for treatment of rabies. Therefore a study was conducted in a rural community of Bengal to assess the perception regarding animal bites in a rural community of West Bengal and to elicit the awareness of people regarding anti rabies vaccines and health service utilization

Materials and method:

A Community based cross sectional study was conducted over a period of three months during the year of 2015. Study population consisted of people residing in the service area of Nasibpur Union Health Centre in Singur block. It is under the rural field area of All India Institute of Hygiene and Public Health, Kolkata. There are 5003 households in the area.

Sample population: A pilot study had been performed on about 30 households where one adult member of the household was interviewed and the prevalence of good knowledge was noted to be 60.7%. So sample size was calculated using Z^2pq/l^2 ($Z = 1.96$, $p = 60.7$, $q = 39.3$, $l = 6.07$). It was found 256.3 ~ 257. Then 257 household was randomly selected from the existing frame using random number table. From every household 1 adult member was interviewed after taking his or her valid consent. If one denied taking part the very next household was opted.

Study Tool: A pre-designed semi-structured quest having two parts was used by the researcher during interviewing the individuals. The first part consisted of data regarding socio-demographic characteristics of the study population while the second part was used to collect data on perception and practice of the population regarding animal bites. This schedule was judged by a group of experts of the Institute where necessary corrections were done to enhance face validity, content validity and consensual validity. Reliability for the scale on perception was assessed. The schedule was then translated to Bengali checked and retranslated into English. The final Bengali schedule was so constructed that it had semantic equivalence. All scripts were very simple such that it could be understood very easily since many of the clients were illiterate. After obtaining

proper consent participants were interviewed in Bengali using the above schedule.

Statistical analyses: Socio economic and demographic characteristics were described as statements. Information regarding age, sex, literacy status, religion, type of housing and per capita income was obtained. Socio economic status was assessed by using Modified Prasad scale which was calculated considering the cost inflation of 2012. Perception regarding animal bite was assessed by scoring. Maximum and minimum attainable score was 21 and 0 respectively. All the independent variables were categorised and used in logistic regression model except type of housing because it reflects only socio economic status. Age was categorised as above and below median. Sex and religion dichotomised as male, female and Hindu, Muslims respectively. Socio economic classes were categorised as upper, upper middle, lower middle, upper lower and lower. Dependent variable i.e. perception regarding animal bite also categorized as good perception and bad perception by dividing the total obtained score of individuals as below and above median. The data was analyzed by using 'SPSS-20 version' package. Those who were below 12 years mothers were the respondent.

Result:

More than 93% of the population were aged less than 65 years while 125(48.6%) were males while 132(51.4%) were females. Almost 30% of the population belonged to schedule caste. Among the study population 60.3% were Hindus and rest were Muslim. Among them 41.6% were illiterate and only 21.4% population passed secondary examination and above. 78.2% of the study population belonged to middle class of the society. About half of the population were staying in Kutcha house.

35.1% of the population never heard the name of rabies. 50.6% people believe that rabies can only be transmitted through dog bite and according to 4(1.6%) people it could be transmitted through other animal. According to 50.6% population 'bitten person will give birth of that animal', while 28.4% knew that there would be fever and pain at the bitten site and 0.8% knew that after being bitten by rabid animal and not treated in time would have to face death because their relatives have died of rabies. 21% population agreed that rabies is almost a fatal disease. Only 6.2% thought that the disease is preventable and most of them thought

Table - I :
Showing perception of the study population about animal bites

Questions	Options	Frequency (%)
1. Have you ever heard of rabies?	Yes	167(64.9)
	No	90(35.1)
2. Through which animal rabies can be transmitted?	Only dog	130(50.6)
	Dog ,cat and monkey	4(1.6)
	Don't know	123(47.8)
3. What are the symptoms of the disease?	Bitten one will give birth of the animal	130(50.6)
	Fever and pain	73(28.4)
	Death	2(0.8)
	Don't know	52(20.2)
4. Is it a preventable disease	Yes	16(6.2)
	No	0
	Don't know	241(93.8)
5. How can it be prevented? (for those who opted 'yes' in question 4) n= 16	Avoid dog bite	10(3.9)
	Vaccination	1(0.4)
	By eating magical banana and jiggery	5(1.9)
6. What first aid should be done immediately after being bitten by an animal?	Wound washing	42(16.3)
	Do nothing	102(39.8)
	Don't know	113(43.9)
7. To whom one should be taken after being bitten by an animal?	Doctor	190(73.9)
	Moulobi/ ojha	53(20.6)
	Don't know	14(5.5)
8. Should ARV be available at a government health centre?	Yes	47(18.3)
	No	3(1.2)
	Don't know	207(80.5)
9. Is vaccine available in your nearest primary health centre?	Yes	0
	No	60(23.3)
	Don't know	197(76.7)
10. What should be done with a rabid animal?	Should be killed	229(89.1)
	No idea	28(10.9)
11. Rabies is almost a fatal disease	Agree	55(21.4)
	Disagree	202(78.6)
12. Bitten area will be cleared with soap and water	Agree	148(57.6)
	Disagree	109(42.4)
13. After bitten by an animal one should visit to the doctor	Agree	226(87.9)
	Disagree	31(12.1)
14. Everybody should be vaccinated irrespective of the grade of injury	Agree	183(71.2)
	Disagree	74(28.8)
15. Castration is the best method to restrict animal population	Agree	35(13.6)
	Disagree	222(86.4)

For first ten questions appropriate answer carry 1 score except question no 2 where the option 2 carry. For the rest part each appropriate answer carry 2 score. Maximum and minimum score attained by them was 19 and 0. Median score was 11 (IQR- 6-15); 127 among the respondent were scored above this.

avoiding dog bite is the only preventive measure. Only 16.3% of the study population thought that wound washing should be done immediately after an animal bite, while 73.9% of the population would prefer to visit the doctor, 20.6% preferred magical treatment. 71%

population thought that everybody should be vaccinated irrespective of the grade of injury. Among the study population 80.5% did not know that vaccine would be available in the primary health centre and 23.3% claimed that vaccine was not available in the nearby

Table - II :
Showing association of perception of the population regarding animal bite with socio-economic and demographic variables.

Variables	Frequency (%)	Good perception**(%)	OR(95% CI)	AOR(95% CI)
Age				
<45yrs	165(64.2)	118(71.5)	23.15(10.75,49.82)	23.82(10.24,55.44)
>45yrs	92(35.8)	9(9.8)		Ref
Sex				
Male	125(48.6)	55(44)	0.66(0.66,2.87)	0.69(0.37,1.39)
Female	127(51.4)	72(54.5)		Ref
Religion				
Hindu	155(60.3)	84(54.2)	1.62(0.98,2.69)	2.203(1.14,4.25)
Muslim	102(39.7)	43(42.2)		Ref
Literacy status***				
Primary and below	198(77.1)	81(40.7)	0.196(0.19,0.09)	0.61(0.28,1.33)
Above primary	59(22.9)	46(78)		Ref
S-E status****				
Upper class	25(9.7)	15(60)	3.15(1.05,9.45)	3.883(0.94,15.96)
Upper middle	101(39.3)	51(50.5)	2.14(0.92,5.002)	2.42(0.87,6.74)
Lower middle	100(38.9)	51(51)	2.19(0.94,5.11)	3.26(1.16,9.13)
Upper lower	31(12.1)	10(32.3)		Ref

Nagelkerke r^2 .484

**Above median score where the median score is 11

***Who have passed class IV standard designated as educated up to primary level

****Socio economic status as per modified Prasad scale 2012(depends on PCI) - Upper class- ≥ 3954 , upper middle-1973-3944, lower middle- 1184-1972, upper lower- 592-1183, lower class- <592

health centre. According to 89% of the study population a rabid animal should be killed but only 13.6% of them opted for castration as the method of choice to control animal population. On the basis of their knowledge and attitude a scoring was done where maximum and minimum attainable score was 21 and 0 respectively and maximum and minimum score attained by them was 19 and 0. Most of them scored 11 (mean 10.67, SD 5.13). On the basis of that a multivariate logistic regression was done.

It showed that Hindus were more knowledgeable and it is statistically significant (AOR-2.203, CI 1.14-4.25). Though there was a relation between knowledge and other variables i.e., literacy status, sex, age socio-economic status but they were not statistically significant (Table-2).

57 out of 257 were bitten by any (dog, monkey, cat) animal in the previous year. 40.3% of study population who experienced animal bite last year was under 15 years. Most (82.46%) of the animal bite victims had category II injury and others had category III. Most of the population who experienced animal bite in the

previous year was being bitten by dog (59.6%) followed by monkey (28.1%) and cat (12.3%). 52.3% population went to doctor and 33.4% went to MOULABI/OJHA for magical treatment. Only 15.8% had received first aid (wound wash) and 47.7% had received vaccination from private medical shop. Among the vaccinated 75% were from the higher socioeconomic group (Upper and upper middle as per modified Prasad scale). Most (85.7%, 5 out of 6) of the higher class educated (middle class and higher) got vaccinated while 42.8% of the low grade educated got vaccination (in case of children below 12 years mother's education was considered). 60.5% of the Hindus who experienced animal bite were vaccinated while only 21.1% of Muslim got the same opportunity. Among the Muslims 68.2% and among the illiterate 58.8% had received magical treatment. All who went to doctor after animal bite had received tetanus toxoid but 5% population did not take vaccination due to lack of money (they were all from lower socio-economic group) and no one among the 57 had received immunoglobulin. Neither immunoglobulin nor the ARV was available in the nearby primary or block primary

hospital. All who got vaccinated bought it from private medical shop. Most of the population who experienced dog bite (70.6%) went to doctor and got vaccinated but most who experienced monkey bite either went to ojha/moulubi or did nothing.

Discussion:

Perception about dog bite is very poor in the study population. Around 65% population heard about rabies in the present study where as, in other studies 68.7% and 94.5% heard the name of rabies respectively^{7,8}. A study was conducted in Gujarat shows that all individual heard about rabies¹¹. In the last two cases survey was done after an episode of dog bite. 21.1% population in the present study thought that rabies is almost a fatal disease but in other study⁷ the same statement was supported by 90.5% population. Only 15.8% among the animal bitten population had received first aid and 16.3% thought it was necessary in the study. In a multi centric community based study it was found that 31.1% of the study population had received first aid after dog bite¹. In two other studies 78% and 31.9% people thought that wound wash is necessary after dog bite respectively^{7,8}. In this study 13.6% opted for castration to control the dog population where as in another study 66.6% population opted the same. In the present study 52.6% population went to doctor after any kind of animal bite and in Agarwal's study¹ 50% population went to doctor after dog bite. Here around 70% population thought that they should visit to a doctor after an animal bite but in US Singh's study, which was conducted in Gujarat, only 36.4% would prefer doctor.⁹ In a multi-centric study sponsored by WHO in India was found that the main biting animal was dog (91%)⁹ which collaborate with this study (59.6%). In that study⁹ second commonest was cat (4.9%) but here it was monkey (28.1%). The strength of the study is that it was a community based study so the view of the general public was projected here. But the population was homogeneous so the result may be biased.

Key Messages:

From the above study it was found that knowledge and attitude of the community towards dog bite was not

up to the mark. Magnitude of animal bite is very high in that area. Though they want to go to the doctor after an incident of animal bite, in reality very few of them practice the same. 50.6% of the study population thought that the bitten one will be giving birth to that animal. 20.6% population would prefer magical treatment over vaccination. Aged population had less knowledge and Hindus were more knowledgeable. Efforts should be made to educate the community about the hazards of animal bite and its consequences. There is also an urgent need to educate people regarding the immediate benefits of wound management and need for ARV following animal bite besides making vaccines and immunoglobulin available at PHC level. Panchayat should take step to control stray dog and monkey population.

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