

**Title:** PROPORTION OF HOUSEHOLDS WITH DOMESTIC AND PERIDOMESTIC ANIMALS & BURDEN OF ANIMAL EXPOSURE - A COMMUNITY BASED CROSS SECTIONAL STUDY

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**Keywords** Domestic and peridomestic animals, animal exposure, Rabies awareness

**Abstract** To find the proportion of households with domestic and peridomestic animals. To find the proportion of study subjects with history of animal exposure in the past one year. To study the awareness regarding rabies and its prevention among the study subjects.

## Original Article

# Proportion of households with domestic and peridomestic animals & the burden of animal exposure – A community based cross sectional study

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**ABSTRACT****OBJECTIVE**

- To find the proportion of households with domestic and peridomestic animals.
- To find the proportion of study subjects with history of animal exposure in the past one year.
- To study the awareness regarding rabies and its prevention among the study subjects.

**STUDY DESIGN**

Community based Cross Sectional study

**STUDY SETTING**

Field area of MCH Unit Pangappara, an urban health training centre, attached to the Dept of Community Medicine, situated in Corporation Area of Thiruvananthapuram District, Kerala.

**STATISTICAL ANALYSIS** – simple proportions and percentages

**RESULTS-** Among the study population, 54% of households had domestic animals while 51.3% had peridomestic animals. Only 39.51% of the domestic animals were fully immunized. Among the study house holds 12.7% had history of animal exposure in the past one year of which only 78.9% took post exposure vaccination. Even though awareness regarding rabies and its prevention was high, with 100% being aware that dogs transmit rabies, awareness regarding other animals that transmit rabies like bandicoot, monkey, mongoose was comparatively low at 2%, 48.7% and 25.3% respectively. Only 60% was aware that rabies was a 100% fatal disease.

**KEYWORDS-** domestic and peridomestic animals, animal exposure, Rabies awareness

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**INTRODUCTION**

Rabies, a fatal viral zoonotic disease accounting for about 20,000 human deaths every year in India<sup>1</sup>. In India dog bites accounts for 94 % of the cases. About, 60% of the dogs are 'neighbourhood dogs' depending either partially or wholly on people for food and unrestricted in their movements. About 60% of reported dog-bite injuries are due to neighbourhood dogs<sup>2</sup>. The majority of the estimated dog population of about 25 million is not protected against rabies. WHO recommends a vaccination coverage of  $\geq 70\%$  and calculated weighted mean post-campaign vaccination coverage of 76.5% in urban areas and 73.7% in rural areas. Even though rabies continues to be a major public health problem in India, there were

not much studies relating to dog vaccination status. So this study was carried out to find the proportion of house holds with domestic animals, their vaccination status, history of animal exposure in the past one year, vaccination following exposure and their awareness regarding rabies and its prevention.

**METHODOLOGY**

MCH Unit Pangappara is an urban health training centre with a population of 1,20,000 (2010) situated in Trivandrum Corporation area attached to Government Medical College Trivandrum under Dept of Community Medicine. It is a training centre carrying out all the functions and programmes of a typical primary health centre. A pilot study was conducted and the proportion of

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house holds with domestic animals was found to be 58%. The sample size was calculated using the formulae  $4pq/l^2$  and after allowing a design effect of 2, the sample size was fixed as 150 house holds. Cluster sampling technique was adopted and each ward was taken as a cluster. Of the total 11 wards in the field area of Pangappara Health Centre, 10 wards were taken and 15 households from each ward was taken for the study. Data was collected from that 150 house holds regarding socio-demographic characteristics, presence of domestic and peridomestic animals, immunisation status of domestic animals, history of animal exposure in the past 1 year, immunisation following animal exposure and awareness regarding rabies and its prevention. Questionnaires were used to assess awareness about rabies and its prevention. A score of 5-8 was taken as good awareness and above 8 as excellent. Dogs and cats reared as pets in the houses were taken as domestic animals, while cow, goat, sheep, stray dogs and cats in the neighbourhood were taken as peridomestic animals.

## RESULTS AND DISCUSSION

A total of 150 households were studied. Hindus constituted 72% of the studied households followed by Christians at 20.7%. The minimum educational qualification of the study respondents were high school with 53.3% having studied up till the 10<sup>th</sup> class. Nuclear and extended families constituted 57.3% and 27.3% respectively.

Among the studied households, 54% of households had domestic animals (Table-1), while 51.3% had peridomestic animals (Table-2). A study by Matibag GC, Kamigaki T, Kumarasiri PV et al in Srilanka found that 58% of their study population had pet/domesticated dogs<sup>3</sup>. A study by Sudarshan MK, Mahendra BJ, Madhusudana SN et al found that 78.4% of the households in urban areas reported stray dog menace<sup>4</sup>.

**Table 1**  
Proportion of House Holds with Domestic Animals  
(81/150 = 54%)

Domestic Animal	Frequency	Percent
Dog	53	35.3
Cat	24	16.0
Dog & Cat	4	2.7
Total	81	54.0

**Table 2**  
Proportion of House Holds with  
Peridomestic Animals (77/150=51.3%)

Peridomestic Animal	Frequency	Percent
Cow	7	4.7
Stray Cat	35	23.3
Stray Dog	4	2.7
Stray Dog & Cat	31	20.7
Total	77	51.3

Proportion of house holds with fully immunized domestic animals were 39.51%, partially immunized 29.63%, while 30.86% were not immunized (Table-3). A study by Sudarshan MK, Mahendra BJ, Madhusudana SN et al found that only 32.9% of house holds had vaccinated their pet dogs<sup>4</sup>.

**Table 3**  
Proportion of Domestic Animals  
Immunised Against Rabies

Immunization Status	Frequency	Percent
Complete Immunised	32	39.51
Partially Immunised	24	29.63
Not Immunised	25	30.86
Total	81	100.0

Of the study house holds 12.7% had history of animal exposure in the past one year (Table-4). Among those exposed 21.05% did not take any immunization. (Table-5)

Even though awareness regarding rabies and its prevention was high (Table-6), with 100% being

**Table 4**  
Proportion of Study Subjects with  
History Animal Exposure In The Past One Year

History of Exposure	Frequency	Percent
YES	19	12.7
NO	131	87.3
Total	150	100.0

**Table 5**  
Proportion of Exposed Individuals  
who took Vaccination

Vaccination	Frequency	Percent
YES	15	78.95
NO	4	21.05
Total	19	100.0

aware that dogs transmit rabies (Table-8), awareness regarding other animals that transmit rabies like bandicoot (2%), monkey(48.7%), mongoose (25.3%) was comparatively low (Table-8). Only 60% was aware that rabies was a 100% fatal disease (Table-7). Awareness regarding immediate wound care and vaccination following animal exposure was found to be high at 96.7% and 97.3% respectively (Table-9 & 10). A study by Singh U S, Choudhary S K.<sup>5</sup> showed that all the individuals were aware about rabies and 98.6% people were aware that it can be transmitted by dog bite. In their study even though 98.6% knew that dogs transmit rabies, only 31.1% knew cats transmit rabies. Awareness regarding transmission by monkey was found to be 26.6%. But only 31.1% was aware of first aid measures, even though 86.6% individuals were aware about anti-rabies vaccine.

#### CONCLUSION

Among the 150 households studied, 54% of households had domestic animals while 51.3% had peridomestic animals. Proportion of domestic animals fully immunized was 39.51%, while

**Table 6**  
Awareness Regarding Rabies And Its Prevention.

Awareness	Frequency	Percent
Poor awareness	2	1.3
Good awareness	137	91.3
Excellent awareness	11	7.3
<b>Total</b>	<b>150</b>	<b>100.0</b>

**Table 7**  
Awareness regarding whether Rabies is 100% fatal

Awareness	Frequency	Percent
Aware	90	60.0
Not Aware	60	40.0
<b>Total</b>	<b>150</b>	<b>100.0</b>

**Table 8**  
Awareness regarding Animals that transmit Rabies

Awareness	Frequency	Percent
Dog	150	100
Cat	143	95.3
Mongoose	38	25.3
Monkey	73	48.7
Bandicoot	3	2
Cow	16	10.7

**Table 9**  
Awareness regarding immediate Wound Care

Awareness	Frequency	Percent
Aware	145	96.7
Not Aware	5	2.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

**Table 10**  
Awareness regarding Vaccination  
Following Animal Exposure.

Awareness	Frequency	Percent
Aware	146	97.3
Not Aware	5	2.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

30.86% were not immunized. The basic principles of dog rabies control is to vaccinate at least 70% of the total dog population comprising of domestic and neighbourhood dogs in a short period of time and to protect the area from spillover by control of dog movement from affected adjacent areas. Licensing and regular vaccination of pet dogs must be strictly implemented along with control of stray dog population through animal birth control programs and mass vaccination campaigns.

Of the study house holds 12.7% had history of animal exposure in the past one year, of which 21.05% did not take any post-exposure vaccination. Awareness should be created among the general public regarding the dangers of inadequately managed animal bites.

Even though awareness regarding rabies and its prevention was high, with 100% being aware that dogs transmit rabies, awareness regarding other animals that transmit rabies like bandicoot, monkey, mongoose etc was comparatively low at 2%, 48.7% and 25.3% respectively. Ichpujani RL, Mala C, Veena M et al in their study have found that cat and monkey are the second most common biting animals after dogs<sup>6</sup>. So lack of awareness that animals like cat, monkey, mangoose transmit rabies can put the public at risk of disease. Only 60% knew that rabies was a 100% fatal disease. Dedicated efforts are needed to increase public awareness on the fact that rabies is a 100% fatal disease, importance of immediate wound care and post exposure vaccination, strict implementation of licensing and vaccination of pet dogs along with control of stray dog population. This highlights the

need for a National programme for control of rabies as India alone contributes to 36% of the total rabies deaths worldwide<sup>7</sup>.

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