UNIVERSITI PUTRA MALAYSIA

A STUDY ON THE FACTORS THAT MOTIVATE CAT OWNERS TO VACCINATE THEIR CATS

ASHITOSH KUMAR

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A project paper submitted to the

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In partial fulfilment of the requirement for the

DEGREE OF DOCTOR OF VETERINARY MEDICINE

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CERTIFICATION

It is hereby certified that I have read this project paper entitled "A Study on the Factors That Motivate Cat Owners to Vaccinate Their Cats" by Ashitosh Kumar and in my 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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DEDICATION

To my parents and my supervisor for encouraging me throughout this project.

"Loneliness expresses the pain of being alone and solitude expresses the glory of being alone" (Paul Tillich)

ACKNOWLEDGEMENT

Thank you is all I can say,

For guiding me when I've lost my way,

Throughout these entire five years in school,

Especially when I was low on mental and emotional fuel.

Thank you to my parents for believing in me,

Thank you to my muse for teaching me valuable life lessons,

Thank you to the strangers who treated me as family.

Thank you to my thousand mile friend Prithvi for sharing my grief and joy.

And finally a big thank you to those who worked behind the scenes but still impacted my life.

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Abstract

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfillment of the course VPD 4999-Project

A STUDY ON THE FACTORS THAT MOTIVATE CAT OWNERS TO VACCINATE THEIR CATS.

By

Ashitosh Kumar

2018

Supervisor: Assoc. Prof Dr. Goh Yong Meng

Compliance to vaccination plays an important role in the control of infectious diseases in cats. Poor compliance to the recommended vaccination programme is among the reasons for the continual threat of preventable infectious diseases in cat populations. The benefits of routine vaccination are that the incidence of serious disease caused by highly pathogenic organisms, such as feline panleukopenia, can be reduced in populations in which widespread vaccination is practised. In developed countries it is estimated that only 30–50% of the cat population is vaccinated, and this could be significantly less in developing nations like Malaysia. Therefore, this study aimed to find out what are the factors that motivate owners to vaccinate their cats. The purpose of this study is to identify the common factors among owners that do and do not vaccinate their cats, and use this knowledge to construct a more directed and effective client education programme. 52 cat owners were sampled at the Universiti Veterinary Hospital for this study. They were interviewed using a questionnaire modified from a previous study on “pet health care”. The data was then tabulated in SPSS and analysed. Results showed that owners from the Bottom 40 % income group (B40) with household income of less than RM3900, were four times less likely (95 % CI: 0.057 – 0.980)

to vaccinate their cats than the next income groups. Another significant factor identified was that owners who had more knowledge on vaccination practices were six times more likely (95 % CI: 0.029 – 0.763) to vaccinate their cats compared to owners with lesser knowledge on vaccination practices. Other relevant factors that influence compliance to vaccination includes number of people in the household, amount spent on the cat per month and owner's perception of the cat on whether it is a pet or part of the family. In conclusion, owner's income disposition and the knowledge of when to start vaccination, as well as ancillary cat ownership determinants, are important factors that motivate owners to vaccinate their cats. These factors should be considered in designing an effective and more directed client education programme to improve vaccination compliance among cat owners.

Keywords: Cat, Vaccination, Factors

Abstrak

Abstrak kertas projek yang dibentangkan kepada Fakulti Perubatan Veterinar dalam memenuhi sebahagian daripada kursus VPD 4999-Project

KAJIAN FAKTOR-FAKTOR MOTIVASI PEMILIK KUCING UNTUK MENGVAKSIN KUCING MEREKA.

Oleh

Ashitosh Kumar

2018

Penyelia: Prof. Prof Dr Goh Yong Meng

Pematuhan kepada vaksinasi memainkan peranan penting dalam mengawal penyakit berjangkit dalam kucing. Pematuhan yang kurang baik terhadap program vaksinasi yang disyorkan adalah antara sebab ancaman berterusan penyakit berjangkit yang boleh dicegah dalam populasi kucing. Manfaat vaksinasi rutin adalah bahawa kejadian penyakit serius yang disebabkan oleh organisma yang sangat patogenik, seperti panleukopenia, dapat dikurangkan dalam populasi kucing. Di negara-negara maju, dianggarkan hanya 30-50% daripada populasi kucing yang diberi vaksin, dan ini kurang ketara di negara-negara membangun seperti Malaysia. Oleh itu, kajian ini bertujuan untuk mengetahui faktor-faktor yang mendorong pemilik untuk memvaksinkan kucing mereka. Tujuan kajian ini adalah untuk mengenal pasti faktor-faktor yang sama di kalangan pemilik yang memvaksin dan tidak memvaksin kucing mereka, dan menggunakan pengetahuan ini untuk membina program pendidikan pelanggan yang lebih efektif dan berkesan. 52 pemilik kucing disoal selidik di Hospital Veterinar Universiti untuk kajian ini. Mereka ditemuramah menggunakan soal selidik yang diubahsuai dari kajian sebelumnya mengenai "penjagaan kesihatan haiwan kesayangan". Data tersebut kemudiannya disusun dalam SPSS dan dianalisis. Keputusan menunjukkan bahawa pemilik dari kumpulan pendapatan Bawah 40% (B40) dengan pendapatan isi rumah kurang daripada RM3900, empat kali kurang berkemungkinan (95% CI: 0.057 - 0.980) untuk memvaksin kucing mereka daripada kumpulan pendapatan yang lain. Satu faktor penting yang dikenal pasti

ialah pemilik yang mempunyai lebih banyak pengetahuan tentang amalan vaksinasi adalah enam kali lebih besar (95% CI: 0.029 - 0.763) untuk memvaksin kucing mereka berbanding pemilik yang kurang mengetahui mengenai amalan vaksinasi. Faktor lain yang mempengaruhi pematuhan terhadap pemvaksinan termasuk bilangan orang dalam rumah tangga, jumlah yang dibelanjakan untuk kucing sebulan dan persepsi pemilik terhadap kucing sama ada haiwan atau sebahagian daripada keluarga. Kesimpulannya, kadar pendapatan pemilik dan pengetahuan tentang tempoh umur untuk memulakan vaksinasi, serta faktor penentu pemilikan kucing, adalah faktor-faktor penting yang mendorong pemilik untuk memvaksikan kucing mereka. Faktor-faktor ini perlu dipertimbangkan dalam merekabentuk program pendidikan pelanggan yang berkesan dan efektif untuk meningkatkan pematuhan pemvaksinan di kalangan pemilik kucing.

Kata kunci: Cat, Vaksinasi, Faktor

1.0 INTRODUCTION

Vaccines are defined as preparations that resemble infectious agents like bacteria or viruses but are not pathogenic when administered to an animal. The prime function of a vaccine is to stimulate the immune system to protect the animal from infectious diseases (Kornreich, 2010). Similar to human medicine, vaccination is not only about the protection of the individual animal, but of the population as a whole. So the purpose of vaccination, as we currently practice it, is to protect individual animals and populations of animals from lethal or disease-producing infections.

Major infectious diseases of cats have been effectively controlled (but not eliminated) by vaccination programmes over the past decades. Where vaccination is widely practiced in a population, killer diseases such as feline infectious peritonitis and feline parvovirus infections are relatively rare occurrences. More than seventy percent (>70%) of the cat population should be vaccinated to achieve control of these diseases (WSAVA, 2012). Vaccination also prevents animal suffering by controlling infectious agents that donot necessarily kill the animal but do cause clinical signs (e.g. cats with feline upper respiratory tract disease). In countries where vaccination is not widely practiced (i.e. in <10% of the population), these diseases remain just as prevalent as they always have been. Vaccinating a cat therefore not only protects it from infection but is to the benefit of the entire animal population.

There has been increasing public awareness on the importance of vaccinating their cats. However, the continual occurrence of diseases that can be prevented through vaccination remained a concern. This is due to the failure of owners to vaccinate their cats. Therefore, this study was performed to investigate possible associations among various factors that could have determined the level of vaccination compliance among cat owners. These included owner demographics, knowledge on vaccination protocols, income level along with ancillary factors,

such as amount spent on cat per month, number of people in the household, and whether the cat is considered a pet or part of the family. Prior studies have shown that these are factors that demonstrated significant effect on compliance to vaccinations.

The current study is an initial exploratory study to investigate factors motivating owners to have their cats vaccinated. The results of this study would be useful in designing effective and targeted client education approach to increase vaccination compliance among cat owners. The major objectives of this study were to identify factors determining vaccination compliance rates in cats, and to study the relationship between owner demographics and vaccination status of cats. Such associations are very important for identifying and concluding on which factors are essential in determining compliance to vaccination.

2.0 LITERATURE REVIEW

2.1 VACCINATION PRINCIPLES

Vaccination plays an important role in the control of infectious diseases, both for an individual as well as for the cat population (AAFP, 2013). The incidence of disease caused by highly pathogenic organisms such as feline parvo-virus which causes panleukopaenia can be reduced. Even the potential outbreak of zoonotic disease such as rabies can be prevented in cat populations where widespread vaccination is practiced.

The chances of an infection and/or the subsequent development of disease varies with a number of factors. Some of these factors are age of cat, the health status, magnitude of exposure, agent pathogenicity, geographic prevalence, history, maternal derived antibody interference, congenital or acquired immunodeficiency, concurrent disease, nutritional status, chronic stress, and aging immune response.

2.2 OBJECTIVES OF VACCINATION

The objectives of vaccination can be summarized as follows (AAFP, 2013):

- To vaccinate each cat only against infectious agents to which it has a realistic risk of exposure.
- To vaccinate against infectious agents that cause significant disease.
- To vaccinate a cat only when the potential benefits outweigh the potential risks.
- To vaccinate each cat no more frequently than necessary.
- To vaccinate the greatest number of cats possible in the population at the risk.
- To vaccinate appropriately to protect human/public health.

2.3 IMPORTANT VACCINABLE CAT DISEASES IN MALAYSIA

Feline Upper Respiratory Disease (Feline Viral Rhinotracheitis – Herpesvirus infection)

Feline upper respiratory disease can be caused by several viruses, such as feline herpesvirus type 1 (FHV-1) and feline calicivirus (FCV) which are the two most important and may result in fatalities. *Bordetella bronchiseptica*, is a bacteria which can also cause feline upper respiratory disease. FHV-1 occurs worldwide and is also seen in non-domestic cats. It usually occurs together with FCV and other bacterial infections. FHV-1 remains latent after recovery, and most cats are lifelong carriers. FHV-1 infection is usually seen in multi-cat situations like boarding and breeding shelters and multi-cat households (Rees, 2009). Vertical transmission can occur in kittens their latently infected Mothers. Some common clinical signs noticed are; acute rhinitis, conjunctivitis, fever, depression and anorexia, which can be fatal in kittens. Fatal pneumonia along with ulcerative keratitis can occur as well.

Feline Parvovirus (Feline Panleukopenia)

Feline Parvovirus is the classical, severe virus disease of cats. It has also been known as feline infectious enteritis, and sometimes referred to as 'feline distemper', 'cat flu' or 'cat fever'. It is caused by the feline parvovirus (FPV), which is likely to be the ancestor virus of the parvoviruses of dogs, mink and raccoons. FPV infects domestic as well as exotic cats, but

also raccoons, mink, foxes and other wildlife species. Some dog parvovirus variants can alsoinfect cats. When FPV is introduced into a community of unvaccinated cats, it can cause disease and death in a high percentage (>50%) of the cats, especially when they are less than one year of age. The solution is to only introduce thoroughly vaccinated cats into such an environment. Sick cats shed the virus at high concentrations in their faeces, which are the source of transmission via oral or nasal uptake. Indirect contact is the most common route of infection, and FPV may be carried even into homes in high-rise buildings on shoes and clothing by contaminated visitors. This means that indoor cats are also at high risk of infection. In pregnant queens, the virus can pass through the uterus into the fetus, and infection of neonates may occur. Not all of these kittens necessarily die, some may be born alive, but they will show neurological signs – conspicuous uncoordinated movements (cerebellar ataxia syndrome). Cats of all ages may fall ill, but kittens are most susceptible. This is a deadly infection and the mortality rates may surpass 90% in some outbreaks, especially when young susceptible kittens are infected. Depending on the infected organs, disease signs are diarrhoea and blood changes (lymphopenia, neutropenia, followed by thrombocytopenia and anaemia). The scientific term ‘panleukopenia’ indicates that all white blood cell types are reduced in number. Since these cells are important in the immune defence, the infection leads to immunosuppression and makes the infected cat more susceptible to other (often bacterial) infections (Williems, 2007).

2.4 Recommended Feline Vaccination Guidelines

Cat owners have a critical role to play in assuring that the kittens/cats they raise are properly vaccinated and are healthy. There are core vaccines that all owners should give to their kittens, starting as early as 6 weeks of age, but usually when the kittens are 8–10 weeks of age. The vaccines include the feline (panleukopenia) parvovirus virus (FPV) vaccine, the feline calicivirus (FCV) vaccine, the feline herpes virus-1 (FHV-1) vaccine and, in some countries, the rabies virus (RV) vaccine. Revaccination of the kittens should occur so that the last dose of vaccines is given at 16 weeks of age or older. This will generally require at least a three dose schedule, with modified live vaccines (MLV) given, for example, at 8, 12 and 16 weeks or 6, 9, 12 and 16 weeks. Although MLV vaccines are generally effective when only one dose is given in the absence of maternally derived antibody (MDA), some cats given the combination core vaccine require two doses to mount an antibody response to the FCV and/or FHV-1 vaccines. Therefore, a minimum of two doses is recommended, even when cats are first vaccinated at 16 weeks of age or older, at a time when the kittens no longer have MDA.

Revaccination of cats with the core vaccines FPV, FCV, FHV-1 is recommended at 6 months or 1 year of age, then for FPV not more often than every 3 years (WSAVA). The vaccination protocol has been clearly stated as such and follow up of each cat's vaccination schedules is the responsibility of an owner.

2.5 POSSIBLE ADVERSE REACTIONS OF VACCINATION

One of the main drivers for change in companion animal vaccinology over the past decade has been a desire to improve the already very high safety level of vaccination. There can never be a guarantee, in either human or veterinary medicine, that every single administration of a vaccine will be perfectly safe and without adverse consequences. There is a realization that on rare occasions, vaccination of a dog or cat might lead to an unexpected clinical reaction. Such reactions are for the most part are mild and inconsequential and a simple risk benefit analysis will always suggest that the benefit obtained from having solid immunity to potentially lethal disease far outweighs the small risk of a vaccine-associated adverse event(WSAVA, 2015).

Good scientific data on the prevalence of vaccine reactions in man and animals simply do not exist. The main reason for this relates to the fact that not all such events are recorded and so the true prevalence can only be a best estimate. Many adverse events are mild and transient (1–2 days post-vaccination) reactions such as lethargy, low grade fever, soreness, stiffness, refusal to eat and sneezing/coughing after intranasal vaccination. Moderate to severe reactions include hives, facial oedema and anaphylaxis (where the animal, if not treated with adrenaline can die), feline injection site sarcoma (FISS) and autoimmune (auto allergic) diseases (WSAVA, 2015).

It is generally only the adverse reactions that occur within the first few hours to a day after vaccination that are considered vaccine-associated by most veterinarians or owners. Even when the adverse reaction occurs shortly after vaccination there are many who fail to recognize that the vaccine caused the reaction. Certain adverse vaccine reactions are not observed until days, weeks or even months and years after vaccination or revaccination. The autoimmune

disorders and the injection site sarcomas, which are among the rare vaccine adverse reactions, may not develop for years after being triggered by vaccines. Adverse reactions from vaccines has been stated to be one of the reasons why some owners hesitate on vaccinating their cats.

2.6 OWNER-RELATED FACTORS THAT AFFECT VACCINATION IN CATS

The triad making up the vaccination of a cat involves, the veterinarian who vaccinates the cat, the environment and the cat which is to receive the vaccination. The owner is the one which enables the process of vaccination. The owner plays a key role as he/she is the one deciding on if, when and how their cat will be vaccinated. A study conducted by BN (Border Neutral) research group in Portland shows that the owner demographics is an important component in the healthcare received by pets (Lue, 2007).

There are several owner-related factors which contribute to the compliance of vaccinating a cat like, gender, human-pet bond, owner's household income level, number of people in the house, level of education and level of knowledge on vaccination program (Lue, 2007). Though the study conducted is based primarily on gathering information on each of the above mentioned parameters, there was no study on how these factors affected the probability of a cat to receive health care.

2.7 PATIENT AND ENVIRONMENTAL FACTORS THAT DISCOURAGE VACCINATION IN CATS

Other than the owner factor, the other two factors of the triad is the cat (patient) and the environment. Some of the factors that affect these two components on whether vaccination takes place or not are; the number of cats in the household, the breed of the cat, the location of the cat household and on whether the cat is a stray, semi roamer or indoors cats. These factors determine similarly to owner demographics on whether the cat will be vaccinated or not (Mosby, 1997).

SUMMARY

The aim of this study would be to identify factors that determine vaccination status of cats and use these factors to have more directed and effective client education programs. A paper titled 'Perceptions and Attitudes of Pet Owners: The Impact of the Bond' summarized factors that affect owner compliance for pet health care. Studies show that owners who have a better bond with their pets provide better health care. Owners which had higher education level, higher income, were female and brought their pet to the vet more than two times a year had a better compliance to providing health care (Crawford, 2007). These factors along with few other determinants of compliance of owners to vaccinate their cats were tested in the questionnaire.

3.0 MATERIALS AND METHODS

3.1 THE QUESTIONNAIRE

The questionnaire was adapted and modified from a previous final year project done on Pet Health Care at the Faculty of Veterinary Medicine in Universiti Putra Malaysia (Hakim, 2014). An example of the questionnaire has been attached in the appendix section. There were three (3) sections in the questionnaire as follows:

1. Section 1: Cat profile
2. Section 2: Cat vaccination status
3. Section 3: Cat Owner's profile

3.2 DATA COLLECTION

All cat owners presenting their cats at the University Veterinary Hospital (UVH) were included in the study. Data collection was done primarily via questionnaire. Owners acknowledged that they understand the purpose and risks of the survey presented to them on a consent form, prior to the questionnaire session. Once the form was read, understood and signed, the questionnaires were individually filled for each cat by the researcher. This is to ensure that there is a consistency in the questions and to minimize possibilities for the questions to be misinterpreted by the owners. All cats presented to the UVH during the study period were included in the study. There was no restriction on the age, gender and breed of the animals in this study.

3.3 DATA ANALYSIS

The dataset was analysed using SPSS Version 24.0 (IBM SPSS Inc., USA). Dataset of vaccination status was compared with factors from cat profile and owner profile using customs tables cross tabulation. Risk analysis was also performed on risk factors that were found to be significant determinants of vaccination status. All statistical analysis was performed at 95% confidence level.

4.0 RESULTS

A total of 52 respondents were included in this study during the two-week sampling period. The majority of the respondents are from the Kuala Lumpur area.

4.1 FACTOR DETERMINING VACCINATION STATUS OF A CAT

I. OWNER'S HOUSEHOLD INCOME

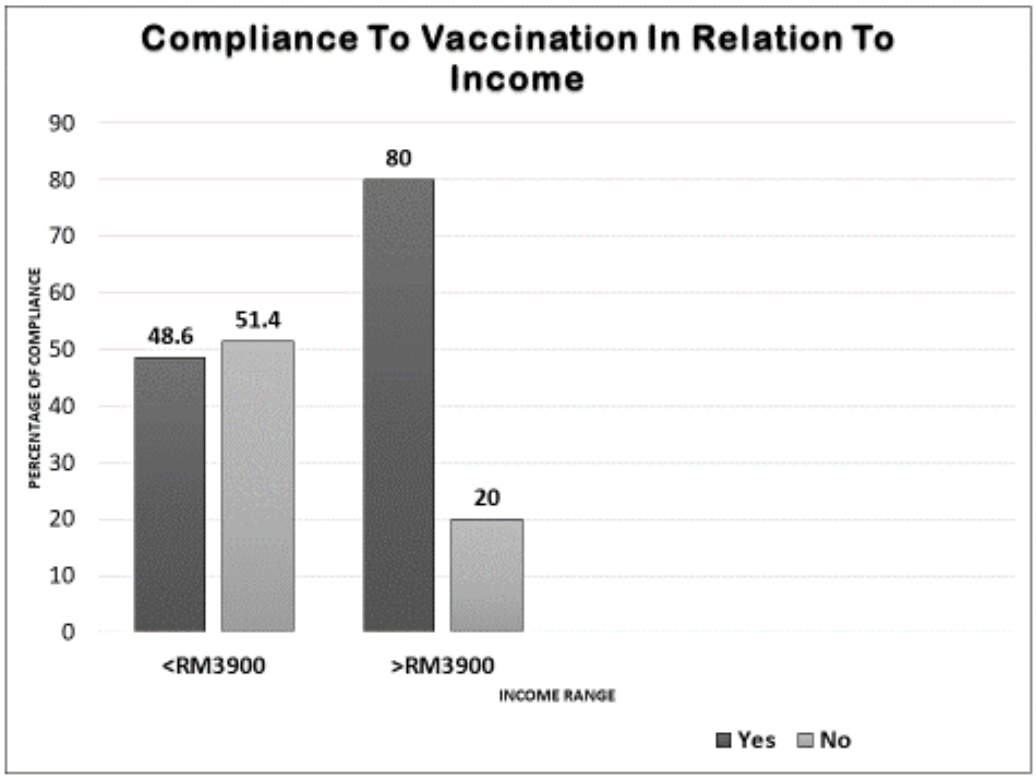

Figure 1: Compliance to Vaccination in Relation to Income

The graph in figure 1 shows that owner's belonging to the B40 (bottom 40 percentile of population) group which is having household income of <RM3900, had a compliance to vaccination rate of only 48.6%. Whereas owners above the B40 i.e. >RM3900 household income group had a compliance to vaccination rate of 80%. This simply shows that the higher income households had more to spare in terms of money and this would enable their cats to get better care.

II. OWNER'S KNOWLEDGE ON VACCINATION PROGRAMME

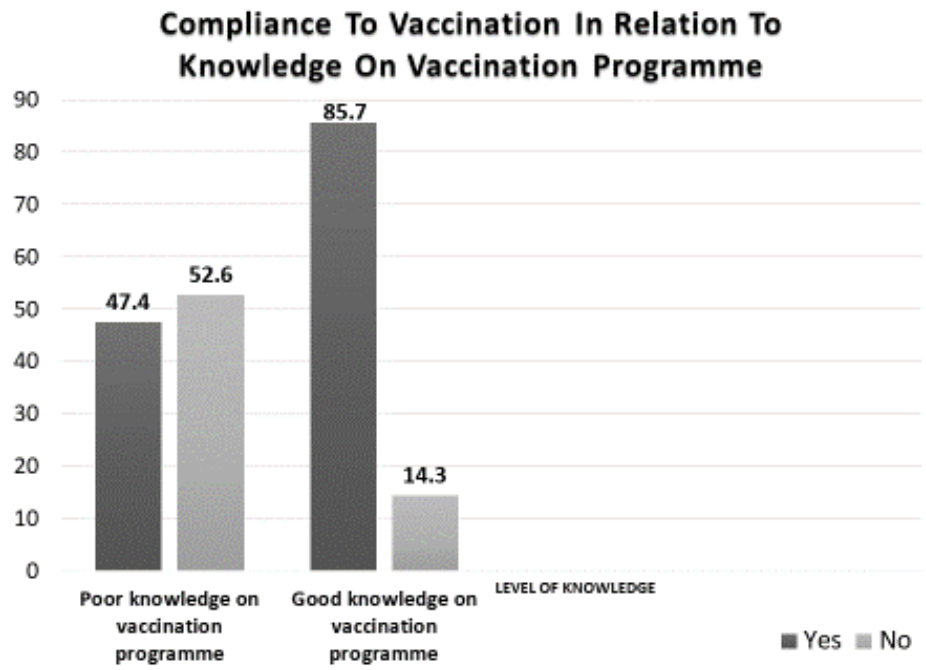

Figure 2: Compliance to Vaccination in Relation to Knowledge on Vaccination Programme

From figure 2, it can be interpreted that owner's with poor knowledge on vaccination programme resulted in only a 47.4% cats vaccinated whereas owners that had a good knowledge on vaccination programmes had an 85.7% of their cats vaccinated. This shows that owners that were more informed on vaccination programmes would be more likely to vaccinate their cats. This could be attributed to them understanding the benefits of vaccination along with risks of not having cats vaccinated.

III. NUMBER OF PEOPLE IN THE HOUSEHOLD

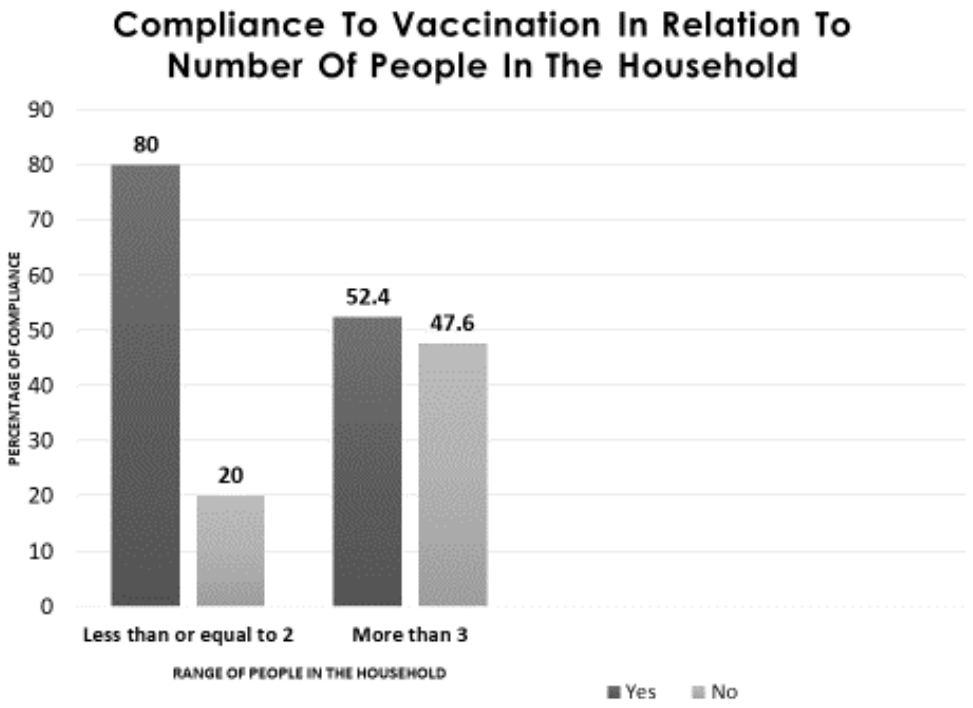

Figure 3: Compliance to Vaccination in Relation to Number of People in the Household

Based on the graph shown in figure 3 above, 80 % of cats from households that had less than or equal to two (2) people in the house were vaccinated, whereas only 52.4 % of cats from households with more than 3 people were vaccinated. This shows that households with less number of people had more resources to spare on their cats, since vaccination may involve significant household expenses.

IV. AMOUNT SPENT ON CAT

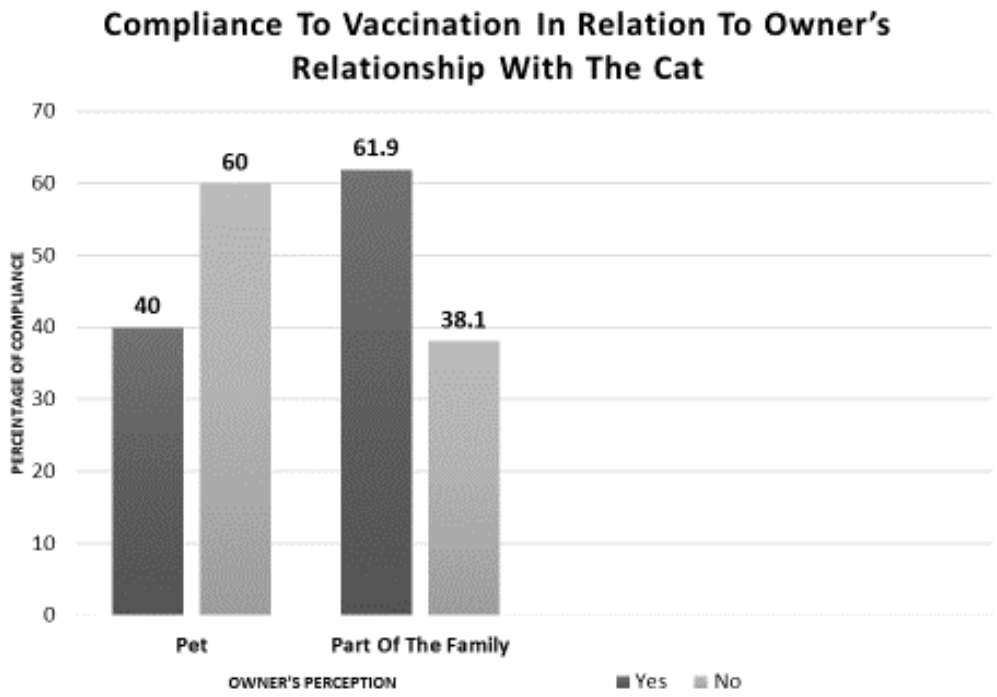

Figure 4: Compliance to Vaccination in Relation to Owner's Relationship with the Cat

From the graph shown above it can be interpreted that owners that spent less than RM100 per month on their cat had a 38.5 % compliance to vaccination. This is much lower than the 64.1 % compliance shown by owners who spend more than RM100 per month on their cats. This can be surmised as owners that spent more prioritised their cat, and in doing so had a better compliance to vaccination in order to provide a higher standard of care.

V. OWNER'S PERCEPTION OF THE CAT :- PET OR PART OF THE FAMILY

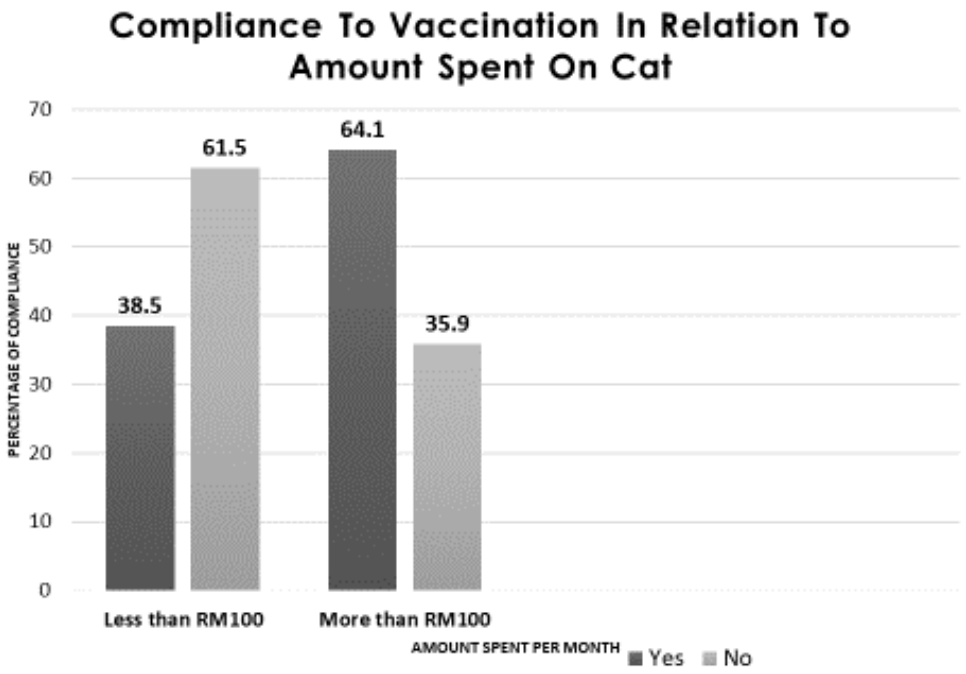

Figure 5: Compliance to Vaccination In relation to Amount Spent on the Cat

Figure 5 shows that cats belonging to owners that perceive them as only a pet had 40% vaccination rate, whereas cats belonging to owners that perceived them as part of the family had 61.9% vaccination rate. This highlights that cats that are considered part of the family are given greater importance from owners and have more likelihood to get vaccinated.

5.0 DISCUSSION

The five factors identified from this study that had significant impact on determining an owner's compliance to vaccinate their cat are household income, knowledge on vaccination programmes, and number of people in the household, amount spent on the cat per month and owner's perception of the cat on whether it is a pet or part of the family.

Income plays an important role in determining on how resources are allocated in the household. Information gathered from the Malaysian Inland Revenue Department (IRD) showed that income levels in Malaysia can be divided into three categories. First category is the bottom 40 percentile (B40) which has a household income of less than RM3900 and forty percent of the population belong to this category. The second category is the middle 40 percentile (M40) which has a household income of between RM3900 to RM8900 and forty percent of the Malaysian population belong to this. The last category is the top 20 percentile (T20) which has household income of more than RM8900 and the remaining 20% of Malaysia's population belong to this. The M40, and T20 categories were combined due to the limited number of respondents from these income groups. Owners which belonged to categories above the B40 ranges had a compliance rate of 80%. This could be due to the fact that the amount of money at the disposal of these families dictates the level of health care provided to the cat. Owners that are price-sensitive and will forego vaccination for their cats if it doesn't fall in their range of expenses (Pattenburg, 2007). From this data it is obvious that owners from the B40 income group required more attention in order to increase vaccination compliance in cats.

The level of knowledge an owner has on vaccination programs is independent to the owner's education level (Kitala, 2002). Specific questions on vaccination programme

were asked, and well informed owners showed an 85.7% compliance to cat vaccination. It was concluded from this that knowledge on vaccination programmes is significant in determining compliance rates. The immediate answer to making the owner's more informed would be to have more efficient and effective client education programmes. An effective client education would mean a better level of knowledge for the owner, which would mean better compliance rates, which would lead to better cat vaccination statistics. These ultimately would translate to a reduction in vaccine-preventable diseases in cats.

Number of people in the household, amount spent on the cat per month and owner's perception of the cat on whether it is a pet or part of the family, are ancillary factors in this study as they support the two main factors highlighted in this discussion. The number of people in the household along with amount spent on the cat per month, are very much related to the amount of disposable income of a household.

Perception of the cat as a pet or part of the family is listed as an ancillary factor because perception of such is very subjective. What one owner perceives the cat-human bond as part of the family the other may perceive it as just a pet. Furthermore it can be stated that owners with stronger bonds with their cat are less sensitive to price induced from vaccination (Crawford, 2007).

6.0 CONCLUSIONS

From this study it can be concluded that owner's income disposition and the knowledge of when to start vaccination, as well as ancillary cat ownership determinants, are important factors that motivate owners to vaccinate their cats. These factors should be considered in designing an effective and more directed client education programme to improve vaccination compliance among cat owners.

7.0 RECOMMENDATIONS

Based on the findings of this study, it is recommended that future studies should include bigger sample size and equal number of respondents from each demographic to avoid any biasness to a particular factor. It is believed that there are other factors that could prove to be significant if this survey was done on a larger scale and at multiple locations. These are essential to get respondents from a wide range of demographics, especially among owners with low vaccination compliance. Finally, all studies should revolve around awareness of vaccination in these cats. The current has shown that awareness on the need to vaccinate cats is an important determinant in owner's compliance to vaccination.

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9.0 APPENDIX

Factors Motivating Malaysian Cat Owners to Vaccinate Cats

Thank you for participating in this survey form. It will only take approximately 10 minutes to complete this survey form. All responses will remain confidential.

Section 1: Cat Owner Profile

Race	o	Malay	o	Chinese	o	Indian	o	Others: _____	
Age	o	<20 years old	o	20-30 years old	o	31-40 years old	o	41-50 years old	o >50 years old
Gender	o	Male	o	Female					
Education	o	Please state: _____ (Example: SPM, Diploma, Masters, etc.)							
Occupation	o	Please state: _____ (Example: Teacher, Engineer, Lawyer, etc.)							
Income	o	B40 (<RM3900)	o	M40 (RM3900-RM8900)	o	T20 (>RM8900)			
Number of people in the household	o	<2 people	o	2 to 5 people	o	>5 people			
City/Town/Area that you live in	o	Please state: _____							

Section 2: Cat Profile

How many cats are you taking care of now?	o	<2 cats	o	2-5 cats	o	>5 cats			
How did you acquire your cats?	o	Adopted a stray cat	o	From the animal shelter (SPCA)	o	Pet shops	o	Others: _____	
How long have you owned/kept your cat(s)?	o	Please state: _____							
On average, how much do you spend to care for your cat(s) in a month?	o	<RM 100	o	RM 100 - RM 400	o	>RM 400			
What cat breed do you currently have?	o	Pedigree breed (Please state): _____			o	Non-Pedigree breed			
What type of feed do you give to your cat(s)?	o	Dry feed	o	Dinner leftovers	o	Wet food	o	Others: _____	
How do you manage your cat(s)?	o	Indoor	o	Outdoor	o	Semi-roamer			
How do you perceive your cat(s)?	o	As a pet	o	As part of the family	o	A stray cat I helped out	o	Others: _____	
How important is/are your cat(s) to you?	o	Not important	o	Least important	o	Neutral	o	Important	o Most important
How many times do you bring your cat(s) to the veterinarian in a year?	o	1 time	o	2 times	o	3 times	o	4 times	o >4 times

I believe that vaccination is important.	o	Agree	o	Disagree	o	I am not sure			
My cat(s) vaccination status is up-to-date.	o	Yes	o	No	o	I am not sure			
If YES, why do you vaccinate your cat(s)?	o	Help boost the immune system	o	Prevent cat(s) from diseases	o	Veterinarian's advice	o	Others: _____	
If NO, why do you not vaccinate your cat(s)?	o	Not aware of cat vaccines	o	Cost is expensive	o	Vaccines can cause harm to my cat(s)	o	Others: _____	
I know of vaccinations from: (You may choose more than one answer)	o	Veterinarian	o	Pet shop	o	Friends and family	o	Internet	o Others: _____
A cat can be vaccinated as early as:	o	Please state: _____ (Example: 2 days, 3 weeks, 4 months, etc.)							
A sick cat is just as eligible to be vaccinated as a healthy cat.	o	True	o	False	o	I am not sure			