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**Original Research Article**

# Distribution of animal bite cases attending anti-rabies clinic of a tertiary health care center in central India

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## ABSTRACT

**Background:** Human rabies is 100% fatal communicable disease but preventable through prompt and appropriate medical care. In spite of this, it claims an estimated 59000 lives each year mostly in Asia and Africa. India is endemic for rabies. In India alone, 18000 to 20000 deaths occur annually mostly in under 15 years old children. If not treated on time, it causes significant social and economic burden specially on developing countries like India. Also to achieve the World Health Organisation's aim to end human deaths from dog-mediated rabies by 2030, the analysis of animal bite cases will play a very crucial role. This study aims to study the distribution of animal bite cases attending the anti-rabies clinic.
**Methods:** This cross-sectional study was carried out in patients who attended the Anti-Rabies Clinic for treatment of animal bites from January to April 2025, at a tertiary health care center in Nagpur, Maharashtra.
**Results:** Among reported cases, 32.9% animal bites were present in age group 16-30 years, 67.6% bites were in males, 87% of the total animal bite cases were from urban area, stray animal bites were 50.18%, dog was the most common animal responsible for bite which is 84.49%, 87.34% were category III wounds.
**Conclusions:** Adult males were having higher risk of category III animal bite wounds. Stray dogs were mainly responsible for the animal bites.

**Keywords:** Animal bites, Anti-rabies clinic, Rabies

## INTRODUCTION

Rabies is a serious public health problem in over 150 countries and territories, mainly in Asia and Africa. It is a viral, zoonotic, neglected tropical disease that causes tens of thousands of deaths annually, with 40% being children under 15. Dog bites and scratches cause 99% of the human rabies cases. Once the virus infects the central nervous system and clinical symptoms appear, rabies is fatal in 100% of cases. The global cost of rabies is estimated to be around US$ 8.6 billion per year including lost lives and livelihoods, medical care and associated costs, as well as uncalculated psychological trauma. Globally there are an estimated 59000 deaths from rabies annually.[1]

India is endemic for rabies, and accounts for 36% of the world's rabies deaths. It causes 18000-20000 deaths every year in India.[2]

As dog bites cause almost all human cases, we can prevent rabies deaths by increasing awareness, vaccinating dogs to prevent the disease at its source and administering life-saving treatment after people have been bitten. We have the vaccines, medicines, tools and technologies to prevent people from dying from dog-mediated rabies. In 2015, the world called for action by setting a goal of zero human dog-mediated rabies deaths by 2030, worldwide.[3]

To achieve this goal, the analysis of animal bite cases will play a very crucial role. This study aims to study the

distribution of animal bite cases attending the anti-rabies clinic.

## METHODS

### *Study design*

A record based cross-sectional study was carried out in the Anti-Rabies Clinic (ARC) of a tertiary health care centre of Government medical college and hospital, Nagpur, Maharashtra. Objective was to study the distribution of animal bite cases attending anti rabies clinic of a tertiary health care center in Central India. This ARC provides treatment and counselling services about various animal bites to the residents of Nagpur district and surrounding area. A register is maintained in the clinic in which the data related to animal bite cases and treatment history is entered on daily basis. Also, online entries are done daily. Intern doctors are trained for the online data entry. The WHO protocol is followed for the treatment of animal bite cases coming to ARC.

### *Study population*

Animal bite cases attending anti rabies clinic from January 2025 to April 2025 were studied. The data contains detailed information regarding animal bites such as status of animal involved, type of animal involved, category of animal bite, treatment taken. Data on sociodemographic characteristics of patients such as age, gender, place of residence was also available.

### *Data analysis*

This secondary data was collected after obtaining required permission from ARC in-charge and ethical clearance. Cases whose complete data was missing from the records were excluded from the study. The data was entered into a Microsoft Excel spreadsheet and analysed. Categorical variables were expressed in terms of proportion and percentage. Tables and appropriate diagrams were used to illustrate the results.

## RESULTS

Total 1335 cases of animal bites attending ARC from the period of January 2025 to April 2025 were studied from the tertiary health care centre. Adults between 16-30 yrs of age were the most affected i.e. 32.8%. Among them 22.9% were males and 9.9% were females. Followed by 23.4% of children between 0-15 years of age. Females of more than 60 yrs of age were the least affected (3.4%) (Table 1).

Total 87% of the animal bite cases were from urban area and 13% from rural area (Figure 1).

Total 50.1% were stray animals, followed by 47.9 % pet animals. Wild animals like monkey, bear were responsible for 2% of total animal bite cases (Figure 2).

**Table 1: Distribution of animal bite cases according to age and gender.**

| Age group (years) | Males (N, %) | Females (N, %) | Total (N, %) |
|---|---|---|---|
| **0-15** | 206 (15.5) | 106 (7.9) | 312 (23.4) |
| **16-30** | 306 (22.9) | 133 (9.9) | 439 (32.8) |
| **31-45** | 181 (13.5) | 85 (6.4) | 266 (19.9) |
| **46-60** | 133 (9.9) | 70 (5.4) | 203 (15.3) |
| **>60** | 69 (5.2) | 46 (3.4) | 115 (8.6) |
| **Total** | 895 (67) | 440 (33) | 1335 (100) |

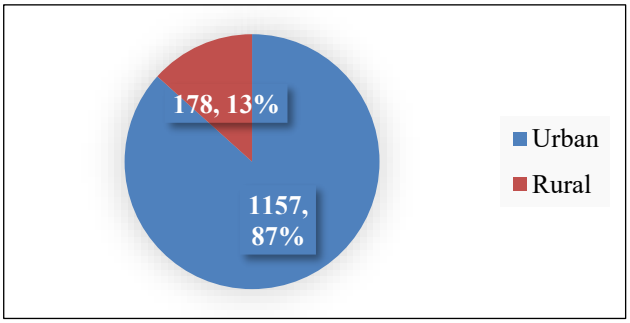


**Figure 1: Distribution of animal bite cases according to place of residence.**

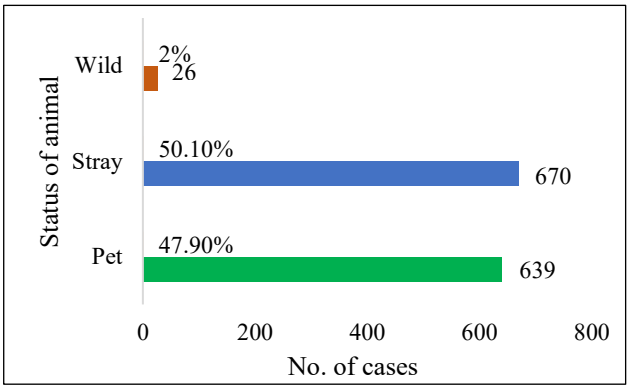


**Figure 2: Distribution of animal bite cases according to status of animal.**

Dogs were responsible for the maximum animal bites (84.5%), followed by cats (11%) (Table 2).

**Table 2: Distribution of animal bite cases according to type of animal.**

| Type of animal | Number | Percentage |
|---|---|---|
| **Dog** | 1128 | 84.5 |
| **Cat** | 147 | 11 |
| **Monkey** | 24 | 1.8 |
| **Other** | 36 | 2.7 |
| **Total** | 1335 | 100 |

Total 87.3% of animal bite cases belonged to category III, followed by category II (12.4%) and category I (0.3%) (Figure 3).

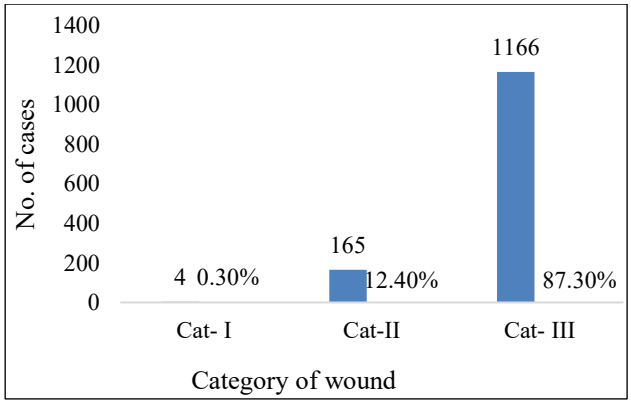


**Figure 3: Distribution of animal bite cases according to category of wound.**

## DISCUSSION

In this study, out of total 1335 cases, adults between 16-30 yrs were the most affected i.e. 32.8%. Similar findings were reported by Sharma et al (62.9%), Panda et al (65.8%) and Jain et al (23.45%).[4-6] 23.4% of animal bite cases belonged to children of age group between 0-15 years. Similar findings were reported in other studies done by Acharya et al (25.35%), Weiss et al (60.7%), Monory et al and Masthi et al (25.35%).[7,9-11] Children are the principal victims because their inherent fondness to animal, because of their tendency to provoke animals and also because they are less likely to defend themselves against the attack by rabid animals.

This study shows that majority of males (67%) were affected. This is probably because males are exposed more as they move out of their house than females, mainly because of occupational purpose. Rabies is an exposure related disease. Thus, males are affected more than females. Similar findings were observed by Acharya et al and Salve et al, where they reported that 76.36% and 70.4% males respectively were affected in their studies.[7,8]

In this study we found that majority of population (87%), belonged to urban area, in contrast to a study done by Acharya et al, where they found that majority (53.1%) population belonged to rural area.[7] This is probably because the ARC of this tertiary health care centre mainly caters to people living in Nagpur district and rural population gets treated by the health facilities available at their localities. Borkar et al and Satapathy et al also reported in their studies that majority of population 55.10% and 52.48% respectively, belonged to urban area which was similar to our study findings.[20,21]

Stray animals (50.1%) mainly dogs (84.5%) were responsible for the animal bite cases. This was supported by studies done by Sudarshan et al (64%), Ichhpujani et al (92%), Jethani et al (93.6%) and Bashir et al (98%).[12-15]

Majority of animal bites belonged to category III (87.30%), followed by category II (12.40%). This is mainly because the category III animal bite cases are referred to this tertiary health care centre for Rabies Immunoglobulin administration from periphery. Other bites are managed by the health facilities available at their localities. Similar finding was reported in other studies done by Masthi et al (97.1%), Sahoo et al (93.8%), Sadasivan et al (58.8%) and Singh et al (77.43%).[16-19]

## CONCLUSION

Adult males were having higher risk of category III animal bite wounds. Stray dogs were mainly responsible for the animal bites.

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