



Research Article

# A Study on Clinico-Social Profile of Animal Bite Cases Attending an Anti-Rabies Clinic of a Tertiary Care Hospital, Odisha - A Cross Sectional Study

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## A B S T R A C T

**Background:** Human rabies continues to be endemic in India and according to a recent estimate 20,000 people die of this disease every year. However at the same time, it is also 100% preventable through timely and proper post exposure prophylaxis.

**Aims and Objectives:** The present study was undertaken to assess the socio-clinical profiles of animal bite cases attending the anti-rabies clinic of a tertiary care hospital of Odisha, to find out the association of socio-clinical factors with Category III bite cases and to study the first aid practices of such patients.

**Methodology:** A hospital based cross section study was conducted at an anti-rabies clinic of S.C.B. Medical College & Hospital, Odisha between the months of January and March 2018. New animal bite cases that gave the consent to participate were included in the study. 20% of the new eligible cases i.e., 1200 were taken by using consecutive sampling of 15 patients per day. A pretested and predesigned questionnaire was used to collect the data. Analysis was done in SPSS.

**Results:** In this study Males (70%) are predominantly affected. About 26% cases were children <15 yrs. Dog bite was seen in 80% cases. Lower limb (60%) was the most commonly the bitten site. A majority had category III (76%) exposure. About 75% bites were unprovoked bites. Most of the cases (55%) came from the rural area. 43% cases applied bitter gourd and turmeric paste on their wounds.

**Conclusion:** From this study, we observed that males have a higher incidence of animal bite than females and most of the cases were >15 years age. The most common animal biting people is a dog. A majority had category III exposure.

**Keywords:** Animal Bites, Clinical Profile, Rabies, Anti-Rabies Clinic



## Introduction

Rabies is an acute infectious viral (Lyssa Virus) zoonotic disease of the central nervous system that is almost always fatal following the onset of clinical signs.<sup>1</sup> The virus is found in warm blooded terrestrial animals and mostly transmitted to human beings through their saliva following bites, scratches, or licks on broken skin and mucous membrane.

Incidence of animal bites is 174 per 1000 of population. In India one person is bitten by an animal every 2 seconds and one person dies from rabies every 30 minutes.<sup>2</sup> Human rabies is endemic in India and annually, an estimated 20,000 people die of this disease.<sup>1-1</sup> Around 40% of those bitten by a suspected rabid animal are children as reported by WHO (4). Canine rabies continues to exist in 87 countries or territories of the world. These accounts for 99% of all human rabies victim.

More than 99% of all human deaths from rabies occur in the developing world<sup>5</sup> and although effective and economical control measures are available, rabies remains a neglected disease throughout most of these countries.<sup>6,7</sup>

The Global Alliance for Rabies Control (GARC) in collaboration for Animal Health, Food and Agricultural organization and WHO have put forward the global strategic plan “Zero by 2030”.<sup>8,9</sup>

Rabies is a zoonotic disease that is almost always fatal yet is fully (100%) preventable (10) and the preventive measures such as ARV, RIG are available in the hospitals and health centres. Unquestionably the level of the knowledge of the community and concern about the animal bite injuries has an important role to play in dealing with this problem.<sup>11</sup> Data in the clinic-social profile is lacking in this part of the state. Hence this study was done to assess the clinic-social profile of cases attending the anti-rabies clinic.

## The Present Study was Undertaken

- To assess the socio-clinical profiles of animal bite cases attending the anti-rabies clinic of a tertiary care hospital of Odisha
- To find out the association of socio-clinical factors with Category III bite cases
- To study the first aid Practices

## Materials and Methods

After taking the institutional ethical clearance, the hospital based cross-section study was conducted in the anti-rabies clinic during the period of January-March 2018. The study population included all new animal bite cases attending the anti-rabies clinic. 20% of the average daily OPD attendance of new cases which came out to be 12 per day were taken for 3 months, giving a total sample size of 1080. 10% of nonresponse rate was also taken, so total sample size = 1188. Therefore a total of 1200 study subjects were taken.

**Inclusion Criteria:** New animal bite cases of all ages and both sexes.

**Exclusion Criteria:** Seriously ill patients, human bite cases, re-exposure cases.

A consecutive sampling was done for enrolling study participants. A pretested and predesigned questionnaire was used to collect the data. Analysis was done in SPSS 16 software. The Chisquare test, odd’s ratio (95% CI) were used to show the association. P< 0.05 was considered as stastically significant.

**Table I. Socio-clinical Profile of Animal Bite Cases**

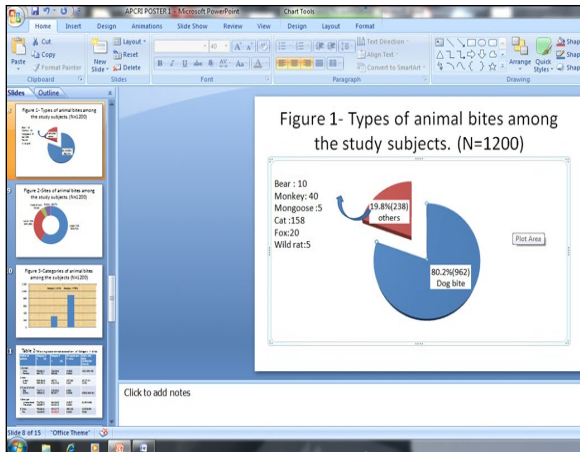
Variables	N=1200	Percentage (%)
Age groups(years)≤ 15	312	26
>15	888	74
Gender		
Male	840	70
Female	360	30
Domicile		
Urban	540	45
Rural	660	55
Education		
No/ formal	304	25.4
Primary	372	31
Secondary/ above	524	43.6
Animal type		
Pet	474	39.5
Stray	726	60.5
Immunization status of pet animal (n=474)		
Yes	133	28
No	341	72
Cause of bite		
Provoked	304	25.3
Unprovoked	896	74.7
Categories of bite		
cat II	288	24
cat III	912	76

## Result

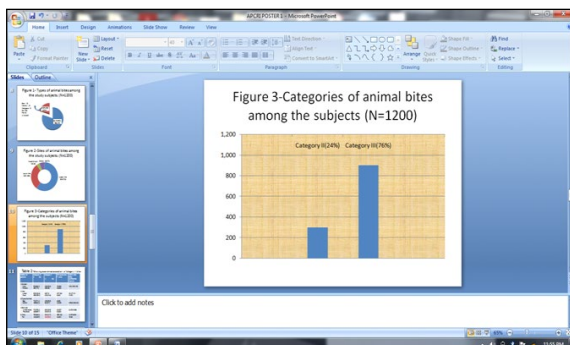
Out of total 1200 patients studied, 312 (26%) belong to ≤ 15 years age group. A majority of the cases were males 840 (70%), coming from rural area 660 (55%). 895 (74.6%) were literates. 474 (39.5%) cases were bitten by pet animals where as a majority were bitten by stray animals 726 (60.5%). Among those pet animals, only 133 (28%) were

immunized. 304 (25.3%) bites were provoked while 896 (74.4%) bites were unprovoked.

962 (80.2%) were bitten by a dog while cat bite was seen in 158 (13.2%) followed by monkey bite 40 (33.3%) (Figure 1).



**Figure 1. Types of animal Bites among the Study Subjects (N= 1200)**



**Figure 2. Categories of animal Bites among the Subjects (N= 1200)**

In this study, 288 (24%) cases had cat II bite while 912 (76%) had cat III bite (Figure 2).

In this study, 432 (36%) has taken no action on being bitten. 516 (43%) cases had applied a paste on wound. Only 252 (21%) of the cases had cleaned the wound site with soap and water or only water. Traditional myths and beliefs prevent people to follow appropriate scientific practice after animal bite (Table 2).

**Table 2. Local Treatment before Visiting the Hospital**

	N=1200	Percentage(%)
Nothing	432	36%
Application of cow dung, turmeric paste, bitter guard etc	516	43%
Wash with soap and water/only water	252	21%

After exposure to animal bite, out of the 1200 studied cases, only 348 (29%) came to any health care facility within 24 hours post- exposure. The reasons for delay reporting may be that they came from a long distance or probably were not aware about the importance of immediate management of animal bite cases.

**Table 3. Time of Reporting to any Health Care Facility after Bite**

Time Interval	N=1200	Percentage(%)
<24 hours	348	29
>24 hours	852	71

**Table 4. Shows that Gender, Residency, type of Animal, Biting type were Significantly Associated with Category of bite**

Profiles of Patients	Category III bites n (%)	Category II bites n (%)	Chisquare test P value	Odd's Ratio (95% CI)
Gender				
Male	520 (80.2)	128 (19.8)	13.930	1.6 (1.26-2.16)
Female	392 (71)	160 (29)	0.0002	
Area				
Urban	616 (92.8)	616 (92.8)	227.182	10.4 (7.41-14.61)
Rural	296 (55.2)	240 (44.8)	0.001	
Type of animal				
Dog	713 (74.1)	249 (25.9)	8.350	0.56 (0.38-0.81)
Others	199 (83.3)	39 (16.7)	0.0039	
Type of bite				
Unprovoked	712 (79.4)	184 (20.6)	22.527	2 (1.51-2.68)
Provoked	200 (65.7)	200 (65.7)	0.0001	

In this study, the most targeted site of bites or scratches were on the lower limb; 720 (60%) followed by upper limb 360 (30%), head and neck 48 (4%) and others 72 (6%) (Figure 3).

## Discussion

The present study showed that a majority of cases i.e. 840 (70%) were males and the male: female ratio was 3:1. A

similar finding was observed in the study by Nirmalya Manna et al in West Bengal, Subathra V et al in Bengaluru, Amit Ganasva in Gujurat, Debashish Parmar in Nagpur.<sup>12,13,14,15</sup> This male preponderance may be due to more outdoor activity than female. Hence the increased risk of exposure to animal bite.

In our study, we found that about 858 (74%) of total animal bite victims belong to an age more than 15 years. Similarly in the study conducted by Subathra V et al shows that 28.9% were children less than 15 years.<sup>13</sup> Lack of inhibition in provoking the animals and their inability to protect themselves from the bite may increase the risk of bite in the case of children.

In a study conducted by Mohd Junaid et al in Nagpur, it was seen that most of the patients (87%) were from the urban area. Contrary to this we found that a majority of the victims (55%) were from the rural area.<sup>16</sup> This may be attributed to the fact that the study area is a tertiary care hospital to which most of animal bite cases were referred to from the peripheral areas for immunoglobulin administration.

Unprovoked bites (74%), category III bites (76%), bite by dogs (60%) accounted for most of the injuries similar to the study done by Mohd Junaid et al., Pratibha Chauhan et al in Jodhpur.<sup>16,17</sup>

The most common site involved in animal bite victims was found to be the extremities (90%) which is in collaboration with finding of studies conducted by Mohd Junaid et al and Mudassir Azeer Khan in Mysore.<sup>16,18</sup>

Among pet dogs, only 28% were vaccinated in our study which indicates poor vaccination even in pet animals. The finding was consistent with the study conducted by Subathra V et al.<sup>13</sup> This may be due to a lack of strict implementation of the legal provision for licensing and regular vaccination of pet dogs.

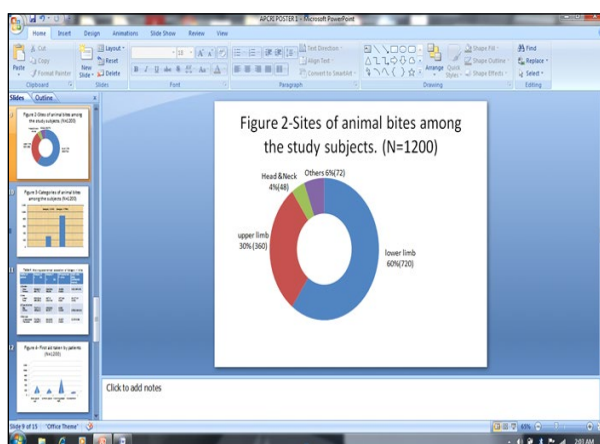


Figure 3. Sites of Animal Bites among the Study Subjects (N= 1200)

About 71% of dog bite cases are reported to anti rabies clinic after 24 hours of exposure. The reason behind delayed presentation may be due to a greater distance from the hospital, loss of daily wages, lack of seriousness about vaccination and finding the animal is healthy and alive after biting its victim.

## Conclusion

In this study, we found that an animal bite is more common among adult males. Biting cases were more from rural areas. Dogs were the main animals that bit people. A majority of bites were unprovoked and came under category III. The lower limb was found to be more common biting site which might be due to easy accessibility. Category III bites were positively associated with stray animals, amongst male victims, in urban areas and unprovoked. Although a majority of the total animal bite cases were from the rural area both Cat II & Cat III but particularly Cat III bite cases were more from the urban area. Most of the cases did not use proper or immediate post exposure prophylaxis.

There is a need to control stray dog population in urban areas and vaccinate them through the ABC-AR (animal birth control-anti-rabies vaccination) programme. Spreading awareness about immunization of pet dogs should be initiated. Intensification of IEC activities regarding scientific first aid and early PEP in case of animal bite needs to be undertaken. Use of trousers or full jeans during outdoor activities may help in lowering the severity of animal bite.

## Ethical Approval taken from IEC

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Conflict of Interest: None

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