

Pet Ownership, Awareness and Public Knowledge of Pet Zoonosis in Lahore, Pakistan

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Abstract

A cross-sectional questionnaire-based survey was carried out in Lahore, Pakistan to assess pet ownership and public awareness with regard to pet zoonosis. The questionnaire was designed to obtain information on pet ownership, health and welfare of pets, pet owners' knowledge and awareness of pet zoonosis with particular emphasis on rabies and helminthes. The results demonstrated that the proportion of pet owners who knew helminthes as zoonosis in their pets (1.0%) was much low compared to rabies (30.8%). More than 85% of the pet owners indicated that veterinarians never discussed the potential hazards of zoonosis or discussed it only when asked. Over 95% of the pet owners indicated that veterinarians should discuss zoonosis with them. It was concluded that a very low proportion of pet owners were aware about pet zoonosis especially rabies. Moreover, it was depicted that some of pet owners were not aware of helminth zoonosis. Therefore, it is recommended that, further investigations are necessary to determine public knowledge of pet zoonosis in the various regions of the country.

Keywords: Zoonosis; Pets; Public Awareness; Rabies; Helminthiasis

Introduction

Pets provide companionship and also probably confer physiological health and psychological benefits as pet owners have been reported to have fewer doctors' visits and longer survival following heart attack compared to non-pet owners [1]. The emotional bond between owner and pet can be as intense as that in many human relationships and may confer similar psychological benefits. Death of a pet can cause grief similar to that in human bereavement, whereas threat of loss of a pet may be met with blunt refusal and non-compliance with advice on health [2].

Because of their close proximity to humans, they can be direct or indirect source of many zoonotic infections [3]. Wide range of zoonotic infections have been documented which can be transmitted from dogs and cats [4]. Approximately 30 to 40 organisms that cause zoonotic infections are known in companion animals such as cats and dogs [5]. In many cases, normal human immunological response would eliminate these diseases, preventing any clinical signs of disease [6]. However, some pet zoonotic diseases, such as rabies are fatal while others such as leptospirosis are debilitating to healthy humans. Other groups such as young children, the elderly, pregnant women, veterinarians or animal nurses are also at a greater risk of acquiring zoonotic infections due either to their immune system or behavior or occupation [7].

Hookworm infection in humans can result in cutaneous larva migrans [8]. Humans become infected with *Toxocara* when they accidentally ingest embryonated eggs [9]. As per the Centers for Disease Control and Prevention (CDC), worldwide, between 1 and 3 million people are zoonotically infected with *Toxocara migrans* every year. Dogs, foxes and wolves are the major definitive host for *Echinococcus granulosus*, the cause of unilocular hydatid disease (cystic echinococcosis) in livestock and humans [10]. Almost all (98%) dogs lacked veterinary attention, were not vaccinated against rabies and were not dewormed [11].

The condition is not quite different in Pakistan. Thus, the aim of this study was to evaluate pet ownership and public knowledge of pet zoonosis with particular emphasis on rabies and helminthes.

Materials and Methods

The study was carried out in Lahore, Pakistan. Veterinary clinic owned by the University of Veterinary and Animal Sciences Pet Center (UVAS Pet Center) and a Private Pet Center where pet owners present their pets for consultation on various disease conditions were used as the study sites. The UVAS Pet Center was included in the study as it caters for the less affluent society in Lahore.

A cross-sectional questionnaire-based study was employed to investigate pet ownership and public knowledge of pet zoonosis. A systematic sampling technique was used to select pet owners attending the selected veterinary clinics. The inclusion criteria for pet owners were designed to target those who had attended the clinics for more than 3 months and those who were attending the clinics for the first time were excluded.

Self completion questionnaires were administered to at least 25% of pet owners attending each veterinary practice. The questionnaire was designed to obtain information on pet ownership, health and welfare of pets, pet owners' knowledge and awareness of pet zoonosis with particular emphasis on rabies. A standard questionnaire with 30 multiple choice and open-ended questions was used. Pet owners were asked the type, number and ages of their pets they own, purpose of keeping the pets, disposal of their pets' stools, how often they visited their veterinarians and reasons for visiting the veterinary practice. They were asked on their general knowledge of pet zoonosis, their awareness on rabies, their sources of information with regard to pet zoonosis and whether their veterinarians discuss with them issues with regard to pet zoonosis.

The data was analyzed using SPSS 11.5 and analysis focused on generation of descriptive statistics (frequencies/proportions) related to pet ownership, health and welfare of pets, pet owners' knowledge and awareness of diseases transmissible from pets to humans with particular emphasis on rabies and helminthes.

Results

Characteristics of pet owner

A total of 150 pet owners were contacted and only 104 (69.33%) responded (Figure 1). 87.5 percent (91/104) were male and 12.5 percent (13/104) were female (Table 1). Approximately 57% (59/104) of the respondents were from the less affluent society serviced by the UVAS Pet Center.

Gender	Frequency	Percent
Male	91	87.5
Female	13	12.5
Total	104	100.0

Table 1: Gender of respondents.

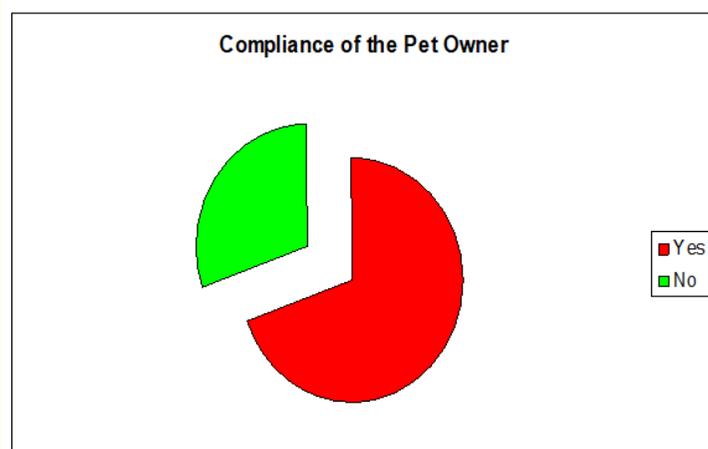
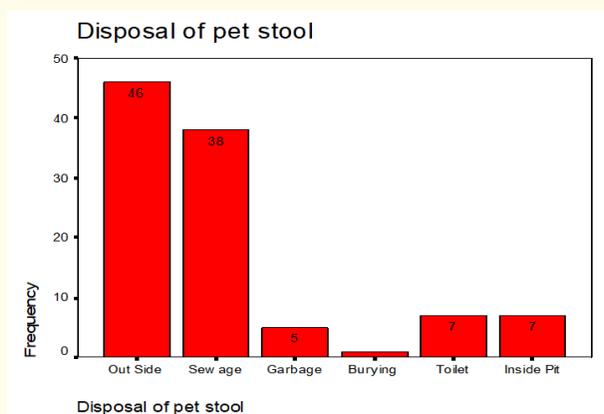


Figure 1: Compliance of pet owner.

Pet ownership and management of pets

Seventy two percent (75/104) pet owners owned dogs and twenty six percent (27/104) cats while two percent (2/104) owned both cats and dogs. More than half of the respondents (53.8%) had kept pets for five years or above. The purpose of keeping pets was for pet and protection (76%), protection only (21.2%), hunting only (2%) and for breeding less than one percent.

A total of 46 (44.2%) of pet owners allow their pet to defecate outside their houses, 38 (36.5%) wash their pet’s faeces into the sewage line, 5 (4.8%) throw in garbage while 7 (6.7%) dispose off their pets faeces by burying in the inside pit and 7 (6.7%) in toilets (Figure 2 and Table 2).

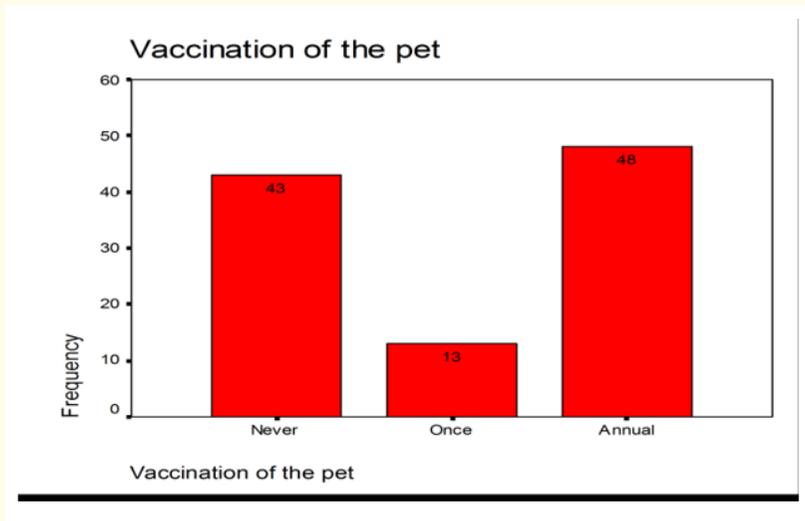


Stool Disposal	Frequency	Percent
Out Side	46	44.2
Sewage	38	36.5
Garbage	5	4.8
Burying	1	1.0
Toilet	7	6.7
Inside Pit	7	6.7
Total	104	100.0

Figure 2 and Table 2: Owner’s method of pets’ faeces disposal.

Pet health

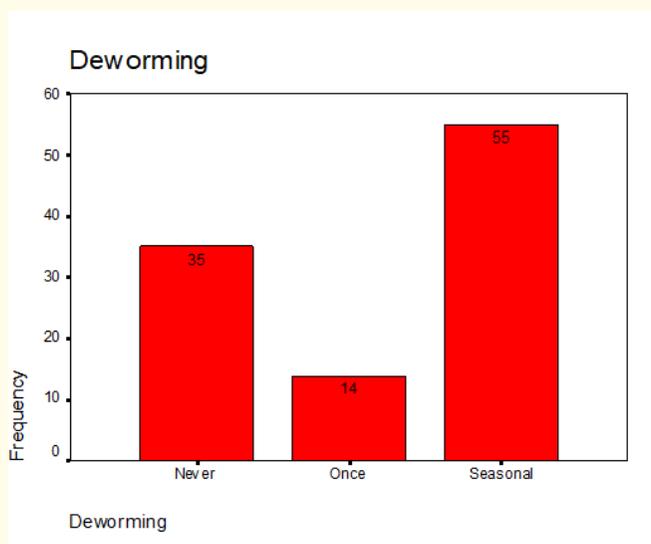
48 (46.2%) respondent pet owner vaccinate their pets on annual basis after primary vaccination, 13 (12.5%) rely on primary vaccination while 43 (41.3%) never vaccinate their pets (Figure 3 and Table 3).



Vaccination	Frequency	Percent
Never	43	41.3
Once	13	12.5
Annual	48	46.2
Total	104	100.0

Figure 3 and Table 3: Vaccination of pets.

55 (52.9%) respondent pet owners practice deworming on seasonal basis, 14 (13.5%) dewormed their pets once in their life while 35 (33.7%) never practiced such thing (Figure 4 and Table 4).

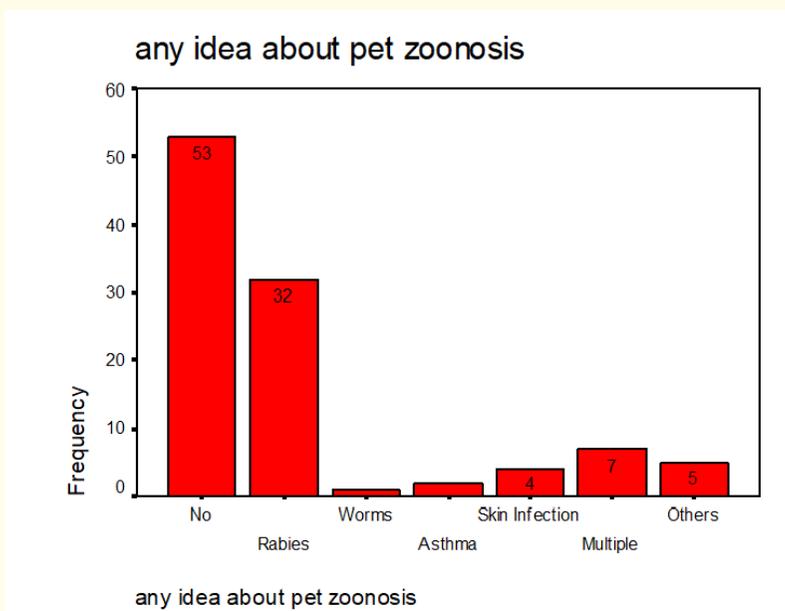


Deworming	Frequency	Percent
Never	35	33.7
Once	14	13.5
Seasonal	55	52.9
Total	104	100.0

Figure 4 and Table 4: Deworming of pets.

Awareness of zoonosis

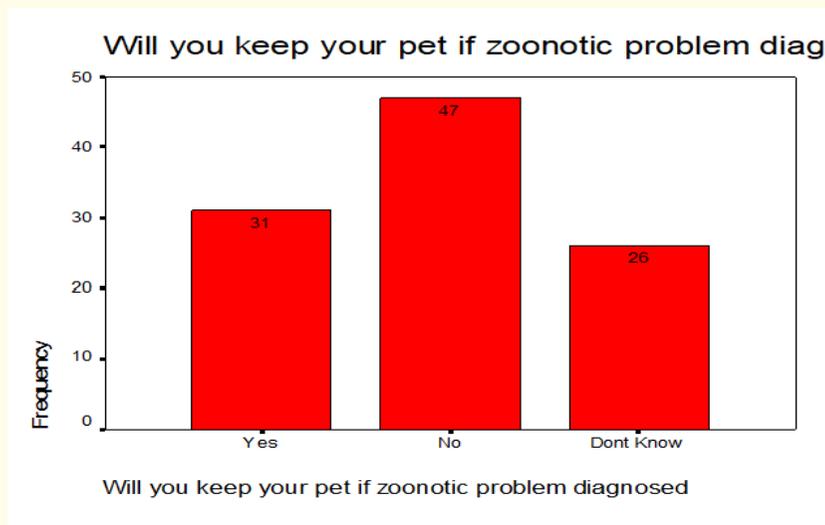
When explored generally on their awareness of pet zoonosis, 49% (51/104) were aware. Merely 20.2% (21/104) indicated media (preferably print media), 16.3% (17/104) listed friends while 12.5% (13/104) cited veterinarian as their source of information about zoonosis. Of the 49% who were aware of zoonotic diseases in pets, a relatively higher proportion 30.8% knew rabies as a zoonotic disease while the percentage of pet owners who knew parasites as zoonosis in their pets was much lower 1% compared to rabies. A Few pet owners responded that multiple (rabies, worms, fleas, ticks, lice and asthma) 6.7% (7/104), asthma 1.8% (2/104) and others (fleas, ticks and lice) 4.8% (5/104) and skin infection (cat scratch) 3.8% (4/104) as a zoonosis (Figure 5 and Table 5).



Zoonosis	Frequency	Percent
No	53	51.0
Rabies	32	30.8
Worms	1	1.0
Asthma	2	1.9
Skin Infection	4	3.8
Multiple	7	6.7
Others	5	4.8
Total	104	100.0

Figure 5 and Table 5: Respondent's level of pet zoonosis.

86.5% of pet owners pointed out that veterinarian never discussed the potential hazards of zoonosis or discussed it only when asked. Almost all (99%) of the pet owners indicated that veterinarians should discuss zoonosis with them. When asked, if a zoonotic problem diagnosed in your pet, will you keep your pet? approximately 30% of responded were of the view that they would continue keeping pets irrespective of zoonotic problem being diagnosed in their pets, 45% bluntly refused the statement while 25% in doubt about the statement (Figure 6 and Table 6).



Pet Keeping	Frequency	Percent
Yes	31	29.8
No	47	45.2
Don't Know	26	25.0
Total	104	100.0

Figure 6 and Table 6: Respondent's attachment with pet.

Discussion

The result of present study has revealed that a relatively low proportion of pet owners in the survey area are well informed about pet zoonosis and out of these a high proportion is aware about rabies as a zoonotic disease. Contrary to this, a very smaller proportion of them are aware that helminths of pets may infect human beings. Similar surveys on pet ownership and knowledge of zoonotic diseases in the United States have shown that pet owners do not know that their pets might carry other diseases transmissible to people [8]. Although pet owners are reported to be well informed about rabies and the need to vaccinate their animals; but however, their knowledge of other zoonotic risks such as ascarids and hookworms is usually absent or incorrect [3]. Therefore, highly fatal pet zoonosis like rabies has been reported to overshadow other parasitic zoonosis such as toxocariasis and ancylostomiasis as they rarely cause death [6]. As helminth infestation is not a reportable disease in Pakistan, therefore, the total number of clinical cases is unknown hence; reliable data is not available on the frequency of human infestation with zoonotic helminths. Comprehensive investigations are necessary to elucidate the current prevalence of helminth infestation in pets and that of their owners in the various regions of the country.

As evident from the present survey, more than 85% of the respondent pet owners pointed out that veterinarian never thrashed out the potential hazards of zoonotic parasites or discussed it only when asked. Similar studies have demonstrated that veterinarians are hesitant about discussing the potential zoonotic hazards. Possibly, practicing veterinarians do not want to alarm their clients, if it leads them to quit their pets. It was verified from the results of present survey that fear of disease transmission is in fact a promising factor associated with keeping or not keeping pets as merely 30% of pet owners responded that they would continue keeping pets irrespective of zoonotic problem being diagnosed in their pets. Without information on pet zoonosis, pet owners are neither informed nor motivated to take the simple precautions necessary to protect themselves, their families and pets [7]. As a result, pet owners rely upon veterinarians to provide the best possible protection for their pets, including preventive deworming [6]. From this study, over 95% of the pet owners indicated that veterinarians should talk about zoonosis with them. Therefore, veterinarians are a crucial link in keeping pet owners fully informed about the potential risks of zoonosis and to mitigate such risks, awareness and education is a key to this mission. Veterinarians are uniquely suited to provide pet owners with sound advice by virtue of their special training and their bond with clients [12] a high proportion of pet owners use veterinary services, unlikely to this study.

In Pakistan, Current veterinary practices and recommendations to pet owners have been reported to be much less than ideal to prevent zoonotic problems. Recommendations for the prevention of zoonotic problems are not only to deworm on regular basis but also strictly comply with vaccination schedule for both cats and dogs. For maximum protection and control, strategic deworming should be combined with a program of environmental cleanup and decontamination of contaminated areas [13]. Further investigations are obligatory to find out the current veterinary practices for pets on the prevention and control of zoonotic disease transmission in the country.

As far as human cases are concerned, these are preventable by simple measures like good personal hygiene, proper pet's care and disease management, in time deworming and vaccination for the prevention of zoonotic problems. Pet owner should be sensitized to comply propel disposal methods of pets faeces as some of the disposal methods like defecation outside the house, washing of pet's faeces into sewage line and/or throwing it in garbage are highly detrimental not only for human beings but also for other animals.

Conclusion and Recommendations

It was concluded that a relatively low proportion of pet owners in the survey area were well informed about pet zoonosis and out of these a high proportion was aware about merely rabies as a zoonotic disease. Contrary to this, a very smaller proportion of them were of the view that helminths of pets may infect human beings.

It is recommended that similar surveys on pet ownership and knowledge of zoonotic diseases should be carried out in other parts of the country.

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Bibliography

1. Heady B., *et al.* "Pet ownership is good for your health and saves public expenditure too: Australian and German longitudinal evidence". *Australian Social Monitor* 4 (2002): 93-99.
2. June M., *et al.* "Pet ownership and human health: a brief review of evidence and issues". *BMJ* 331 (2005): 1252-1255.
3. Morrison G., *et al.* "Zoonotic infection from pets. Understanding the risk and treatment". *Postgraduate Medical Journal* (2001): 110-124.

4. Ugbomoiko US., *et al.* "Parasites of importance for human health in Nigerian dogs: High prevalence and limited knowledge of pet owners". *BMC Veterinary Research* (2008): 4-49.
5. Greene CE and Levy JK. "Immunocompromised people and shared human and animal infections: zoonoses, saproozoonoses and anthroozoonoses". In: CE Greene (Editor) *Infectious Diseases of the Dog and Cat. 3rd Edition*". St. Louis, Missouri, Saunders Elsevier (2006): 1051-1068.
6. Carithers D. "Introduction and overview: zoonotic and arthropod-borne diseases". *Compendium on Continuing Education for the Practising Veterinarian* 24 (2002): 2.
7. Davies MP., *et al.* "A survey of pet ownership, awareness and public knowledge of pet zoonoses with particular reference to roundworms and hookworms in Harare, Zimbabwe". *Tropical Animal Health and Production* 42 (2010): 247-252.
8. Heukelbach J., *et al.* "Ectoparasitic infestations". *Current Infectious Disease Reports* 7 (2005): 373-380.
9. Wolfe A and Wright IP. "Human toxocariasis and direct contact with dogs". *Veterinary Record* 152 (2003): 419-422.
10. Rebecca J., *et al.* "Canine gastrointestinal parasitic zoonosis in India". *Review Trends in Parasitology* 21.1 (2005): 42-48.
11. Traub RJ., *et al.* "The role of dogs in transmission of gastrointestinal parasites in a remote tea-growing community in northeastern India". *The American Journal of Tropical Medicine and Hygiene* 67 (2002): 539-545.
12. Schantz PM. "Zoonotic ascarids and hookworms: the role for veterinarians in preventing human disease". *Compendium on Continuing Education for the Practising Veterinarian* 24 (2002): 47-52.
13. Kazacos KR. "Protecting children from helminthic zoonoses". *Contemporary Pediatrics* 17 (2000): 1-24.

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