

## Original Research Article

# Descriptive profile of patients attending antirabies clinic: a hospital based study of animal bite cases in Patiala

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**Received:** 25 March 2020

**Revised:** 26 April 2020

**Accepted:** 28 April 2020

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## ABSTRACT

**Background:** The word “Rabies” is derived from Latin word ‘Rabus’, which in turn is derived from the Sanskrit word ‘Rabhas’ which means ‘to do violence’. In India, the dog has always existed as the main reservoir of rabies. Globally Asia contributes to highest Rabies mortality; with the highest incidence reported in India followed by China.

**Methods:** A cross-sectional study was conducted at the antirabies clinic during the period of one year (2016-2017). A self-administered, pretested questionnaire was used to extract information on demographic profile, biting animal, nature of biting dog, vaccination status, WHO category of bite, site of bite. Information of 500 animal bite cases were collected during the study period.

**Results:** Maximum cases were reported among children below 15 years age group i.e. 157 (31.4%). Majority reported cases 342 (68.40%) were males and maximum reported cases 338 (67.60%) were from urban area. Majority 472 (94.4%) were bitten by dogs. Approximately two third (66.74%) of the biting dogs were stray while, among the total 157 (33.26%) pet dogs; approximately only one third 59 (37.58%) were vaccinated.

**Conclusions:** Since young children are more at risk of animal bite. So, educational sessions providing knowledge to protect themselves from bites should be a part of School Health Programme. A cooperative approach involving measures like proper garbage disposal, discouraging community owned dogs, helping dog catching squad and sterilization will help to reduce the dog population.

**Keywords:** Antirabies vaccine, Antirabies serum, Dog bite, Post- exposure prophylaxis, Rabies, WHO

## INTRODUCTION

Human often gets injured and bitten by animals like dog, cat, monkey, rat etc. Worldwide, animal bite is a major public health problem among children and adults. Other than the injuries, Rabies is the most dreaded complication of animal bite, being 100% fatal.<sup>1</sup>

The word “Rabies” is derived from Latin word ‘Rabus’, which in turn is derived from the Sanskrit word ‘Rabhas’ which means ‘to do violence’.<sup>2</sup> It is transmitted to

humans usually by bites and licks of rabid animals. In India, the dog has always existed as the main reservoir of rabies.<sup>3</sup> The WHO World Survey of Rabies for the year 1997 gave an estimate of between 35,000 and 50,000 cases annually. Globally Asia contributes to highest Rabies mortality; with the highest incidence reported in India followed by China.<sup>4</sup> National Multicentric Rabies Survey projected the latest figure of 20565 human deaths from rabies annually; thereby contributing approximately 60% to the total Asian deaths.<sup>5</sup> The actual number of cases and deaths in India may be much higher because

rabies is not a notifiable disease in India. Major challenge to estimate the true number of cases is the gross under-reporting of rabies exposures. As many rural population (especially in developing countries) fails to seek treatment and die and these deaths are not notified.<sup>3</sup> After an animal bite, post-exposure rabies prophylaxis (PEP) is the only way to prevent rabies disease. The PEP, namely Antirabies treatment is a life-saving treatment in a definite rabid animal bite. The antirabies treatment comprises of antirabies vaccine, antirabies serum and wound treatment.<sup>6</sup> In view of this background, this study was undertaken to study the profile of animal bite patients seeking treatment from Anti Rabies Clinic, Govt. Medical College and Rajindra Hospital, Patiala.

**METHODS**

A cross-sectional study was conducted at the Antirabies clinic functional under the department of community medicine, Government Medical College, Patiala, Punjab during the period of one year (2016-2017). The Antirabies clinic witnesses a daily OPD of average 5- 7 new animal bite cases. For the purpose of data collection, the Antirabies clinic was visited twice a week during working hours i.e. between 8:00 AM to 02:00 PM. A self-administered, pretested questionnaire was used to extract information on demographic profile, biting animal, nature of biting dog, vaccination status, WHO category of bite, site of bite.

All new cases of animal bite attending the clinic who gave their consent were included in the study and interviewed by the principle investigator. The new animal bite cases who did not gave their consent and the old animal bite cases visiting the clinic for follow up and subsequent doses of Antirabies vaccine were excluded from the study. Information of 500 animal bite cases were collected during the study period.

**Statistical analysis**

The collected data was entered in Microsoft excel which was further cleaned and coded. Finally, the coded data set was exported to Epi Info version 7 for statistical analysis. Results were presented as simple proportion, mean and standard deviation. Chi- square test was applied to test for the significance of association. Statistical significance was set at p value <0.05.

**RESULTS**

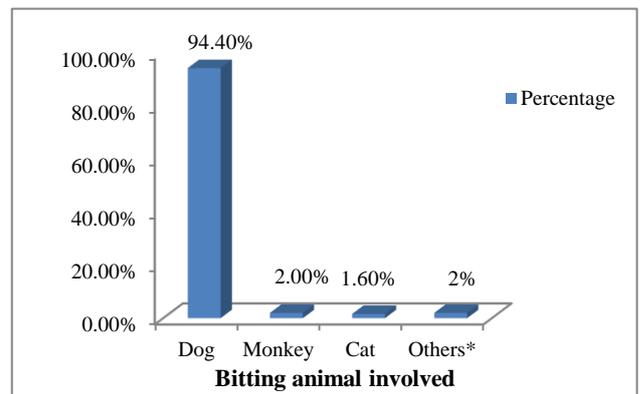
Table 1 showed that maximum cases were reported among children below 15 years age group i.e. 157 (31.4%), followed by 15-29 years 120 (24%) whereas only 50 (10%) cases was reported among above 60 years age groups. The mean age of reported cases was 29.07 years. Majority reported cases 342 (68.40%) were males and maximum reported cases 338 (67.60%) were from urban area (Table 1).

Horse (1), Jackal (1), Mongoose (2), Rat (2), consumption of suspected rabid cow’s milk- (4).

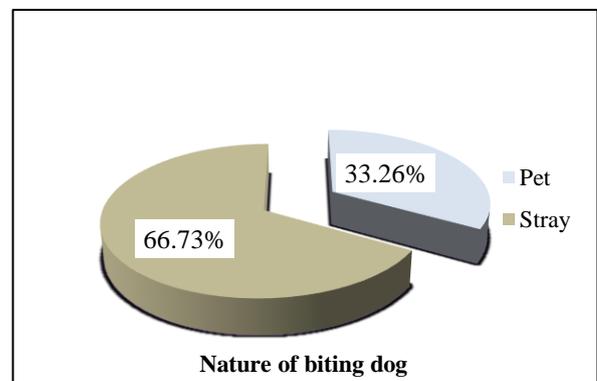
Figure1. showed that majority 472 (94.4%) were bitten by dogs. Furthermore, out of the 472 dog bite cases; approximately two third (66.74%) of the biting dogs were stray (Figure 2) while among the total 157 (33.26%) pet dogs; approximately only one third 59 (37.58%) were vaccinated (Figure 3).

**Table 1: Demographic profile of animal bite case (n=500).**

Demographic profile	Number	Percentage
<b>Age group (in years)</b>		
0-14	157	31.40
15-29	120	24.00
30-44	74	14.80
45-59	99	19.80
>60	50	10.00
<b>Gender</b>		
Male	342	68.40
Female	158	31.60
<b>Residence</b>		
Rural	162	32.40
Urban	338	67.60



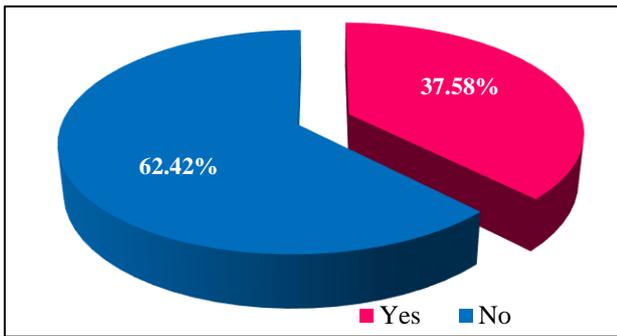
**Figure 1: Distribution of cases in relation to biting animal involved (n=500).**



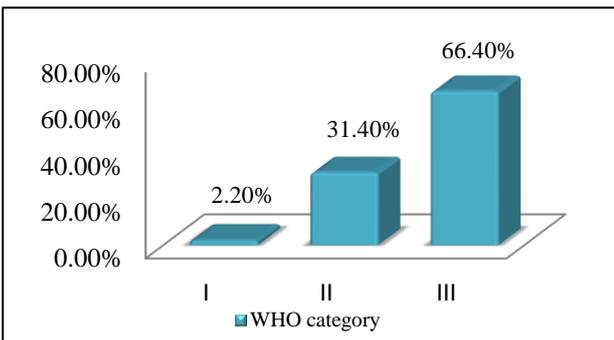
**Figure 2: Distribution of cases in relation to nature of the biting dog (n=472).**

**Table 2: Association of age with site of bite.**

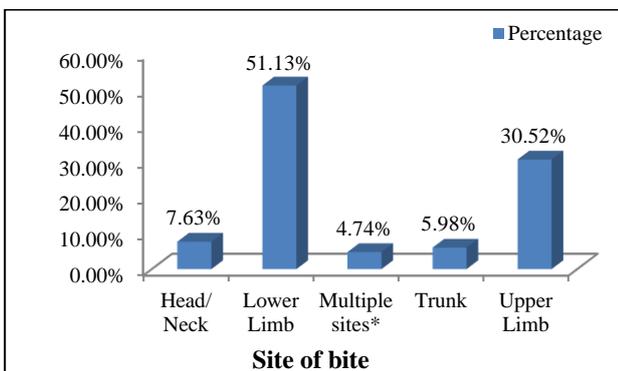
Age (in years)	Head/ neck	Lower limb	Multiple bites	Trunk	Upper limb	Total
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
0<15	21(13.38)	52 (33.12)	11 (7.01)	9 (5.73)	64 (40.76)	157 (100)
15<30	3 (2.68)	71(63.39)	4 (3.57)	3 (2.68)	31(27.68)	112 (100)
30<45	4 (5.41)	40 (54.05)	3 (4.05)	9(12.16)	18 (24.32)	74 (100)
45<60	8 (8.42)	53 (55.79)	1(1.05)	8 (8.42)	25 (26.32)	95 (100)
>60	1 (2.33)	32 (68.08)	4 (8.51)	0	10 (21.27)	47 (100)



**Figure 3: Distribution of pet dog cases in relation to their vaccination status (n= 157)**



**Figure 4: Distribution of cases as per WHO category of bite (n = 500).**



**Figure 5: Distribution of animal bite cases in relation to site of bite (n=485).**

\*Bites at several sites, \*\*out of total 500 cases, 11 belonged to category I of animal bite exposure and 4 belonged to consumption of suspected rabid cow's milk. They were excluded from the analysis of site of bite.

Figure 4 identified that more than half 332 (66.40%) of the reported cases were of category III followed by category II (31.40%) whereas only 2.2% cases were falling in category I. In total, lower limb 248 (51.13%) was the most commonly bitten site (Figure 5) but Table 2 found that upper limb and head /neck together (54.14%) was the most common site involved among children less than 15 years age while lower limb was the most common site involved in rest all other age groups (p<0.01).

**DISCUSSION**

A majority of the studies conducted in India and other countries have shown that most animal bites, particularly dog bites, were suffered by children and economically productive age group. In the present study, although animal bites occurred in all age groups but persons in 15-45 years (38.8%) and children under 15 years (31.4%) were found to be most affected. The young children being small and vulnerable may induce a dog to act violent towards them whereas the economically productive age group (15-45 years) usually go outside for job to earn livelihood, which put them at more risk of animal bite exposure. Other than health implications, it also indirectly leads to work loss and school absenteeism.

Similarly, Kinge et al observed in their study conducted at Nagpur, about 19.8% cases of animal bite occurred in children up to 10 years of age and nearly half of the cases occurred in persons of economically productive age group.<sup>7</sup> Gadekar et al from Maharashtra, Tiwari et al from Gwalior and Shetty et al from Pune also found similar trends in their study.<sup>8-10</sup> In the present study (Table 1), male to female ratio of incidence of animal bite was 2.1:1. As males spent more time outside the home as compared to females; this fact might provide explanation for the higher incidence among males (68.40%) in the study. In a study conducted by Patnaik et al from Andhra Pradesh and Gohil et al from Delhi, animal bites were likewise most often observed in males (57%).<sup>11,12</sup> The higher prevalence of animal bites in males than in females can be attributed to more amount of time spent outside the home. In contrast, a study by Pandey et al on tourists and foreigners in Nepal showed that the incidence of animal bites was higher in females than in males, which reflects the outdoor risk of animal bites may be same for both the sexes.<sup>13</sup> The proportion of animal bite victims from urban area (67.60%) was more than from rural area

(urban to rural ratio=2.08:1) (Table 1). It may be because the current study was conducted in the urban area. Also, better awareness among urban people for seeking advice may be the factor responsible for more urban presentation. In consonance with the present study, Kulkarni et al from Maharashtra found ratio of urban to rural was 1.7:1 in his study.<sup>14</sup> Dog was found to be the most common biting animal (94.4%) in the current study.

Our finding is in consonance with the result of a WHO Sponsored National Multi-Centric Rabies study, which reported biting animals were predominantly dogs (91%).<sup>7</sup> In the present study (Figure 2), out of 472 cases bitten by dog; majority (66.73%) were bitten by stray dog. This reflects the need to address the issue of regulating the movement of increasing number of free roaming stray dog population in the city. In consonance with the finding, Acharya et al from Bikaner also reported stray dogs were responsible for the majority of bites (76.33%).<sup>15</sup> In the present study (Figure 3), on asking about the vaccination status of the pet dogs who were responsible for 37.58% of reported bite cases. The study finding revealed that only one-third (37.58%) pet dogs were immunized. Although the vaccination coverage was found to be low but it is better as compared to other studies. Still, the situation is alarming and is a matter of concern. Similar canine vaccination status (31.7%) was reported by Sangeetha et al from Tamil Nadu.<sup>16</sup> In the present study (Figure 4), 66.40% cases had class III bite as per the WHO classification while 31.40% cases had class II bite and only 2.2% cases had class I bite. Lesser reporting of Class II as compared to Class III at tertiary ARC could be because government has strengthened the availability of AntiRabies Vaccine at PHCs and CHCs. So, the milder cases are getting their treatment at peripheral level only. While the reason for less reporting of Class I bite may be unawareness regarding seeking medical advice for such a trivial exposure. Overall lower limb (51.13%) was the most common site of bite as these are most easily approachable part of the body for an animal whereas upper limb and head/neck bites together were common in children (Figure 5). Smaller height in children may be the reason. These findings were consistent with findings of Masoodi et al from Srinagar, they reported 55.63% cases were bitten on lower limb.<sup>17</sup>

## CONCLUSION

Rabies remains an important public health problem in India. Since young children are more at risk of animal bite. So, educational sessions providing knowledge to protect themselves from bites should be a part of School Health Programme. Furthermore, canine rabies still remains uncontrolled, with infected dog being the most common mode of transmission. A cooperative approach involving measures like proper garbage disposal, discouraging community owned dogs, helping dog catching squad and sterilization will help to reduce the dog population. Dedicated efforts are needed to control the population of stray dogs, through intersectoral

coordination between municipal cooperation and veterinary doctors, to ensure sterilization of stray dogs.

*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:** Chaudhary N, Brar MS, Mishra S, Randhawa A. Descriptive profile of patients attending antirabies clinic: a hospital based study of animal bite cases in Patiala. *Int J Community Med Public Health* 2020;7:2326-30.