



UNIVERSITI PUTRA MALAYSIA

***SURVEY ON PET OWNERS AWARENESS ABOUT PARASITIC
DISEASES IN CATS AND DOGS AND THE PREVENTIVE
MEASURE IN KLANG VALLEY***

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IN CATS AND DOGS AND THE PREVENTIVE MEASURE IN KLANG
VALLEY**

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CERTIFICATION

It is hereby certified that we have read this project paper entitled “Survey on Pet Owners Awareness about Parasitic Diseases in Cats and Dogs and The Preventive Measure in Klang Valley”, by Nurafiqah Binti Ahmad and in our opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirement for the course VPD 4999 – Project

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DEDICATIONS

This project paper is dedicated to the Allah One Almighty God, who had created me
and made all things possible,

To my family,

Father

Mother

Brother, Sister

To my friends,

Best friends

DVM 2016

And to all my lecturers who have committed themselves towards the noble cause of
education.

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LIST OF ABBREVIATIONS

%	Percent
RM	Ringgit Malaysia
=	Same as
S.P.S.S	Statistical Package for Social Sciences
CLM	Cutaneous Larva Migrans
OLM	Ocular Larva Migrans

ABSTRACT

**SURVEY ON PET OWNERS AWARENESS ABOUT PARASITIC DISEASES
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VALLEY**

By

Nurafiqah Binti Ahmad

2016

Supervisor: Dr. Puteri Azaziah Megat Abdul Rani

A cross-sectional study on level of pet owner awareness about cat and dog parasitic diseases and the preventive measure on Klang Valley was conducted from 11th January to 31st January 2016. A random sampling was done to get 150 respondents who consulted from ten private veterinary clinics in Klang Valley area. A set of closed-ended structured questionnaire was designed for the study which includes client and pet profile and questions about knowledge about parasitic diseases and preventive medicine in cats and dogs. All data was collected in Microsoft Excel and analysed using S.P.S.S Version 12.0 for descriptive and analysis statistics. The awareness of pet owner about parasitic diseases and preventive medicine of cats and dogs were determined by their score from the questionnaire itself. From the descriptive analysis, 74% of the respondents were aware about parasitic diseases; whereas only 67% of the respondents were aware about parasitic zoonosis. However, only 33% of the respondents were aware about preventive medicine such as deworming, ectoparasite control, and heartworm

prevention medicine. In analytic analysis, Chi Square test was done to determine the association between educational status and the level of awareness of the respondents. The Chi Square test revealed that educational level have a significantly different to level of awareness of parasitic diseases but not statically significant with level of awareness of preventive medicine and parasitic zoonosis. In conclusion, majority of the pet owner still do not understand and aware about parasitic zoonosis. Thus many ways should be done to educate pet owners about parasitic zoonosis for both their knowledge and health.

Keywords: *Parasitic zoonosis, Chi square, preventive medicine.*

ABSTRAK

**KAJIAN MENGENAI KESEDARAN DALAM KALANGAN PEMILIK
HAIWAN MENGENAI PENYAKIT PARASIT KUCING DAN ANJING DAN
PERUBATAN PENCEGAHAN DI KAWASAN LEMBAH KLANG.**

Oleh

Nurafiqah Binti Ahmad

2016

Penyelia : Dr. Puteri Azaziah Megat Abdul Rani

Satu kajian keratan rentas mengenai tahap kesedaran pemilik haiwan tentang penyakit parasit kucing dan anjing dan perubatan pencegahan di Lembah Klang telah dijalankan daripada 11 Januari hingga 31 Januari 2016. Persampelan secara rawak dilakukan untuk memilih 150 responden yang hadir ke sepuluh klinik veterinar swasta di kawasan Lembah Klang. Borang soal selidik yang berstruktur tertutup yang merangkumi tentang profil responden, haiwan kesayangan dan penyakit haiwan kesayangan telah diedarkan kepada responden. Semua data dikumpulkan dalam Microsoft Excel dan analisis data menggunakan S.P.S.S Versi 12.0 untuk statistik deskriptif dan analisis. Kesedaran pemilik haiwan kesayangan tentang penyakit parasit dan perubatan pencegahan kucing dan anjing ditentukan oleh skor mereka daripada soalan didalam borang soal selidik. Daripada analisis deskriptif, 74% daripada responden sedar mengenai penyakit parasit; manakala hanya 67% daripada responden mengetahui mengenai zoonosis parasit. Walau bagaimanapun, hanya 33% daripada responden mengetahui tentang perubatan

pencegahan seperti nyah cacing, kawalan ectoparasite, dan perubatan pencegahan cacing jantung. Dalam analitik analisis, ujian Chi Square telah dilakukan untuk menentukan hubungan antara tahap pendidikan dan tahap kesedaran responden. Ujian Chi Square menunjukkan bahawa tahap pendidikan mempunyai perbezaan yang signifikan kepada penyakit parasit tetapi tidak signifikan terhadap perubatan pencegahan dan penyakit zoonosis. Kesimpulannya, majoriti pemilik haiwan masih tiada kesedaran tentang parasit zoonotik. Terdapat banyak cara untuk mengajar pemilik haiwan tentang parasit zoonosis untuk pengetahuan dan kesihatan mereka.

Keywords: *Parasitik zoonotik, Chi Square, Perubatan pencegahan.*



Chapter 1

INTRODUCTION

1.1 General introduction

In Malaysia, dogs and cats are the most common animals that kept as pets. They are usually kept for house protection, companionship, breeding, assisting handicapped individual and others purposes.

Malaysia experience hot and humid climate all year round, which provides a very conducive environment for parasite optimum life cycle (Peter Irwin et al. 2006). The most common ectoparasites infesting cats and dogs in Malaysia are fleas, mites, lice, and ticks; whereas hookworm, roundworm, tapeworm and heartworm are the most common endoparasites in cats and dogs.

However, the close contact between companion animals with their owner may expose the pet owner to zoonotic diseases from their pets. Some parasitic zoonosis from cats and dogs can be transmitted via faecal-oral route or ingestion of food or water that have been contaminated with parasitic zoonosis agent, or the ectoparasites acting as vector of other diseases.

A recently done by Izzati (2013), showed 52.1% (n=69) of domestic cats in both urban and rural area in Kuching, Sarawak have been infected with at least one species of ectoparasites. Another study that showed high prevalence of gastrointestinal parasites infection in both cats (89.3%, n= 28) and dogs (88.3%, n=78) in rural area of Selangor and Pahang (Romano Ngui et al., 2011). The high

prevalence of parasitic infection in small animal in Malaysia leading to an assumption that awareness about parasitic diseases in pets are still low.

Preventive medicine in cats and dogs is very crucial to prevent parasitic diseases especially those that are zoonotic as it is a public health concern. Thus parasitic control such as deworming and heartworm prevention are highly recommended as part of pets' wellness program for life. To date, no reports on pet owner awareness about parasitic prevention, and parasitic diseases especially parasitic zoonosis in Malaysia.

Thus this study was conducted with the several objectives:

- To determine the level of awareness among pet owners about parasitic disease in pets.
- To determine level of awareness among pet owners about the parasitic preventive measures.
- To determine the level of pet owner's general knowledge about the parasitic zoonosis in cats and dogs.

1.2 Hypothesis statement

This study has two hypotheses;

1. Null hypothesis (Ho1): Percentage of pet owner aware about parasitic disease, parasitic preventive measure, and parasitic zoonosis are more than percentage of pet owner who do not aware about it.
2. Null hypothesis (Ho2): There is no association between educational status and awareness of pet owner regarding parasitic diseases, parasitic preventive medicine and parasitic zoonosis.

8.0 REFERENCES

- Beugnet, F., & Franc, M. (2012). Insecticide and acaricide molecules and/or combinations to prevent pet infestation by ectoparasites. *Trends In Parasitology*, 28(7), 267-279. <http://dx.doi.org/10.1016/j.pt.2012.04.004>
- Chee, J., Kwon, J., Cho, H., Cho, K., Lee, Y., Abdel-Aty, A., & Shin, S. (2008). A Survey of Ectoparasite Infestations in Stray Dogs of Gwang-ju City, Republic of Korea. *Korean J Parasitol*, 46(1), 23. <http://dx.doi.org/10.3347/kjp.2008.46.1.23>
- Cutaneous Larva Migrans - Pictures, Symptoms, Diagnosis, Treatment. (2016). Mddk.com. Retrieved 13 March 2016, from <http://mddk.com/cutaneous-larva-migrans.html>
- Duarte, A., Castro, I., Pereira da Fonseca, I., Almeida, V., Madeira de Carvalho, L., & Meireles, J. et al. (2010). Survey of infectious and parasitic diseases in stray cats at the Lisbon Metropolitan Area, Portugal. *Journal Of Feline Medicine & Surgery*, 12(6), 441-446. <http://dx.doi.org/10.1016/j.jfms.2009.11.003>
- Eng, T., & Ostrowski, S. (1989). Zoonoses and communicable diseases common to man and animals, 2nd edn. *Preventive Veterinary Medicine*, 7(4), 311-312. [http://dx.doi.org/10.1016/0167-5877\(89\)90014-7](http://dx.doi.org/10.1016/0167-5877(89)90014-7).
- Foreyt, B. (2001). *Veterinary parasitology*. Ames, Iowa: Iowa State University Press.
- Jamshidi, S., Maazi, N., Ranjbar-Bahadori, S., Rezaei, M., Morakabsaz, P., & Hosseini, M. (2012). A survey of ectoparasite infestation in dogs in Tehran, Iran. *Revista Brasileira De Parasitologia Veterinária*, 21(3), 326-329. <http://dx.doi.org/10.1590/s1984-29612012000300030>
- Jason, W., Anthony, P., Bruno, B., Roy, D., & David, W. (2016). Small animal deworming protocols, client education, and veterinarian perception of zoonotic parasites in western Canada. *The Canadian Veterinary Journal*, (Can Vet J. 2007 Mar; 48(3): 269-276.).
- Kalkstein, T., Kaiser, L., & Kaneene, J. (2000). Prevalence of heartworm infection in healthy cats in the lower peninsula of Michigan. *Journal Of The American Veterinary Medical Association*, 217(6), 857-861. <http://dx.doi.org/10.2460/javma.2000.217.857>
- Mahdy, Mohammed AK et al. "Prevalence and Zoonotic Potential of Canine Hookworms In Malaysia". *Parasites & Vectors* 5.1 (2012): 88.
- Matos, Mariana et al. "Parasite Control Practices And Public Perception Of Parasitic Diseases: A Survey Of Dog And Cat Owners". *Preventive Veterinary Medicine* 122.1-2 (2015): 174-180.

- Ngui, Romano et al. "Gastrointestinal Parasites In Rural Dogs And Cats In Selangor And Pahang States In Peninsular Malaysia". *Acta Parasitologica* 59.4 (2014): n. pag.
- Palmer, Carlisle S. et al. "Intestinal Parasites Of Dogs And Cats In Australia: The Veterinarian's Perspective And Pet Owner Awareness". *The Veterinary Journal* 183.3 (2010): 358-361.
- Parasitophilia: *Toxocara canis*. (2012). Parasitophilia.blogspot.my. Retrieved 14 March 2016, from <http://parasitophilia.blogspot.my/2012/10/toxocara-canis.html>
- Paulos, D. (2012). Prevalence of gastrointestinal helminthes among dogs and owners perception about zoonotic dog parasites in Hawassa Town, Ethiopia. *J. Public Health Epidemiol.*, 4(8), 205-209. <http://dx.doi.org/10.5897/jphe12.022>
- Pfukenyi, Davies Mubika et al. "A Survey Of Pet Ownership, Awareness And Public Knowledge Of Pet Zoonoses With Particular Reference To Roundworms And Hookworms In Harare, Zimbabwe". *Trop Anim Health Prod* 42.2 (2009): 247-252.
- Robertson, I.D. et al. "The Role Of Companion Animals In The Emergence Of Parasitic Zoonoses". *International Journal for Parasitology* 30.12-13 (2000): 1369-1377.
- Scabies Overview. (2016). Healthinplainenglish.com. Retrieved 14 March 2016, from <http://www.healthinplainenglish.com/health/skin/scabies/>
- Toxoplasma gondii* - GGCWiki. (2016). Wiki.ggc.edu. Retrieved 14 March 2016, from http://wiki.ggc.edu/wiki/Toxoplasma_gondii
- Weese, J., & Fulford, M. (2011). *Companion animal zoonoses*. Ames, Iowa: Wiley-Blackwell.
- Zanzani, S., Gazzonis, A., Scarpa, P., Berrilli, F., & Manfredi, M. (2014). Intestinal Parasites of Owned Dogs and Cats from Metropolitan and Micropolitan Areas: Prevalence, Zoonotic Risks, and Pet Owner Awareness in Northern Italy. *Biomed Research International*, 2014, 1-10. <http://dx.doi.org/10.1155/2014/696508>