

**Title:** PET DENSITE AND KNOWLEDGE REGARDING RABIES  
PROPHYLAXIS AMONG RESIDENTS OF MANDYA CITY

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**Keywords** Pet density, pet care practices, rabies, prophylaxis

**Abstract** A companion animal pet is primarily for a persons company or protection. Dogs and cats are the most common household pets. Animals like cow, buffalo, sheep etc are reared for various uses as pre domestic animals in India. These animals are also potential source for the spread of zoonosis, including rabies. Here there a need to know the pet density, pet care practices and awareness regarding rabies prevention.

## Original Article

## Pet Density and Knowledge regarding Rabies Prophylaxis among Residents of Mandya City

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### ABSTRACT

#### Need for the study:

A companion animal (pet) is primarily for a person's company or protection. Dogs and cats are the most common household pets. Animals like cow, buffalo, sheep, etc. are reared for various uses as peridomestic animals in India. These animals are also a potential source for the spread of zoonosis, including rabies. Hence there is a need to know the pet density, pet care practices and awareness regarding rabies prevention.

**Objectives:** A. To assess the mammalian pet density in Mandya city.

B. To assess the pet care practices among pet owners.

C. To assess the knowledge of pre and post- exposure prophylaxis against rabies among residents of Mandya city.

**Methodology:** This cross sectional study was conducted in 2013-14 among residents of Mandya city. A total of 1050 household were surveyed and information was collected using pretested semi-structured questionnaire in the local language (Kannada). Analysis of data was done using SPSS 15.

**Results:** 1050 household were surveyed. 21.6% households had pets/ peridomestic animals. The pet / peridomestic density in the urban Mandya was one per 14 persons and the pet dog density was one per 30 persons. The pet/ peridomestic animal owners, 51.9% consulted the veterinarian regularly. 146 households had pet dogs, 56.8% of them vaccinated their dogs against rabies regularly. 51.4% were using leash for their dogs. None of the pet-owners had pet license. Knowledge regarding rabies immunoglobulin was significantly more among pet owners (15.4%) compared to non-pet owners (03.9%). Awareness about the need for rabies vaccine was significantly more among pet owners (94.7%) compared to non-pet owners (57.9%).

**Key Words:** pet density, pet care practices, rabies, prophylaxis

### INTRODUCTION

A companion animal (pet) is maintained primarily for a person's company or protection. The most popular pets are noted for their attractive appearances and their loyal or playful personalities. Pets can ease loneliness, reduce stress, encourage exercise and provide unconditional love and affection. Numerous studies have explored the relationship between pet (primarily dog or cat) ownership and cardio vascular diseases, with many reporting beneficial effects, including increased physical activity, favourable lipid profiles, lower systemic blood pressure and improved survival after an acute coronary syndrome.<sup>1</sup>

Dogs and cats are the most common household pets. Animals like cow, buffalo, sheep, etc. are reared for various uses as peridomestic animals.<sup>2</sup> These pets and peridomestic animals are potential sources for the spread of zoonotic diseases, including rabies.

Rabies is a zoonotic disease caused by a single stranded RNA virus belonging to genus *Lyssa* virus of the family *Rhabdoviridae*. Animal rabies is

endemic in India with high degree of rabies positivity in the laboratory among pet and peridomestic animals.<sup>3</sup> Man is an accidental and dead end host. Nearly 95% of human rabies deaths are caused due to exposure to rabid dogs.<sup>4</sup>

Globally, 55,000 human rabies deaths are reported every year. Majority, 84% of these deaths occur in rural areas. In India, an estimated 20,000 human rabies deaths (36% of the global burden) and 17.4 million animal bite cases occur annually.<sup>3</sup>

The lack of responsible ownership of pet and community dogs is an important issue that is often overlooked.<sup>5</sup> Awareness regarding wound toilet, post- exposure prophylaxis and pre-exposure prophylaxis against rabies is lacking in the community.<sup>6</sup> In this regard the present study was undertaken to know the proportion of households with mammalian pets and peridomestic animals, pet care practices among pet owners and awareness regarding pre and post-exposure prophylaxis against rabies among the residents of Mandya city.

### METHODOLOGY

This cross sectional study was conducted during August 1st 2013 to January 31st 2014 among the

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residents of Mandya city after getting approval from Institutional Scientific Committee. Mandya city has 35 municipal wards, in each ward a house was randomly selected. The survey was completed in a ward by covering 30 consecutive houses by convenient sampling. Data was collected by interviewing a reliable, responsible adult respondent of that household. A total of 1050 household were surveyed and information regarding the presence of pet/ peridomestic animal, pet care practices and knowledge regarding pre and post- exposure prophylaxis against rabies was collected using pretested semi structured questionnaire in the local language (Kannada) from pet owners (who had pet/ peridomestic animal) and from non-pet owners. Analysis of data was done using SPSS 15.

## RESULTS

A total of 1050 houses were visited in 35 municipal wards and 1050 respondents were interviewed. The population covered in 1050 houses was 4930, among them 3782 (76.7%) were adults and 1148 (23.3%) were children, aged below 15 years. In the present study, majority 838 (79.8%) belonged to middle socio economic status followed by 147 (14.0%) who belonged to high socio economic status according to Standard of Living Index (SLI).<sup>7</sup>

Of the 1050 houses, 227 (21.6%) houses had pet / peridomestic animals. Dogs were present in 146 (13.9%) houses, cats in 57 (05.4%) houses and peridomestic animals like cow, buffalo, sheep, etc., in 24 (02.7%) houses.

In 1050 houses which were surveyed, 358 pet/ peridomestic animal were present. The ratio of population to pet / peridomestic animal was found to be 4930: 358 which means that there is one pet/ peridomestic animal for every 14 persons. The population: pet ratio was 4930: 274, which means there is one pet for 18 persons. The ratio of

**Table 1**  
Population and mammalian density

Sl No.	Population: animal	Ratio
1	Population: pet/ peridomestic	14 : 1
2	Population: pet	18 : 1
3	Population: peridomestic	59 : 1
4	Population: dog	30 : 1
5	Population: cat	45 : 1

population to peridomestic animal ratio was 4930: 84, which shows the presence of one peridomestic animal for every 59 persons. The population: pet dog ratio was 4930: 165, that is there is one pet dog for every 30 persons. The population: pet cat ratio was 4930: 109, that is there is one cat for every 45 persons. (table-1)

When the 227 pet/ peridomestic owners were interviewed regarding veterinary consultation for their pet / peridomestic, 118 (51.9%) of the pet owners responded that they ensured regular veterinary consultation for their pet/ peridomestic animal, with an average frequency of twice per year.

**Table 2**  
Pet care practices among dog owners (n= 146)

Pet care practice	Number (%)
Rabies vaccination ever given	93 (63.7)
Rabies vaccination given every year	83 (56.8)
Pet collar	97 (66.4)
Pet leash	75 (51.4)
Dog notice	11 (07.5)
Pet sterilization	12 (08.2)
Allow pet dog to mix with stray dogs	51 (34.9)
Multiple responses	

The dog owners were interviewed regarding pet care practices, 83 (56.8%) were regularly vaccinating their dog against rabies. Only 11 (07.5%) were using dog notice, that warns the visitors about the presence of dog and 12 (08.2%) dogs were sterilized. More than one third of dog owners, 51 (34.9%) allowed their dogs to mix with the stray dogs (table-2)

The residents of Mandya city were asked about the symptoms of rabies in animals, 757 (72.1%) were aware of the symptoms. The opinion given by the respondents with respect to the action taken when they see a rabid animal was that they will inform the municipal authority, by 428 (40.8%), the dog has to be killed by 155 (14.8%), staying away is better by 147 (14.0%) and 27 (02.3%) said that the animal has to be taken to a veterinarian.

Respondents of 119 (11.3%) households gave history of animal bite in their family. All those who had been exposed, had taken post- exposure prophylaxis in government / private hospitals.

The knowledge regarding wound toilet following animal bite and post-exposure was



assessed, among the pet owners and non-pet owners. 10 (4.4%) pet owners and 57 (6.9%) non-pet owners had the misconception that irritant has to be applied to the bite wound. The most common irritant that was suggested was turmeric and lime. 20 (8.8%) pet owners and 57 (6.9%) non-pet owners had a false belief that a tourniquet has to be tied proximal to the bite wound. The awareness regarding rabies vaccine and rabies immunoglobulin (RIG) was significantly more among pet owners compared to non-pet owners. (Table- 3)

**Table 3**  
Awareness regarding post- exposure prophylaxis against rabies

Post- exposure prophylaxis	Pet owners (n= 227)	Non- pet owners (n= 823)	Z value	p value
Wash the wound with soap & water	074 (32.6)	224 (27.2)	1.59	0.111
Apply anti septic	050 (22.0)	180 (21.9)	0.05	0.960
Administer rabies immunoglobulin	035 (15.4)	032 (03.9)	6.29	<0.002
Administer rabies vaccine	215 (94.7)	477 (57.9)	10.34	<0.002
Administer tetanus vaccine	129 (56.8)	491 (59.7)	-0.76	0.443

-Figures in parenthesis indicate percentage

-Multiple responses

Only 80 (7.6%) respondents were aware of pre-exposure prophylaxis against rabies, 16 (7.0%) among the pet owners and 64 (7.8%) non-pet owners were aware of the availability of pre-exposure prophylaxis. Even among those who were aware about pre- exposure, very few respondents i.e., 08 (0.1%) had correct knowledge regarding its dose and schedule.

## DISCUSSION

During the present study, about 21.6% of the household had pet animals and peridomestic animals, which is lower compared to the study conducted at Trivandrum by Indu et al, which showed a pet ownership of 54% and peridomestic animal ownership of 51.3%.<sup>2</sup> In a study conducted by Sudarshan et al 16.9% of the households had pet dogs and the pet dog : man ratio was 1 : 36 compared to the pet dog : man ratio of 1 : 30 in the present study.<sup>3</sup>

Only 51.9% of the pet owners ensured veterinary consultation to their pets and the average frequency of veterinary consultation was twice a year. In the study conducted by Sudarshan et al, the

veterinary consultation was 35.5% overall and 23.8% in rural areas. Only 63.7% of the pet owners have ever immunized their dog and among them only 56.8% immunized their dog regularly.<sup>3</sup> In a study conducted by Indu et al, about 39.5% had fully immunized their dog and in the study conducted by Sudarshan et al, 32.9% of the pet owners who reared dogs had immunized their pet.<sup>2,3</sup> Only 8 (00.8%) were aware of the need to own a licence issued by the municipality to own a dog, but none of the pet owners had obtained the licence. Though the regulations that promote responsible ownership exist, they are not enforced.

11.3% of the households reported history of exposure in the past one year and all of them had received post-exposure prophylaxis. The annual incidence of animal bites was 52 per 1000 persons which is much higher than reported by the study conducted by Sudarshan et al, which reported an annual bite incidence of 17 per 1000 persons.<sup>3</sup> Where as in the study conducted by Indu et al 12.7% of the household reported history of exposure in the past 1 year and 88.9% had received immunization.<sup>2</sup> In spite of the fact that only 65.9% knew about post-exposure prophylaxis, the fact that all those who were exposed to a potential source of rabies received post-exposure prophylaxis possibly pointed towards the health seeking behaviour among the residents of urban Mandya.

Knowledge about post-exposure prophylaxis, in particular about wound care was poor among both pet owners and non-pet owners, with only one third of the respondents being aware of the importance of wound toilet following an animal bite. The knowledge about the need for administration of the ARV and RIG was better among the pet owners, but the knowledge about RIG and its significance was low among both pet owners and non-pet owners. In contrast, many non-pet owners were aware of the availability and need for pre-exposure prophylaxis when compared to the pet owners but the difference was not statistically significant. The tendency to resort to indigenous forms of treatment of applying irritants to the bite wound like turmeric, lime etc, though still prevalent was significantly lower when compared to the 46% who believed in such methods in the study conducted by Sudarshan et al.<sup>3</sup>

## CONCLUSIONS AND RECOMMENDATIONS

The pet and peridomestic density in urban Mandya was about one per 14 persons and the pet dog density was one per 30 persons. About half of the pet owners consulted the veterinarian regularly and pet care practices like vaccinating the dog every year, use of dog notice and dog leash was less so there should be more emphasis on the need to vaccinate the dog against rabies, use of leash and procuring a licence for pet owners. The information regarding availability of immunoglobulin and vaccine against rabies should be made widespread to public as the knowledge regarding ARV and RIG for bite victims was significantly more among pet owners compared to non-pet owners. The knowledge regarding pre-exposure vaccination was almost the same among pet and non-pet owners which was very minimal, so the knowledge regarding the need of pre-exposure vaccination should be enhanced especially among pet owners.

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