Prevalence of Pet Dog Ownership in an Urban Colony of East Delhi and Awareness Regarding Canine Zoonotic Diseases and Responsible Pet Ownership among Dog Owners

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Abstract

Background: India has lowly prioritized pet-associated zoonosis as a public health priority because data regarding the same and the susceptible population involved are sparse. Objective: To find the proportion of pet dog ownership in a settled urban colony of East Delhi and to assess awareness regarding canine zoonotic diseases and responsible pet ownership. Methods: This was a cross-sectional descriptive study of 700 participants in an urban colony of East Delhi. Results: The proportion of pet dog owners was 5.4%. Only one-third (34.2%) of the respondents were aware that pets are a source of disease. A majority of pet owners (86.8%) identified rabies as a disease caused by the bite of only stray dogs. The proportion of responsible pet owners was 39.4%. Only one-tenth of surveyed households had registered their pet with the local municipal authorities, despite such registration being a compulsory requirement by law. Conclusion: This study provides us with a better understanding of the lacunae in awareness of zoonotic diseases and its preventive measures among pet owners. All pet owners have a responsibility to ensure that their pets are healthy and free from disease.

Keywords: Awareness, canine, pet ownership, zoonoses

INTRODUCTION

India is home to approximately 28 million pet dogs[1]. These animals may precipitate zoonotic diseases in their owners unless adequate protective measures are undertaken.[2] Pet dog-associated zoonosis is a well-studied phenomenon in developed countries but has not received its due importance in India, owing to a dearth of data regarding the same.[3] Reflective of this, there are only 913 registered pet dogs in the Delhi municipality, which is an enormous underestimation.[4,5] The aim of our study was to assess the prevalence of pet dog ownership in an urban colony in East Delhi and to determine the level of awareness regarding canine zoonotic diseases and responsible pet ownership among dog owners.

Methods

This cross-sectional, descriptive study was conducted in Dilshad Garden from August 2017 to March 2018. The prevalence of pet ownership was specified as 8.5% in accordance with a previous study conducted in Andhra Pradesh.[6] Keeping absolute precision at 3% and a design effect of 2, the final sample size obtained was 700.

Data collection

Dilshad Garden comprises lower-, middle-, and higher-income group blocks. Three middle-income group clusters were chosen purposively for the study. A cluster sampling technique was applied, with each building considered as a cluster. Population proportionate to size sampling was done. For every alternate building, consecutive houses were selected to complete the required sample size.

A semi open-ended, prevalidated, and pretested questionnaire was designed to collect sociodemographic details, data

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regarding awareness about zoonotic diseases, and knowledge of relevant preventive measures. An additional section was included to assess responsible pet ownership.

Awareness of zoonotic diseases and its preventive measures among pet owners was elicited using a questionnaire adapted from available literature, for which the maximum score is 15. A score of nine or greater was considered satisfactory awareness regarding canine zoonotic diseases. Review of literature and consultation with two qualified veterinarians were undertaken to reach a consensus on what entails responsible pet ownership. Ten criteria were selected to evaluate the same. Each of these criteria was given a score of one if fulfilled, bringing the maximum score to ten. If a score ≥7 was obtained, the household was determined to have responsible dog ownership.[8,9]

**Data analysis**

Data were entered into MS Excel database, exported, and analyzed using SPSS Version 20.0 (Armonk, NY: IBM Corp).

**Ethical clearance**

Approval from the Institutional Ethics Committee was obtained before conducting the study.

**Results**

**Prevalence of pet ownership and sociodemographic characteristics**

Of the 700 households surveyed, proportion of pet dog owners in Dilshad Garden was 5.4%(38). Three households (8.8%) had under-five children, and eight households (23.5%) had school-going children. A geriatric family member was present in six (17.6%) households and one household (2.9%) had a member who was immuno-compromised due to a chronic disease condition.

Age of the pet dog varied from 3 months to 11 years (mean 4.4 years). The most common purpose for keeping a dog was found to be companionship in 23 (60.5%) households. Keeping a dog primarily for the purpose of security was only seen in 1 (2.6%) household. Seven (18.4%) of the households kept dogs for both companionship and security. Seven (18.4%) households had got their pet dogs as gifts from others.

**Awareness of zoonoses**

One-third of respondents were aware that pets are a source of disease. The majority of pet owners (86.8%) had awareness regarding rabies but attributed it to the bite of only stray dogs. Only 15.7% had awareness regarding intestinal worms (toxocariasis), and 7.9% wrongly identified fungal infection ringworm as a zoonotic disease. Incorrect response of allergies toward dogs’ fur as a zoonotic disease was noted in 5.3% of households. 5.3% of the respondents were unable to point out a single preventive measure whereas the remaining mentioned only vaccination.

More than three quarters (78.9%) of respondents were ignorant regarding correct practices of disposal of fecal material. 71% of pet owners were noted to wash their hands after handling their pet, but the role of hand washing as a protective factor against zoonotic diseases was recognized by only 40% of them. Most pet-related diseases could be eliminated by simple sanitary measures such as hand hygiene, and awareness regarding the same should be propagated to break the chain of transmission.[4,10,11]

Majority of households (76.3%) received their information about zoonotic diseases from Internet sources. Information from licensed veterinarians was received by only 26.3% of owners.

**Responsible pet ownership**

39.4% of the respondents were responsible pet owners. Only one in ten households had registered their pet with the local municipal authorities, despite such registration being a compulsory requirement by law.[12] Annual rabies vaccine was given in 63.1% of households. Adequate fecal disposal was seen in only 18.4% of households. Only 1 (2.6%) household had their pet neutered. Only half (57.8%) of all pet owners were observed to have subjected their pets to regular deworming and de-fleaing every 6 months [Table 1].

**Discussion**

Our study is the first of its kind in India to use an operational definition of “pet” dog. The proportion of pet dog owners in our study was found to be low (5.4%). A study by Babu et al. reported a similar prevalence of pet dog ownership in Proddatur, Andhra Pradesh.[9] In contrast, the proportion of pet dog owners is much higher in western countries, estimated to be 33% in Italy and 38% in the United States of America.[13-16]

A study carried out in Georgia observed that 63% pet owners were aware that pets could be a carrier of diseases transmissible to people, whereas this figure was only 33% in our study.[17] Most pet owners had scant knowledge regarding canine zoonotic diseases barring rabies, which is comparable to other Indian studies.[6,8,10] The role of simple preventive behaviors at home was also noted to be largely unrecognized.

Human infection with parasites from pets commonly occurs due to contact with infected pet feces. Correct disposal of the

| Table 1: Good pet dog management practices for responsible pet ownership (n=38) |
|---------------------------------|---|---|
| Characteristics                  | n | (%) |
| MCD registration                 | 5 | (13.1) |
| Annual rabies vaccine            | 27 | (65.7) |
| Product for ticks/fleas          | 22 | (57.8) |
| Product for deworming            | 22 | (57.8) |
| Dog collar                       | 38 | (100) |
| Neuter                           | 1 | (2.6) |
| Adequate fecal disposal          | 7 | (18.4) |
| Dog on leash when outside        | 33 | (86.8) |
| Trained (socialization among humans) | 38 | (100) |
| Exercise                         | 32 | (84.2) |

MCD: Municipal corporation of Delhi
pet’s feces is vital in preventing these diseases. In our study, 4 in 5 pet owners admitted to leaving their pets’ feces on the road without cleaning up after them.[14-16]

Our findings about the limited role of veterinarians in dispensing precautionary advice was similar to a study conducted in Zimbabwe where only 33% of owners quoted their veterinarians to be a primary source of information regarding zoonotic diseases.[18]

Responsible pet owners can reduce the risk of transmission of zoonotic diseases. In our study, only 13.1% of the respondents had registered their pet dogs with the municipality. Information regarding the importance of registration should be made known to all pet owners, so as to facilitate better surveillance by public health agencies for the prevention and control of zoonotic diseases.

Rabies is endemic in India, with a majority of casualties attributed to the bite of a rabid dog.[1] We noted that only 65.7% of the respondents had taken their pet for a rabies vaccination in the previous year. Vaccinating a pet provides protection to the owner, the family, the community, and the pet and needs to be further emphasized.[19]

We believe that it is due to ignorance that responsible pet ownership was low in our study area. Having pets on leash at all times when outside, preventing pets from soiling public places, spaying/neutering, social training, and regular exercise keep these domesticated animals healthy and are all part of promoting responsible pet ownership.

Limitations

Pet dog ownership is abysmally low in India compared to western and partly, the reason why canine-related zoonosis has never received due importance in framing public health legislature. Our findings would provide the necessary impetus for future studies in other metropolitan cities and villages across the country. The findings may therefore be generalized in the background of India having one of the lowest rates of pet dog ownership worldwide.

Conclusion

This study provides us with a better understanding of the extent of pet ownership in an Indian metropolis and the lacunae in awareness regarding zoonotic diseases and its preventive measures. Apart from rabies, most pet owners were not adequately informed about the less fatal but more common pathogens that could affect their pets. Veterinarians should play an integral role in disseminating information to their clients about potential zoonotic diseases and the relevant preventive measures to be taken. This would go a long way toward protecting both pet and human populations. All pet owners have a responsibility to ensure that their pets are healthy and free from disease and to prevent transmission of diseases from pets to susceptible humans.

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Conflicts of interest
There are no conflicts of interest.

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