



UNIVERSITI PUTRA MALAYSIA

**PET OWNERS' KNOWLEDGE, ATTITUDE AND PRACTICE ON
FEEDING FOR CATS DURING MOVEMENT CONTROL ORDER (MCO) IN
SELANGOR, MALAYSIA.**

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**PET OWNERS' KNOWLEDGE, ATTITUDE AND PRACTICE ON
FEEDING FOR CATS DURING MOVEMENT CONTROL ORDER (MCO)
IN SELANGOR, MALAYSIA.**

HANUM BINTI MOHD HIZAN

A project paper submitted to the

Faculty of Veterinary Medicine, Universiti Putra Malaysia (UPM)

In partial fulfilment of the requirement for the

DEGREE OF DOCTOR OF VETERINARY MEDICINE

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CERTIFICATION

It is hereby certified that we have read this project paper entitled “Pet Owners’ Knowledge, Attitude And Practice On Feeding For Cats During Movement Control Order (MCO) In Selangor, Malaysia.”, by Hanum binti Mohd Hizan and in our opinion it is satisfactory in terms of scope, quality and presentation as partial fulfilment of the requirement for the course VPD 4999 – Final Year Project.

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DEDICATION

God, for giving me the chance to experience life. Mama. Those who are always there for me. My cats (Momo, Mat, Girlfriend and Kawan). All stray cats in Malaysia. Me, myself and I for surviving these hectic years.



ACKNOWLEDGEMENT

Primarily, I would like to thank God for being able to complete this project. I believe that all those obstacles along the way were proof that You are the most loving as You taught me patience. Thank you.

I wish to give a big thank you to my supervisor, Dr. Puteri Azaziah Megat Abdul Rani for providing me guidance and assistance from day 1. Thank you for inspiring me to improve my multi-tasking ability as even with your extremely busy schedule, you still made time for me.

Same goes to my co-supervisor, Dr. Norhariani Mohd Nor who always assists and guides me with extreme patience. Even when she was not in the best health conditions, she was still dedicated to help with her students' projects. She had shown me the fun of data tabulation and data analysing.

I would like to thank my friends especially Janna who supported me emotionally and physically. Without you guys, I won't make it. I am thankful for all the laughter and all the fun.

Not to forget all the stray cats in Malaysia. You're the reason I took veterinary medicine in the first place. InsyaAllah, one day all of you will have a home.

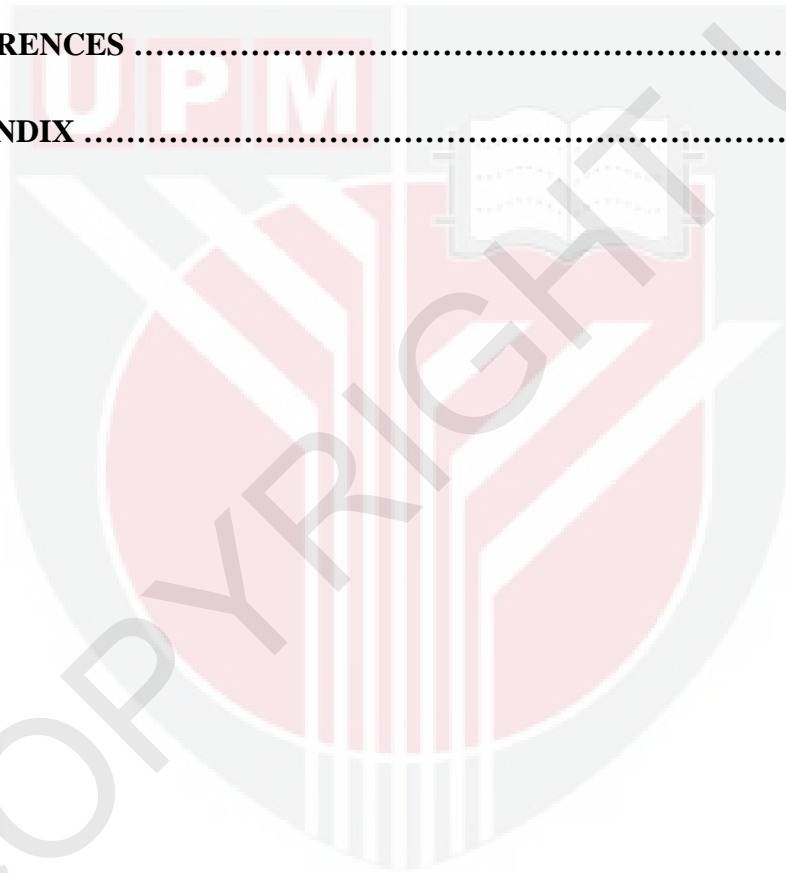
Last but not least, I want to give thanks to my Mama for being my mom. They say that a mother's prayer is always heard by God and for that I believe that because of your prayers, I am what I am today.

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LIST OF ABBREVIATIONS

MCO = Movement control order

% = Percentage

et al. = et al (abbr. Latin) et alii (and others)

RM = Ringgit Malaysia



ABSTRAK

Abstrak kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sebahagian daripada kursus VPD 4999 - Projek Tahun Akhir.

**PENILAIAN PENGETAHUAN, KEPERCAYAAN DAN PERILAKU
PEMILIK HAIWAN PERLIHARAAN DALAM PERBELANJAAN
MAKANAN KUCING SEMASA PANDEMIK COVID-19 DI SELANGOR,
MALAYSIA.**

OLEH

HANUM BINTI MOHD HIZAN

2020

Penyelia: Prof. Madya Dr. Puteri Azaziah binti Megat Abdul Rani

Penyelia bersama: Dr. Norhariyani Binti Mohd Nor

Perintah Kawalan Pergerakan Kerajaan Malaysia 2020 (PKP) dijangka mempengaruhi perbelanjaan pemilik haiwan peliharaan di Malaysia. Soal selidik secara dalam talian di laksanakan untuk menganalisis demografik, status sosio ekonomi, pengetahuan, sikap dan amalan pemakanan terhadap kucing peliharaan oleh pemilik haiwan peliharaan semasa PKP di Selangor. Seramai 305 pemilik haiwan peliharaan telah turut serta dan analisis statistik telah di laksanakan dengan

bantuan “Statistical Package For Social Sciences” (SPSS) versi 25. Pengetahuan dibahagikan kepada dua kumpulan iaitu pemilik haiwan peliharaan yang mempunyai pengetahuan yang baik dan kurang baik berdasarkan 50% titik pembahagian. Kaedah ini juga dipraktikkan untuk pembahagian sikap dan amalan pemakanan. Pemarkahan dikira dengan perbandingan markah sebelum PKP dan semasa PKP. Kaedah “Binomial logistic regression” telah digunakan untuk menganalisis perhubungan antara pengetahuan baik dan pengekalan sikap dan amalan pemakanan yang bagus semasa PKP bersama perhubungan antara demografik dan status sosio ekonomi pemilik haiwan peliharaan dan pengekalan sikap dan amalan pemakanan yang bagus semasa PKP. Majoriti pemilik haiwan peliharaan merupakan wanita (85.9%) dari kumpulan umur 18-24 tahun (51%) dan mempunyai pendapatan semasa PKP (80%). Secara keseluruhan, pemilik haiwan peliharaan mempunyai pengetahuan yang baik (90%), mengekalkan sikap yang baik (90%) dan mengekalkan amalan yang baik (62%) semasa PKP. Berdasarkan analisis statistik, terdapat perhubungan signifikan antara umur dan pendapatan bersama pengekalan sikap dan amalan pemakanan yang baik semasa PKP. Pemilik haiwan peliharaan yang berusia lebih daripada 24 tahun adalah 1.97 lebih cenderung untuk mengekalkan amalan pemakanan yang baik semasa PKP. Kesimpulannya, pemilik haiwan peliharaan di Selangor mempunyai pengetahuan yang baik. Walau bagaimanapun, pengetahuan yang baik tiada perhubungan dengan pengekalan sikap dan amalan pemakanan yang bagus semasa PKP. Selain itu, umur dan status pendapatan mempunyai hubungan dengan pengekalan sikap dan amalan pemakanan yang bagus semasa PKP. Namun begitu, banyak faktor

lain yang perlu dikaji dan taburan sampel boleh dibesarkan untuk mendapat hasil kajian yang lebih baik.

Kata kunci : COVID-19, Perintah Kawalan Pergerakan Kerajaan Malaysia, soal selidik, kucing, pemilik haiwan peliharaan, Selangor.



ABSTRACT

An abstract of the project paper presented to Faculty of Veterinary Medicine in partial fulfilment of the course VPD 4999 - Final Year Project.

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By

HANUM BINTI MOHD HIZAN

2020

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Co-supervisor: Dr. Norhariani Binti Mohd Nor

The Malaysia 2020 Movement Control Order (MCO) is expected to affect pet owners' pet expenditure. A cross-sectional online survey was carried out to analyze the demographic and socioeconomic characteristics, knowledge, attitude and practice of feeding of pet owners in Selangor during MCO. A sum of 305 pet owners participated in this study and the Statistical Package For Social Sciences (SPSS) version 25 was utilized to perform statistical analysis. Knowledge was categorized into two groups which were good and poor knowledge based on their score with a cutoff point of 50%. This is similarly applied to categories pet owners that retained good attitude and practice during MCO and vice versa. The score is

calculated based on comparing the score during and before MCO. Binomial logistic regression was used to analyze the association of good knowledge with retaining good attitude and practice of feeding during MCO along with the association of demographic and socioeconomic characteristics with retaining good practice of feeding during MCO. Majority of the pet owners were female (85.9%) of age group 18-24 years old (51%) and have income during MCO (80%). Overall, 90% of pet owners have good knowledge on feeding practices. There were 90% pet owners retained good attitude and 62% retained good practice of feeding during MCO. It was found that retaining good attitude, age and income status during MCO have correlations with retaining good feeding practices during MCO. Pet owners older than 24 years old are 1.97 times more likely to retain good feeding practice during MCO. To conclude, pet owners in Selangor have good knowledge of feeding pets. However, good knowledge has no association with retaining good attitude and practice of feeding during MCO. There are correlation of age, income status and retained good attitude with retaining good feeding practice during MCO. However, only age has significant association with retaining good feeding practice during MCO. Nevertheless, this study can be improved by analyzing other unexplored variables and expanding the sample distribution to other states in Malaysia.

Keywords: COVID-19, movement control order, survey, cats, pet owners, Selangor.

1.0 INTRODUCTION

As the novel coronavirus (COVID-19) outbreak spreads globally with detrimental effects on human health, animals are also becoming unnecessary victims amidst the pandemic panic. Concern also rapidly emerged among pet owners and the general public towards animals because of the pandemic. (Parry, 2020)

In response to the COVID-19 pandemic in the country, on 18 March 2020, the Malaysian government announced the 2020 Malaysia movement control order (MCO). This order has caused closure of all government and private premises except those involved in essential services. Thus, many Malaysians are suffering from reduction of income.

Investigation towards food for cats and dogs has been done to clarify their metabolism which helps in optimum nutrition and general health status (Swanson, et al., 2002). In 2011, Americans pet owners spent around \$61.4 billion. On average, they spent around \$500 per house. In conclusion, they spent 1% of their total annual expenditure on their pets. (Henderson, 2013)

Due to the reduction of income, it is expected that the attitude and practice of feeding towards pet cats are also affected. Thus, this study is done to evaluate the pet owner's attitude and behaviours towards cats based on feeding during tough times.

2.0 LITERATURE REVIEW

2.1 The Coronavirus

In December 2019, a group of patients with pneumonia of unknown cause in Wuhan, Hubei Province in China, began to be reported. These cases were identified by local hospitals using a surveillance method for “pneumonia of unknown cause” that was established following the outbreak of severe acute respiratory syndrome (SARS) in 2003, to allow timely identification of new pathogens (Zhu, et al., 2020).

On January 30, 2020, the WHO declared that the outbreak of the new coronavirus (2019-nCoV) was a public health emergency internationally, not only in China but in other countries. The main objective of this declaration was to prepare nations and unify efforts to respond to this epidemic (Patel, Pharm, & Jernigan, 2020)

Due to the current evidence of human-to-human transmission, precautionary measures are crucial. People are advised to wash their hands or sanitize with sanitizers that have at least 70% alcohol content, practice social distancing of at least 1 metre, close their mouth during sneezing, avoid touching their face and seek medical treatment if one is unhealthy. This will prevent the horrible disease from spreading (WHO, 2020)

2.2 The Implementation of Movement Control Order (MCO) In Malaysia

The first cases of 3 tourists from China shocked Malaysia on 25th January (Zack, 2020). As of 20th April 2020, Malaysia’s positive case bloomed to 5300 cases

with 89 deaths. Most of these cases are connected to a religious gathering which has now reached its fifth-generation infections (Bedi, 2020).

The Malaysian Prime Minister enforced MCO on 18th March 2020 as an effort to cut the spreading chain. Similar to lockdowns in China and Italy, the MCO restricted most non-essential activity outside the home. Non-essential sectors were ordered to close operations or allow employees to work from home. As a result, many Malaysians struggled to deduct wages and some had entirely lost their job. Because of this, it is expected that pet owners are struggling to accommodate their pet's needs as well.

2.3 Annual pet food expenditure of pet owners

Prior to this pandemic, New Zealand's median annual expenditure on pet food was \$200–499 by dog owners, \$100–199 by cat owners (Gates, Walker, Zito, & Dale, 2019).

However, these expenses differ based on different social demographic. Based on a survey, it shows that higher household income spent most for their pets. Besides that, the household size of 2 people was highest compared to those living alone and living with more than 2 people. In addition, couples with no children spent the most compared with households with children. At the same time, pet owners below 25 years old spent the lowest while pet owners above 50 years old spent the most for their pets (Henderson, 2013).

2.4 Monthly husbandry and health care of pet owners

A study was done focused on pet owners in Putrajaya, Malaysia. (Debbra, et al., 2019) stated that pet owners in Putrajaya are mainly cat owners and 82% of them have allocated between RM1 to RM250, 13.5% of them allocated between RM251 to RM500 and the remaining respondents spent 10% out of their monthly expenditure for their pets. However, these expenses are 45.5% for feed. The remaining allocations are for healthcare, accessories, grooming and shelter expenses. It is concluded in the report that Putrajaya pet owners minimise spending for their pets.

2.5 The effect of recession on pet food expenditure

The Great Recession is a period of worldwide recession that affected globally from 2007-2009. However, in America, despite facing difficulties financially, it is proven that pet owner's expenditure for their pets remained relatively constant through this hard period of time. Specifically, for pet food expenditure, pet owners spent with the mean of \$146.88, \$163.13, \$168.92, \$165.20, \$182.75 from year 2007 – 2011 respectively. This shows pet owners are willing and able to spend even though they were financially unstable (Henderson, 2013). In other words, the recession did not affect pet owners' practice on feeding.

The objective of this study is

1. To analyze characteristics of demographics and socioeconomics, knowledge, retaining attitude and practice of feeding during MCO
2. To analyze the association between good knowledge and retaining good attitude and practice of feeding during MCO

3. To analyze the association between retaining good practice of feeding during MCO with demographics and socioeconomics characteristics



3.0 METHODOLOGY

3.1 Research design

A quantitative, cross-sectional survey was conducted to determine pet owners' knowledge, attitude and practice on feeding for cats during MCO.

3.2 Study location

This research was conducted in Selangor, Malaysia. Based on a previous study, there are 32,400 pet owners in Peninsular Malaysia. Selangor has the highest state population. Thus, Selangor is chosen for this study. The online survey form was distributed virtually and randomly through the Internet and only data of respondents from Selangor was used in this study.

3.3 Study population

Respondents for this research are cat owners. Cat owners who fulfil the study criteria will be invited to participate in this study on a voluntary basis. Respondents will be sorted based on inclusion and exclusion criteria.

3.4 Subject criteria

3.4.1 Inclusion criteria

The respondents must be cat owners who live in Selangor. Respondents must have monthly income before Malaysia movement control order (MCO) is initiated. Respondents must also understand either English or Bahasa Malaysia language in order to complete the questionnaire.

3.4.2 Exclusion criteria

Respondents who failed to fulfil the inclusion criteria and refuse to participate in the questionnaires will be excluded from this study.

3.5 Sample size estimation

The sample size for the survey is $n=200$, which is based on 95% confidence level, with standard deviation of 0.5, and a margin of error (confidence interval) of $\pm 6.89\%$, as the number of cat owners in Selangor is not determined.

3.6 Method and data collection

This study was done using an online survey using Google Form. This study utilised several strategies to reach Selangor's pet owners within one week from 19 August 2020 – 26 August 2020 collection period. This includes depending on professional and personal networks of the researchers to spread the survey. Two main platforms were social media (Facebook, Instagram and Twitter) and WhatsApp.

Respondents are required to declare their consent before proceeding to answer the questionnaire in the subsequent pages. The results of the data will be kept confidential and the respondent will remain anonymous for the private and confidentiality assurance.

3.7 Research instrument

Online google forms were used for the questionnaire. The respondents are able to choose English or Bahasa Malaysia questionnaire based on their preferences. The questionnaire will take approximately less than 10 minutes to complete. Respondents

are required to log in to their google account prior to answering the questionnaire. This is to ensure each pet owner can only respond once.

There are 5 sections:

Table 1: Sections of the survey

No.	Sections	Information
1	A	Respondents' information sheet and consent form
2	B	Demographic and socioeconomic background
3	C	Knowledge
4	D	Attitude and practice of feeding before MCO
5	E	Attitude and practice of feeding during MCO

3.8 Ethical approval

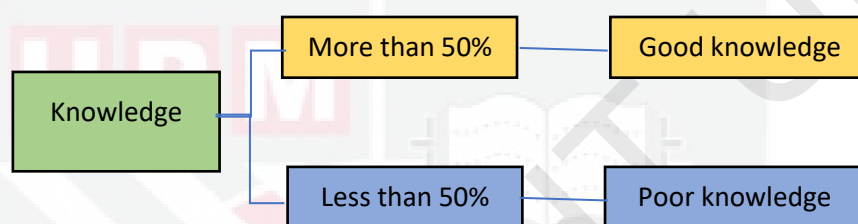
Ethical approval is obtained from the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (JKEUPM) with the reference number: JKEUPM-2020-204.

3.9 Data analysis

Data from the google form is expressed into Microsoft Excel. Then coding is done in Microsoft Excel. For demographics and socioeconomic status, coding is done based on the selection of answers.

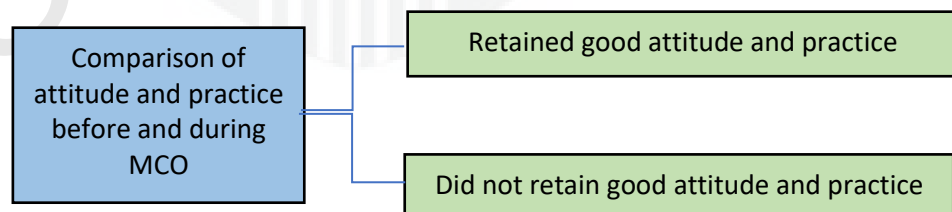
For good knowledge, there were 10 questions all together and good and poor knowledge is categorised by marks. The cut-off point is set to 50%. Less than 50% is considered having poor knowledge and more than 50% is considered having good knowledge.

Figure 1: Knowledge categorisation



This is similarly applied to attitude and practice for before and during MCO. Comparison of marks is done between attitude and practice of before and during MCO. Then, it is further categorised into two groups which were retaining good attitude and practice during MCO and did not retain good attitude and practice during MCO. The cut off point is similar to knowledge categorisation which was 50%.

Figure 2: Attitude and practice categorisation

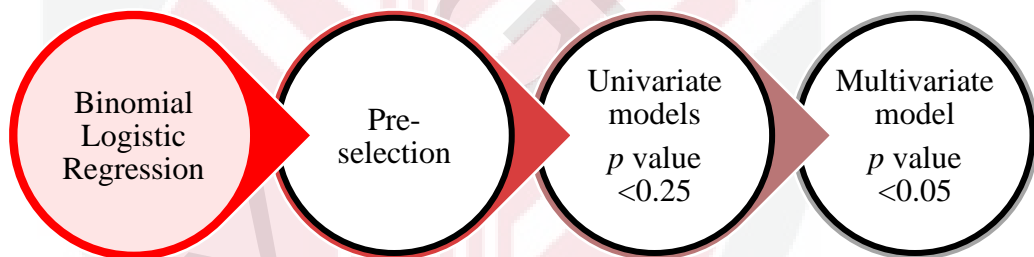


Then, the data were analysed using Statistical Product and Service Solutions, Version 24.0 (IBM SPSS Inc. USA). Descriptive analysis focused on percentages was done. Chi-square analysis was done to analyse correlation between knowledge, retaining good attitude and practices of feeding during MCO using chi-square and to analyse

the correlation between demographic and socioeconomic with retaining good practice of feeding during MCO using chi-square. The variables with p value <0.05 are considered significantly correlated.

Binomial logistic regression is used to analyse the association between good knowledge and retaining good attitude and practice of feeding during MCO and to analyse the association between retaining good practice of feeding during MCO with demographics and socioeconomics characteristics.

Figure 3: Backward selection process of binomial logistic regression



Pre-selection was done to build the regression model through backward selection procedure. Univariate was done where each of the variables were tested individually. The variables with p value of <0.25 are selected. These selected variables will be included in the regression model. Then, the regression model is tested through multivariate analysis where p value <0.05 considered significant. Significant $\exp(B)$ or odds ratio with value less than 1 can be interpreted by calculating the reciprocal value. Any incomplete questionnaire along with ambiguous responses will be excluded from the analysis.

4.0 RESULTS

4.1 Demographic and socioeconomic characteristics

A total of 305 responses were included in the study. Out of the total, 85.9% were female, 50.8% of them were aged between 18-24 years old and 45.9% are students. Next, 45.9% of the respondents have 2-5 cats as their pet.

Then, 80.0% of respondents still had their income during MCO and only 39.0% of them suffered from reduction of their income. Other demographic characteristics are detailed in **Table 2**.

Table 2: Demographic and socioeconomic characteristics of respondents (n=305)

		Frequency	Percentage (%)
Age	18 - 24 years	155	50.8
	25 - 44 years	131	43.0
	45 - 56 years	16	5.2
	56 and above	3	1.0
Gender	Female	262	85.9
	Male	43	14.1
Marital Status	Single	250	82.0
	Married	53	17.4
	Divorced	2	0.7
Family Dependants	None	13	4.3
	1	12	3.9
	2	22	7.2
	More than 3	258	84.6
Education Level	Secondary school	11	3.6
	Matriculations	3	1.0
	University	279	91.5
	Others *a	12	3.9
Occupation	Student	140	45.9
	Government	32	10.5
	Private sector - employee	92	30.2
	Private sector - employer	10	3.3
	contract worker	6	2.0

	unemployed	12	3.9
	Others^{*b}	13	4.3
No. of cats	1	73	23.9
	2-5	140	45.9
	6-10	59	19.3
	more than 10	33	10.8
	Monthly income	<RM2000	131
	RM2001-RM4000	97	31.8
	RM4001-RM6000	35	11.5
	RM6001-RM8000	16	5.2
	RM8001-RM10,000	11	3.6
	>RM10,000	15	4.9
Income status during MCO	No	61	20.0
	Yes	244	80.0
Reduction of income during MCO	No	186	61.0
	Yes	119	39.0
Others^a includes skills certificates, politeknik, STP, KPTM and training institute			
Others^b include own business, college, freelancer, housewife, statutory body and online seller			

4.2 ASSESSMENT OF KNOWLEDGE

Status of knowledge among pet owners in Selangor is summarized in **Figure 4**. The study findings evaluated that pet owners generally have good knowledge. Out of 10 questions, only 1 question has a high percentage of poor knowledge. The question was evaluating the owner's knowledge on the earliest neutering age. Only 34.4% of the respondents had good knowledge on this particular question. Overall, 90% of the respondents have good knowledge. (**Figure 5**)

Figure 4: Knowledge of respondents in % (n=305)

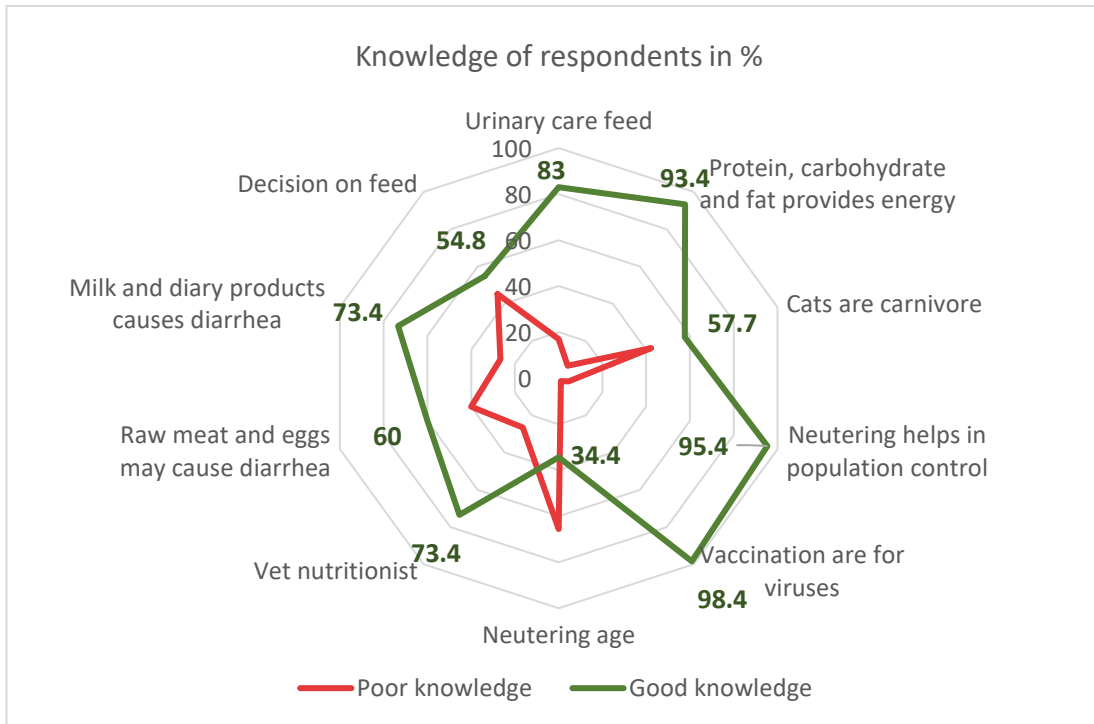
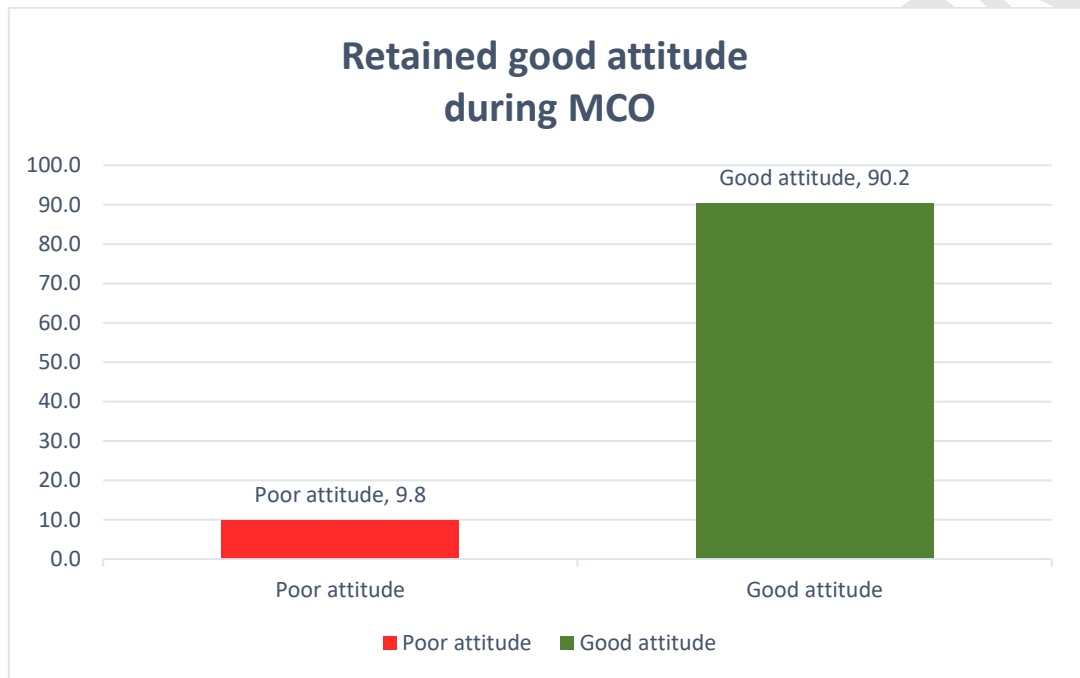


Figure 5: Overall knowledge of respondents in % (n=305)



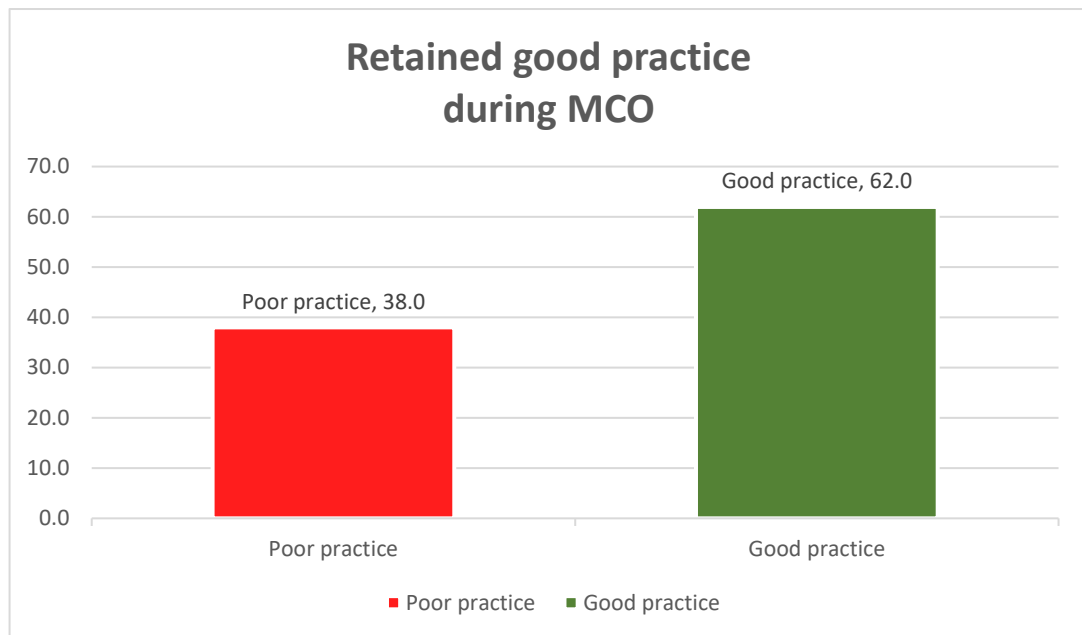
4.3 Assessment of respondents that retained good attitude and practice during MCO

Figure 6: Respondents that retained good attitude during MCO in % (n=305)



Based on **Figure 6**, 90.2% of pet owners retained a good attitude during MCO. At the same time, 62.0% of pet owners retained good practice during MCO (**Figure 7**). Based on the chi-square test with p-value <0.05 of significance level, it is tested that pet owners' knowledge has **no correlation** with retaining good attitude and practice of feeding during MCO. Thus, a binomial regression test was not proceeded for these variables. Refer **Table 5** and **Table 6** in appendix.

Figure 7: Respondents that retained good practice during MCO in % (n=305)



4.4 Association of demographic and socioeconomic characteristics with retaining good practice

Based on the chi-square test analysis, it showed that age is highly correlated with retaining good practice ($p=0.01$). Next, pet owners' income status during MCO are correlated with retaining good practice ($p=0.05$). Lastly, pet owners with good attitude are correlated with retaining good practice ($p=0.03$). Results of chi-square can be referred at **Table 7**, **Table 8** and **Table 9** in the appendix.

Based on the crosstabulation of these correlated variables, 70% pet owners who are older than 24 years retained good feeding practice during MCO. Other than that, 64.8% of pet owners with income during MCO retained good practice of feeding during MCO. Lastly, MCO It is shown that 64% pet owners who have a good attitude of feeding during MCO are the ones who retained good feeding practice during MCO.

Table 3 : Crosstab results of the correlated variables

Age					
			<24 years old	>24 years old	Total
Retained good feeding practice	Poor practice	Count	71	45	116
		% within age	45.8%	30.0%	38.0%
	Good practice	Count	84	105	189
		% within age	54.2%	70.0%	62.0%
Income					
			No	Yes	Total
Retained good feeding practice	Poor practice	Count	30	86	116
		% within income	49.2%	35.2%	38.0%
	Good practice	Count	31	158	189
		% within income	50.8%	64.8%	62.0%
Attitude					
			Poor	Good	Total
Retained good feeding practice	Poor practice	Count	17	99	116
		% within attitude	56.7%	36%	38%
	Good practice	Count	13	176	189
		% within attitude	43.4%	64.0%	62.0%

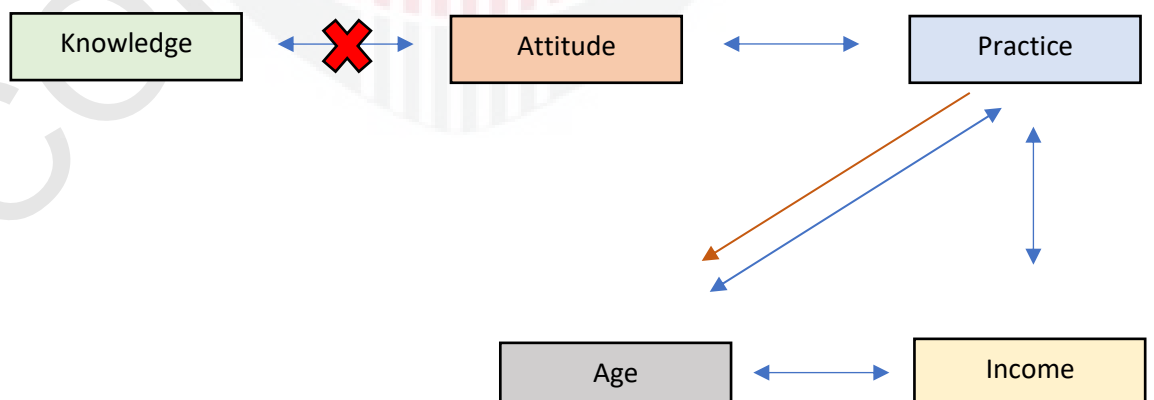
By proceeding with logistic regression, the final model selected includes age, income status during MCO and attitude of feeding during MCO as the independent variables whereas retaining good feeding practice during MCO as the dependent variables. Based on the odd ratio, pet owners who are older than 24 years old are 1.98 times more likely to retain good feeding practice during MCO ($p=0.03$).

Table 4: Variables in the regression model

	Sig.	Exp(B)	Nagelkerke R ²
<24 years old	0.03	0.58	0.55
Retained good attitude during MCO	0.11	0.53	
Positive income status during MCO	0.22	0.70	

In summary of all the statistical analysis done, knowledge is not correlated with attitude. However, attitude is correlated with practice. Besides that, practice is correlated with both age and income. plus, there is a correlation with income and age. By doing further analysis, it was found that pet owners who are older than 24 years old are 1.98 more likely to retain good practice of feeding during MCO.

Figure 8: A summary of the correlation and association of the variables tested



5.0 DISCUSSION

5.1 Demographic and socioeconomic characteristics

Selangor's pet owners are dominated by the female population. Even though the Department of Statistics Malaysia reported that the majority of the Selangor population is male, it was shown that 85.9% of Selangor pet owners are female. This is a similar finding with pet owners in Putrajaya which was reported by Debbra *et al.* (2019). Most of the respondents were from the age group 18-24 years old which is expected as the main platform used to distribute the survey was through social media. Thus, it is expected that these age groups are more exposed to the study. This is supported by a report by Havard Kennedy School in 2015 where those who are between 18-24 years old, 83% have Facebook, 51% have Instagram and 43% have Twitter. Most of the pet owners are students. This is because most of them are between age 18-24 years old with a university education level. 45.9% of Selangor pet owners own 2-5 cats. This is maybe due to the high number of stray cats which leads to multiple adoptions. This is consistent with study done by (Debbra, *et al.*, 2019) that reported most pet owners in Putrajaya adopted stray cats as their pets. 80% of pet owners have positive income status during MCO with mostly earn less than RM2000.00 monthly. High number of positive income status reflects low unemployment rate which concurs with a report by the Department of Statistics Malaysia.

5.2 Knowledge, attitude and practice

Moreover, pet owners in Selangor have a high level of basic knowledge on cats. Out of 10 questions asked, majority of them have good knowledge except for 1 question which was emphasizing on the earliest neutering age for cats. This is maybe due to lack of exposure in depth of this particular knowledge. At the same time, Selangor pet owners appeared to have retained good attitude and practice of feeding during MCO. This is because pet owners expressed their good attitude through good practice. Other than that, due to the strict restrictions of MCO, owners spend most time at home. Spending more time at home with their cats could also contribute to this. By spending more time together, the bond between cats and owners develop stronger. This is supported by (Lue, Pantenburg, & Crawford, 2008). They reported that the strength of bond between owner and pets is linked with the total time shared together indoors. With stronger connections, owners are expected to provide the best that they can towards their pets. Thus, strong bonds initiate good attitude and good attitude contributes to good practice.

5.3 Correlation of knowledge with retaining good attitude and practice of feeding during MCO

Subsequently, there is no correlation between pet owner's knowledge with retaining good attitude and practice of feeding during MCO. This goes hand in hand with study done by Fabrigar *et al.* (2016) which reported that the level of knowledge is not affected by attitude and practice.

5.4 Correlation and association of demographic and socioeconomic characteristics with retaining good practice of feeding during MCO

Next, pet owners express their good attitude through implementing good practice. Thus, this answers why attitude correlates with practice. At the same time, being fortunate to have a better income reflects the ability to provide better practice. This is supported by Henderson (2013) that reported the sum of a family spent on pets increases as their income increases. Thus, this is the reason why income is correlated with practice. Furthermore, it is seen that age is correlated with practice where pet owners who are older than 24 years old are more likely to retain good practice. This is a similar finding by Henderson (2013) where he reported that pet expenditure of American pet owners increases as they grow older. This is because older pet owners are able to secure better jobs which concurrently makes them having a more stable income. By having better income increases the ability to provide better or in other words able to retain good practice of feeding during MCO. Other than that, it is expected that older pet owners are more mature and have a better sense of responsibility compared to young pet owners.

6.0 CONCLUSION AND RECOMMENDATION

In conclusion, this study provided a general look of general status and animal welfare of feeding for cats during MCO in Selangor, Malaysia. It shows that most pet owners were not affected financially by the implementation of MCO. Thus, most pet owners are able to retain a good attitude and practice based on feeding. Plus, pet owners older than 24 years old are 1.97 times more likely to retain the good practice

of feeding due to the ability to secure better income as they get older. Apart from that, most pet owners have good basic knowledge on cats.

However, the limitation of this study was the inability to conduct face to face interviews or pen and paper method. This indirectly excludes responses from pet owners who are not IT friendly. Other than that, the timeline of the survey focused only during the MCO period. MCO happened during the early stages of the pandemic. Pet owners might have not been affected financially during MCO. Not to forget, MCO period is just a cross section of a long timeline of the pandemic. Based on recent reports, it is seen that many Malaysians are affected financially by the pandemic. Thirdly, the questionnaire was constructed without any previous reference as it is a new study. We believe there are numerous variables that were not tested in this study.

Hence, this study can be improved in multiple ways. It is recommended to the next researcher to find ways to cater those who are not IT friendly especially older pet owners. Next, it is recommended to extend the timeline of the study beyond the MCO period. Lastly, it is advisable to explore other variables that have not yet been tested in this study.

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APPENDIX

Table 5 : Chi-square test between good knowledge and retaining good practice of feeding during MCO

Chi-Square Tests		
	Value	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.57	0.21

Table 6 : Chi-square test between good knowledge and retaining good attitude of feeding during MCO

Chi-Square Tests		
	Value	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.54	0.21

Table 7 : Chi-square test between age with retaining good practice of feeding during MCO

Chi-Square Tests		
	Value	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.08	0.01

Table 8 : Chi-square test between income status during MCO with retaining good practice of feeding during MCO

Chi-Square Tests		
	Value	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.02	0.04

Table 9 : Chi-square test between good attitude of feeding during MCO with retaining good practice of feeding during MCO

Chi-Square Tests		
	Value	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.90	0.03

Figure 9 : Questionnaire

Section A - Consent Form

1.	Introduction	<p>In response to the COVID-19 pandemic in the country, on 18 March 2020, the Malaysian government announced the 2020 Malaysia movement control order (MCO). This order has caused closure of all government and private premises except those involved in essential services. Thus, many Malaysians are suffering from reduction of income.</p> <p>Due to the reduction of income, it is expected that the spending of cat food is also affected. Thus, this study is done to evaluate the pet owner's attitude and behaviours towards cats based on cost of feeding during this tough times.</p>
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2.	What will you have to do?	<p>You, as a pet owner, are invited to participate voluntarily in this study, as this study requires 200 pet owners as respondents. However, you are under no obligation to participate in this research, thus, you are required to declare your consent at the end of this page. This should be done only after going through the information in this 'Respondent's Information Sheet and Informed Consent Form' thoroughly.</p> <p>This study consists of 5 Sections :-</p> <ul style="list-style-type: none">(a) Section A : Consent form(b) Section B : Sociodemographic and socioeconomic background(c) Section C : Knowledge(d) Section D : Attitude and practice on feed expenditure for cats before Malaysia movement control order (MCO)(e) Section E : Attitude and practice on feed expenditure for cats before Malaysia movement control order (MCO) <p>The questionnaire will take approximately 10 minutes to complete and it is designed to be self-administered. Basic demographic profiles and pet ownership information will be collected, along with answers about your knowledge, attitude and practice on feed expenditure for cats during COVID-19 pandemic.</p>
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3.	Who should not participate in this study?	<p>(a) Respondents below the age of 18 years old</p> <p>(b) Respondents who are living outside of Selangor, Malaysia.</p> <p>(c) Respondents who does not have pet cat(s)</p> <p>(e) Respondents who are unable to read and understand either English or Bahasa Malaysia, which is essential in comprehension of completing this questionnaire.</p>
4.	What are the benefits of the study for you as a subject?	<p>This study does not present any direct benefit to you. However, the findings from this study may provide insights and understanding for veterinarians on knowledge, attitude and practice on feed expenditure for cats during COVID-19 pandemic.</p>
5.	What are the benefits of the study to the investigator?	<p>This study will help investigator to understand owner's knowledge, attitude and practice on feed expenditure for cats before and during COVID-19 pandemic. This study will also clarify how the knowledge and attitude influence owners decision on their practice.</p>
6.	What are the possible risks?	<p>The risk of this study will be very minimal as it is a self-administered questionnaire. Respondents are required to recall their knowledge, attitude and practice on feed expenditure for cats before and during COVID-19 pandemic. After completion of the questionnaire, there is no way to withdraw or change your answers since respondents are only allowed for a single attempt.</p>

7.	Will the information that you provide and your identity remain confidential?	Yes. The results of the data obtained will be reported in a collective manner with no reference to any specific individual. Hence, the data from each individual, including respondents' profile and demographic background will remain completely confidential and will not be revealed in any reports or publications. The results of analyses will also be kept confidential and be made known to you only upon request.
8.	Who should you contact if you have additional questions during the course of the research?	<p>1 Hanum binti Mohd Hizan, Doctor of Veterinary Medicine (4th Year) Faculty of Veterinary Medicine Universiti Putra Malaysia Tel : 012-3443725 Email : hanumhizan@gmail.com</p> <p>2 Associate Professor Dr. Puteri Azaziah Megat Abd Rani, Department of Companion Animal Medicine & Surgery, Faculty of Veterinary Medicine, Universiti Putra Malaysia. Tel : 0386093929 Email : azaziah@upm.edu.my</p>

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9.	<p>Consent declaration:</p> <p>I hereby voluntarily agree to take part in the research stated above. I have been informed about the nature of the research in terms of methodology, possible adverse effects and complications (as written in the Respondent's Information Sheet). I understand that I have the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to my identity will remain private and confidential.</p>	<ul style="list-style-type: none"><input type="radio"/> Agree<input type="radio"/> Disagree
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Section B - Sociodemographic and socioeconomic background

No	Questions	Answer
1.	Gender	<input type="radio"/> Male <input type="radio"/> Female
2.	Age	<input type="radio"/> 18-25 years <input type="radio"/> 25-40 years <input type="radio"/> 41 and above years
3.	Marital status	<input type="radio"/> Single <input type="radio"/> Married <input type="radio"/> Divorced <input type="radio"/> Others : <hr/>
4.	Number of dependants in the family	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> More than 3

5.	Occupation	<input type="radio"/> Full-time student <input type="radio"/> Self Employed <input type="radio"/> Government sector <input type="radio"/> Private sector <ul style="list-style-type: none"> <input type="radio"/> Employer <input type="radio"/> Employee <input type="radio"/> Retiree
6.	Monthly gross income	<input type="radio"/> Less than RM 1000 <input type="radio"/> RM 1001 – RM 2000 <input type="radio"/> RM 2001 – RM 3000 <input type="radio"/> RM 3001 – RM 4000 <input type="radio"/> More than RM 4001
7.	Do you still had a monthly income during Malaysia movement control order (MCO)?	<input type="radio"/> Yes <input type="radio"/> No
8.	Does your monthly income reduced during Malaysia movement control order (MCO)?	<input type="radio"/> No <input type="radio"/> Yes

9.	Number of pet cat(s) at home	<input type="radio"/> 1 <input type="radio"/> 2-3 <input type="radio"/> 3-4 <input type="radio"/> More than 5
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Section C – Knowledge

No	Questions	Answer
1.	How do you choose your cat food?	<input type="radio"/> The brand <input type="radio"/> The design of the packaging <input type="radio"/> Price <input type="radio"/> Based on the ingredients <input type="radio"/> Recommendation by the vets Others : _____
2.	Cats are	<input type="radio"/> Carnivore <input type="radio"/> Herbivore <input type="radio"/> Omnivore <input type="radio"/> I'm not sure

3.	Milk, dairy products and raw meat causes diarrhea in cats	<input type="radio"/> Agree <input type="radio"/> Disagree
4.	Do you know that there is a type of food that is specially made for urinary patients	<input type="radio"/> No <input type="radio"/> Yes

Section D - Attitude and practice based on cost of feeding before Malaysia movement control order (MCO).

No	Questions	Answer
Attitude		
1.	I purchase food based on the cheapest price	<input type="radio"/> Agree <input type="radio"/> Disagree <input type="radio"/>
2.	I think expensive cat food has better nutritional values	<input type="radio"/> Agree <input type="radio"/> Disagree
3.	I am willing to spend more for better nutrition cat food	<input type="radio"/> Agree <input type="radio"/> Disagree

4.	I have allocated certain amount of money for pet food expenses monthly	<input type="radio"/> Agree <input type="radio"/> Disagree
Practice		
5.	What type of food do you buy for your cat(s)	<input type="radio"/> Kibbles (dry food) <input type="radio"/> Wet food <input type="radio"/> Others : <hr style="width: 20%; margin-left: 0;"/>
6.	How much do you normally spend on your cat(s) food monthly?	<input type="radio"/> RM 50 and below <input type="radio"/> RM 50 – RM 100 <input type="radio"/> RM 100 – RM 150 <input type="radio"/> RM 150 – RM 200 <input type="radio"/> RM 200 and above
7.	How many times do you feed your cat in a day?	<input type="radio"/> 1 time <input type="radio"/> 2 times <input type="radio"/> 3 times <input type="radio"/> More than times <input type="radio"/> Free flow
8.	Do you give treats/supplements to your cat?	<input type="radio"/> No <input type="radio"/> Yes <ul style="list-style-type: none"> <input type="radio"/> Once a week <input type="radio"/> Twice a week <input type="radio"/> More than 3 times a week <input type="radio"/> Everyday

Section E - Attitude and practice based on cost of feeding during Malaysia movement control order (MCO).

No	Questions	Answer
Attitude		
1.	The Malaysia movement control order (MCO) has affected my expenses on cat(s) food expenditure	<input type="radio"/> Agree <input type="radio"/> Disagree
2.	I have considered abandoning my cat(s) or sending it to the animal shelter during Malaysia movement control order (MCO)	<input type="radio"/> Agree <input type="radio"/> Disagree
3.	Buying pet food is not in my list of priority during Malaysia movement control order (MCO)	<input type="radio"/> Agree <input type="radio"/> Disagree
4.	It is okay to let my cats roam outside of the house to	<input type="radio"/> Agree <input type="radio"/> Disagree

	find their own food	
Practices		
5.	What type of food did you buy for your cat(s) during Malaysia movement control order (MCO)	<input type="radio"/> Kibbles (dry food) <input type="radio"/> Wet food <input type="radio"/> Others : <hr style="width: 20%; margin-left: 0;"/>
6.	How much was your expenditure on your cat(s) food monthly during Malaysia movement control order (MCO)?	<input type="radio"/> Less than 20 % <input type="radio"/> 20 % - 50 % <input type="radio"/> 50% and above
7.	How many times do you feed your cat in a day during Malaysia movement control order (MCO)	<input type="radio"/> 1 time <input type="radio"/> 2 times <input type="radio"/> 3 times <input type="radio"/> More than times <input type="radio"/> Free flow
8.	Do you give still provide treats/supplements to your cat during Malaysia movement control order (MCO)	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> I have never given before