



UNIVERSITI PUTRA MALAYSIA

**A SURVEY ON THE AWARENESS OF PET OWNERS
TOWARDS THE PET FOOD LABEL**

DINAESH KUMAR A/L SIVANANTHAN

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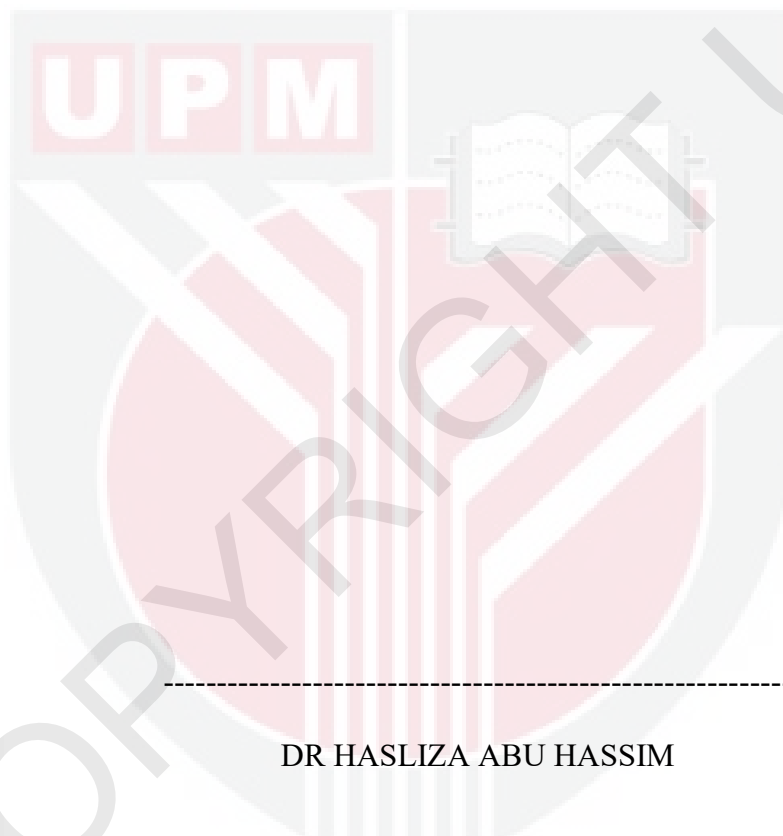
A project paper submitted to the
Faculty of Veterinary Medicine, Universiti Putra Malaysia
in partial fulfillment of the requirement for the
DEGREE OF DOCTOR OF VETERINARY MEDICINE

Universiti Putra Malaysia
Serdang, Selangor Darul Ehsan

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CERTIFICATION

It is hereby certified that I have read this project paper entitled “A Survey on the Awareness of Pet Owners towards the Pet Food Label” by Dinaesh Kumar a/l Sivananthan and in my opinion it is excellent in terms of scope, quality and presentation as partial fulfillment of the requirement for the course VPD 4999 – Project.



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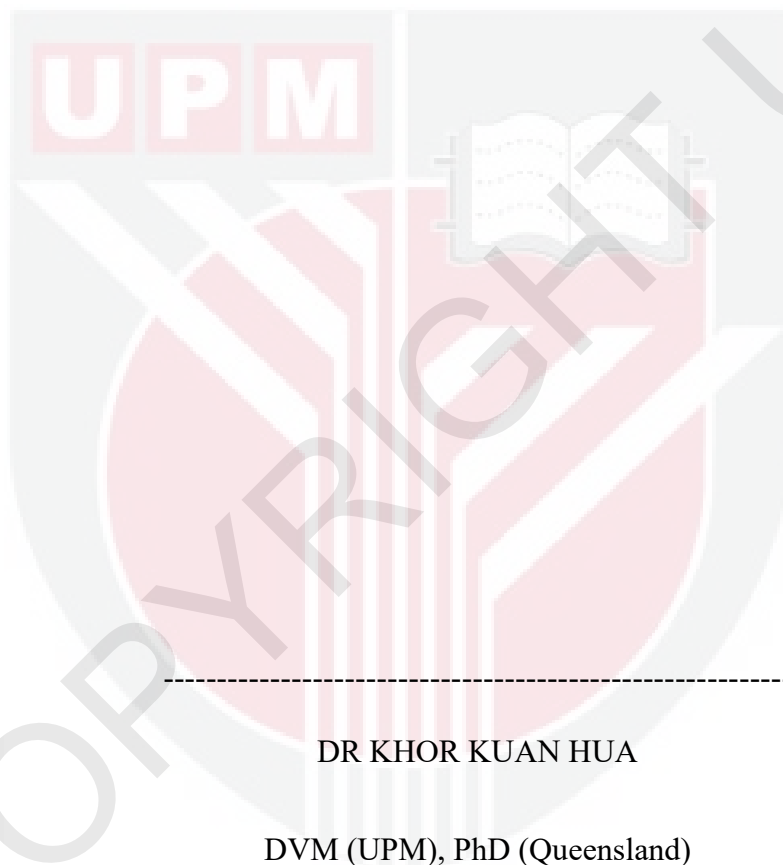
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DEDICATION

This project paper is dedicated to my supervisor, co-supervisor, Animal Medical Centre Sdn. Bhd., Pets Corner Sdn. Bhd., Dr. Sivagurunathan, Dr. Amilan Sivagurunathan, Mr. Shrilan Sivagurunathan, Dr. Liew Yin, Miss Sunitha Menon, my beloved respondents, all companion animal pet owners, dearest lecturers and my fellow friends.



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To my co-supervisor, Dr Khor Kuan Hua, thank you so much for sharing the knowledge, unwavering support and encouragement to improve my project especially when I was low on mental and emotional fuel.

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To Animal Medical Centre Sdn. Bhd. and Pets Corner Sdn. Bhd., thank you for supporting me unwaveringly in all requirements needed. Special thanks to Dr Sivagurunathan, Dr Amilan Sivagurunathan, Mr. Shrilan Sivagurunathan, Dr Liew Yin and Miss Sunitha Menon for their unending support, patience and external supervision towards making this project a successful one.

Last but not least, my most heartfelt gratitude to my dearest family members, thank you for giving me your moral and financial support and always having my back, every single day when I was chasing after my precious degree, to my loving friends See Toh, Muhammad Ikhwan, Sanchita, Muhammad Iskandar Syah, Nisha George, Shruthy Anand, Jeyamani, Umasangkari, Navinah, Keisha and Toshana, thanks for making us so much more than just a paper and pen. These five years I will forever cherish, from now till the day I perish.

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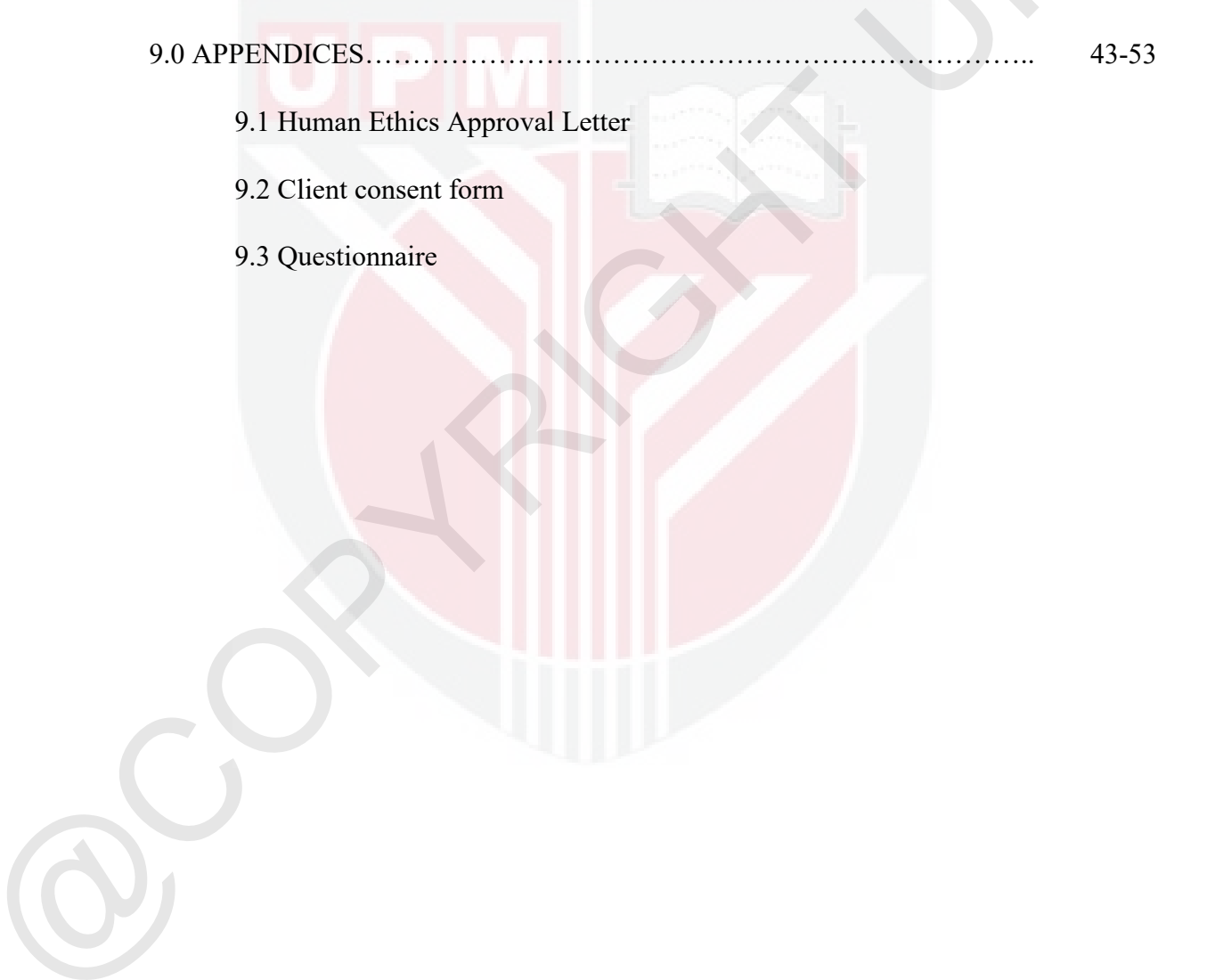
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Abstrak

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar

untuk memenuhi sebahagian daripada keperluan kursus VPD 4999 - Projek

Kesedaran Pemilik Haiwan Kesayangan Terhadap Label Makanan Haiwan

oleh

Dinaesh Kumar a/l Sivananthan

2018

Penyelia: Dr Hasliza Abu Hassim

Penyelia bersama: Dr Khor Kuan Hua

Label makanan haiwan adalah dokumen undang-undang yang dikawal selia oleh Association of American Feed Control Officials (AAFCO) dan merupakan cara utama komunikasi antara pengeluar makanan haiwan dan pemilik haiwan kesayangan. Terdapat beberapa aspek seperti kesedaran kepada jenis kategori makanan yang berbeza, bahan-bahan, panduan makan dan label pembungkusan yang perlu diketahui oleh pemilik haiwan peliharaan bagi memastikan mereka memberikan jumlah yang tepat dan jenis nutrien yang diperlukan oleh haiwan mereka. Sesungguhnya, nutrienimbangan disediakan pada usia dan kehidupan peringkat tertentu haiwan adalah penting untuk memastikan pembangunan dan pertumbuhan yang betul. Objektif kajian ini adalah untuk menentukan tahap kesedaran pemilik haiwan kesayangan pada label makanan haiwan dan untuk menentukan faktor-faktor yang menyumbang kepada kesedaran mengenai label makanan haiwan. Label makanan haiwan peliharaan boleh diambil mudah tetapi ia mempunyai kesan yang besar daripada keseluruhan kesejahteraan kesihatan haiwan.

Oleh itu, untuk lebih memahami tahap kesedaran pemilik haiwan peliharaan pada label makanan haiwan, kajian yang telah dijalankan di mana 150 pemilik haiwan kesayangan telah diberikan satu set soal selidik yang diadaptasi daripada kajian penyelidikan “The University of Glasgow”. Data dianalisis menggunakan cara yang deskriptif dan kemudiannya dikira dalam SPSS. Hasil kajian menunjukkan bahawa kesedaran pemilik haiwan kesayangan pada label makanan haiwan adalah rendah dan faktor-faktor yang menyumbang kepada kesedaran label makanan haiwan adalah carta ulasan pelanggan, gambar berilustratif, maklumat ringkas, warna yang menarik dan saiz fon tetapi faktor penyumbang utama kepada kesedaran pemilik haiwan kesayangan pada label makanan haiwan adalah penggunaan tidak wajar saiz fon dan carta ulasan pelanggan. Kesimpulannya, kajian ini menunjukkan bahawa kesedaran yang rendah terhadap label makanan haiwan dalam kalangan pemilik haiwan kesayangan boleh membawa kepada isu-isu kesihatan yang serius terhadap haiwan kesayangan mereka pada masa hadapan.

Kata kunci: *Label makanan haiwan, Pemilik haiwan kesayangan, Soal selidik, Kesedaran, Faktor-faktor*

Abstract

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

A Survey on the Awareness of Pet Owners towards the Pet Food Label

By

Dinaesh Kumar a/l Sivananthan

2018

Supervisor: Dr Hasliza Abu Hassim

Co-Supervisor: Dr Khor Kuan Hua

Pet food label is a legal document regulated by the Association of American Feed Control Officials (AAFCO) and is the primary means of communication between the pet food manufacturers and pet owners. There are several aspects such as the awareness on the different type of food categories, ingredients, feeding guide and packaging labels that should be known by the pet owners to ensure they deliver the precise amount and type of nutrients required by their pet. Indeed, balance nutrients provided at a specific age and life stage of the pet is important to ensure proper development and growth. The objective would be to determine the level of awareness of pet owners on the pet food label and to determine the factors contributing to the awareness of the pet food label. The pet food label may be taken for granted but it has major effect of the overall well-being of the animal's health. Therefore, to better understand the level of awareness of pet owners on the pet food label, a survey was conducted in which 150 pet owners were given a set of questionnaire adapted from The University of Glasgow's research study. The data was

analyzed using a descriptive manner and then tabulated in SPSS. Results showed that, the awareness of pet owners on the pet food label is low and the factors contributing to the awareness of pet food label are customer review charts, fancy and illustrative pictures, simple and direct information, attractive colors of packaging and font size but the main contributing factors to the awareness of pet owners on the pet food label would be improper usage of font size and customer review charts. In conclusion, this study shows that the low awareness of pet food label among pet owners can lead to serious health issues of their pet in the future.

Keywords: Pet food label, Pet owners, Questionnaire, Awareness, Factors

1.0 INTRODUCTION

The Association of American Feed Control Officials (AAFCO) regulate the pet food label for the easy communication between pet food manufacturers and pet owners (Lisa, 2009). The validation of the nutritional level of "complete and balanced" dog or cat foods depends on the AAFCO Dog and Cat Food Nutrient Profiles and the AAFCO Feeding Protocols which are the only methods recognized by AAFCO. A label will not be accepted even if a product is validated by a feeding trial but does not meet the AAFCO Dog or Cat Food Nutrient Profiles. The product has the minimum and not more than the maximum levels listed for a specific nutrient in the profile is considered an unqualified reference to an AAFCO Dog or Cat Food Nutrient Profile (AAFCO, 2014).

Pet owners play a very important role in providing their pet with the best food to ensure an overall good health of their pets. There are many aspects such as the awareness on the packaging, ingredients and different type of food categories that the owner should be aware to ensure they deliver the correct amount and type of nutrients for their pet. Balanced nutrients provided at a specific life stage of their pet helps to ensure a proper growth and development. Pet food is different from the food humans consume whereby pet owners will not consume these products directly. Hence, pet owners experienced on pet food and by watching their pet eating, touching and smelling of the food. Other factors such as brand, health issues and aroma can influence the consumer in the final selection process and their preparedness to pay (Cuellar, 2013). Therefore, it is considered to be of a great interest to discover the relationship between health-related claims on pet food packaging and the consumers' perception (Huang, 2014).

Moreover, pet food has a common feature whereby packaging and branding techniques are needed to attract the attention of their buyers. Attracting text information on the pet food packaging with a purpose for health promoting or taste promoting conveys different information for choosing a particular food for their pet. Pet owners that fail to interpret these information on the pet food label may lead to consequences of undernourishing or overnourishing their pet. This might cause a reduced performance and risk for several health disorders which may lead to death (Bren, 2001). The proper awareness among pet owners on the proper understanding of the pet food label is essential to ensure a healthy lifestyle and longevity of their pet. According to a previous study, the food packaging is considered an important mode to allow a good way of interaction between manufacturers, distributors and the valued consumers (Kuvykaite, 2009). Thus, academic interest in the pet food packaging has become important over the years.

There have been studies assessing the association between manufacturers and consumers and how this product information had an impact on the final purchasing decision (Wells 2007, Garber et al., 2000 and Folkes 2004). The pet food packaging has various marketing information via its communicable aspects such as the packaging shape, size, color, material, carried information and graphic applications (e.g. brand logo, fonts, pictorials, etc.). All of these elements together communicate various marketing messages to the consumer in both the purchase and consumption phases. These elements provide to the visual recognition of a particular pet food since “the first taste is almost always with the eye”, i.e. visual sensations aid in the perception since the first encounter with products is often with the eye (Kaufmann, 2011).

Justification of study:

1. There may be negligence in reading pet food label and feeding of pet food among the Malaysian pet owners.
2. Various health issues associated to neglecting of pet food label.

Objectives of study:

1. To determine the level of awareness of pet owner on the pet food label.
2. To determine the factors contributing to the negligence of the pet food label.

Hypothesis of study:

1. Null Hypothesis (Ho): Pet owners are aware on the pet food label.
2. Alternative Hypothesis (HA): Pet owners are not aware on the pet food label.

2.0 LITERATURE REVIEW

2.1 Pet Food Label

An ideal pet food label should have eight required items. If the label is placed only on the front of the package, all required items must appear there. If a front and back label are used, there are three items which must be included on the PDP (Principal Display Panel) on the front of the package which includes the brand and product name, species for which the food is intended, and the quantity statement. The other five items may be included on the front label or elsewhere on the package, such as on a back or side label (known as the "information panel").



Figure 1: Typical pet food label with all elements

Name & purpose of the brand/product

How ingredients to be included in the product name depends on the percentage of that ingredient in the product, and the use of certain descriptors. For example, there are different rules for "*Beef Dog Food*", "*Beef Recipe Dog Food*", "*Dog Food with Beef*" and "*Beef Flavor Dog Food*". The purpose of the product such as nutrition, supplement or treat must be specified.

Name of the animal species the product is for

This must be designated in words on the principal display panel, but may be included in the product name, such as "*Beef Dog Food*" or "*Salmon Treats for Cats*".

Net Quantity Statement

The net quantity statement informs the consumer on how much of the product is in the packaging. It is the net weight or net volume, and it must be expressed in the correct units and placed on the lower third of the principal display panel. For net weight or volume, both measurements (pounds/ounce) and metric units must be used.

The Guaranteed Analysis (on an "as fed" basis)

This lists the percentage of each of the nutrients in the food. The minimum percent of crude protein and crude fat, and the maximum percent of crude fiber and moisture are always required. Note that "crude" refers to the analysis method, rather than the quality of the nutrient. Guarantees for other nutrients may be required to support claims made in labeling (such as "High in calcium and vitamin A"), and voluntary guarantees for other nutrients may be included. The guarantees must be given in a particular order, in specified units and as a minimum or maximum, depending on the nutrient.

Ingredient Statement

Ingredients must be listed in order of predominance by weight, on an "as formulated basis". The ingredient that makes up the highest percentage of the total weight as it goes into the product is listed first. The ingredients used must be GRAS ("Generally Recognized As Safe"), approved food additives, or otherwise sanctioned for use in animal feeds (for example, defined by AAFCO). Ingredients must be declared by the correct AAFCO-defined name, where one exists, or the "common or usual" name.

Nutritional Adequacy Statement

If the product is a complete and balanced food, the claim must be validated. The Nutritional Adequacy Statement will also state for which life stage the product is suitable for, such as for maintenance or for growth. This is a statement that indicates the food is complete and balanced for a particular life stage such as growth, reproduction, adult maintenance or a combination of these, or intended for intermittent or supplemental feeding only.

Feeding directions

All pet foods labeled as complete and balanced for any or all life stages must include feeding directions such as stating "Feed (amount of product) per (weight) of dog/cat". Feeding frequency must also be stated. Feeding directions are optional for treats, as long as they are not complete and balanced and labeled as snacks or treats.

Manufacturer's Name and Address

The name and location of the company must be published as a guarantor of the product. The street address may be omitted but the city, state and zip code must be shown. If another entity is involved in making the product, then the relationship is shown by using the words "manufactured for" or "distributed by" in front of the primary company's address.

2.2 Challenges in feeding pet

The specific-purpose food concept is based on the fact that animals have different nutritional requirements for growth, maintenance, reproduction, physical exertion, old age and with numerous diseases. Even though a product may be marketed on this concept, it may not satisfy the concept. For example, when a popular brand of pet food was introduced as a food for the overweight dog, it was 15% less in caloric density than other foods of the same form and was advertised as such. However, the reduced caloric density of the food resulted in a less palatable product than competitive brands. Since most people who buy pet foods at a grocery store make their selection based on palatability and price, rather than the nutritional performance of the product, less palatability resulted in poor sales. As a result, a “new and improved” version became available. In the “new and improved” product, the fiber content was reduced and the fat content was increased to improve palatability. However, these changes also increased the caloric density so that the new product was only 3% lower in energy density than average dog foods of the same type. The advertising and positioning of the product as a food for overweight dogs was continued although the product no longer satisfies the concept under which it is marketed.

Low price is a major criterion used by consumers to determine which product to buy. Obviously low price is a good concept to apply to marketing pet foods. Although it is a valid concept, it bears three major liabilities. First, to produce a less expensive food, ingredients are cheaper and of poorer quality. Second, low-priced products are produced by companies that have little or no research capability. Thus, many of their products are not test-fed to dogs or cats to assure nutritional adequacy before marketing.

The people-food concept suggests that animals need the same foods that people eat. To quickly dispel this concept, one needs to only observe a dog eagerly eating vomitus, garbage and feces. This is a gimmick concept designed to attract the purchaser (people) rather than the consumer (pet). Dogs and cats don't need or necessarily desire "people food". This does not mean that an excellent diet cannot be produced using foods intended for human consumption, or that pet foods that promote this concept are either good or bad, but simply that the concept is not scientifically valid.

Flavor variety is a concept based on the idea that pets like a variety of the same flavors people do. In reality, many dogs and cats prefer what they are accustomed to. In the wild, their natural diets are usually the same. This is further emphasized by the common problem encountered with many dogs and cats when their diets must be changed. There are two reasons that this concept is used. First, it appeals to many pet owners because people like specific flavors and different flavors and they assume their pets do too. Second, it is important to the manufacturer because it increases the products of a company which is beneficial in sales.

The presence of a particular food item is another wrong concept that people follow. The food items most often given to dogs are meat and to cats are fish. This concept is based on the ancient belief that dogs need meat and that cats prefer fish. Dogs do not need meat nor, in the wild, do they necessarily prefer it. Usually the first part of a carcass consumed by wild dogs is the internal organs and gastrointestinal contents.

Wild cats do not prefer fish. If they did, they might develop pancreatitis, thiamine deficiency and other nutritional diseases. Fish are not even available to most cats in the wild. Fish are used as a protein source in foods for domestic cats because large quantities of trash fish are available at a low price. In order to use this source of animal protein profitably, pet food companies using fish in their cat foods designed a media campaign to convince the cat owning public that fish was a good food for cats. The problem with fish in cat food is that, in addition to protein, whole ground fish contains quantities of minerals far exceeding the cat's needs. This increases the risk of urologic syndrome.

Social pressures can also influence the food intake which takes into consideration the competition between animals and a desire to please. This can be seen when two animals are being fed the same time results in more food intake by both the animals than would occur if they were fed separately. This is due to the animal's natural instinct which is to consume as much food as quickly as possible before the other animals get it. In some instances, the dog, and less frequently the cat, may eat because it is rewarded for doing so. A treat is offered, the animal eats it and is rewarded by being petted, noticed or spoken to. In turn, the animal is fed because the owner thinks feeding pleases the animal and shows it how much it is loved.

3.0 MATERIALS AND METHODS

3.1 The Questionnaire

The questionnaire was prepared and adopted from the University of Glasgow Nutrition Questionnaire in conjunction with the Pet Food Manufacturing Association (PFMA) by the Companion Animal Studies division in that university and from Pets Corner Sdn. Bhd. An example of the questionnaire has been attached in the appendix section. There are seven (7) sections in the questionnaire as follows:

1. Section 1 : Background information of the owner
2. Section 2 : Information of the pet
3. Section 3 : Life stage information of the pet
4. Section 4 : Ingredients of the pet food
5. Section 5 : Pet feeding guide
6. Section 6 : Important pet packaging labels
7. Section 7 : Pet packaging design details

3.2 Data Collection

All pet owners presenting their pets at the University Veterinary Hospital and Companion Animal Clinics in Klang Valley were included in the study during a 4 week period (15th January 2018 – 11th February 2018). Data collection was collected using a questionnaire. This survey has been approved by the Human Ethics committee with a reference number of 2017-278. Owners consent was obtained prior to the questionnaire session.

The questionnaire consists of information regarding the owner's background information, about the owner's pet food regime and the awareness towards the pet food label. Respondents were assisted if they had difficulty in understanding the questions. Only pet owners that brought their pet to the veterinarian was involved in this study.



Figure 2: Data collection using a questionnaire

3.3 Data Analysis

The dataset was analyzed using SPSS Version 22.0 (IBM SPSS Inc., USA). A descriptive analysis was conducted. From the descriptive analysis, the awareness of the owner on pet food label was determined. Mann-Whitney and Kruskal-Wallis test was used to determine the relationship between a potential factor variable with the respondent and product factor that is contributing to the negligence of the pet food label (Piyathida, 2007). The P value at $P < 0.05$ was considered significant and the factor contributing to the negligence of the pet food label was determined.

4.0 RESULTS

A total of 150 respondents were included in this study during the four-week sampling period. The respondents were enrolled from the University Veterinary Hospital and other four Companion Animal Clinics around Klang Valley. From the 150 respondents who participated during the four weeks study, 38% (n=57) were male and 62% (n=93) were female. From this, 52.7% (n=79) were between the age of 18-35, 16% (n=24) were between the age of 36-40, 15.3% (n=23) were between the age of 41-50, 14.7% (n=22) were between the age of 51-65 and the remaining 1.3% (n=2) were more than 65 years old. According to the respondents, 23.3% (n=35) fed their pet with kibbles only and 76.6% (n=115) fed their pet with a mixture of kibbles and a home-made diet. When they were asked on the reason of adding a home-made diet, 41.7% (n=48) claimed that the home-made diet was healthier, 23.5% (n=27) claimed that it was the preference of their pet, 19.1% (n=22) claimed that it was cheaper, 13% (n=15) claimed that it was much easier and the remaining 2.6% got the idea via online readings.

4.1 Awareness of pet owners towards the pet food label

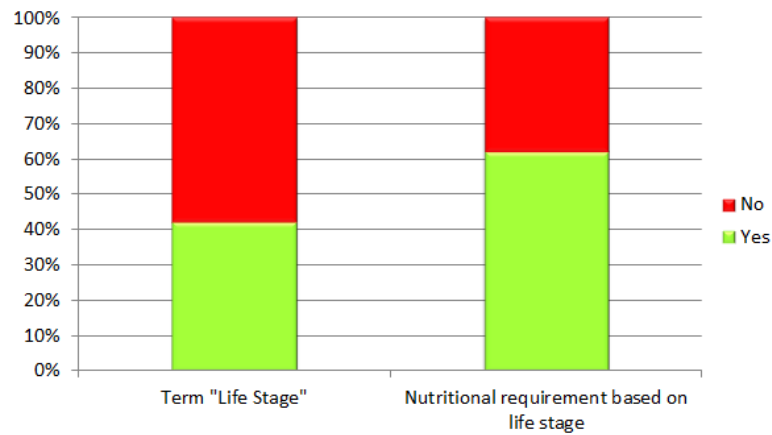


Figure 3: Bar chart for the life stage of pet

Data from Figure 1 shows that only 42% (n=63) of the respondents are aware on the term “LIFE STAGE” whereas the remaining 58% (n=87) of the respondents are not aware of the term “LIFE STAGE”. However, when the respondents were asked on a lay man’s question whether there is difference in nutritional requirement based on different age of the animal, 62% (n=93) of the respondents answered Yes with the remaining 38% (n=57) answering No.

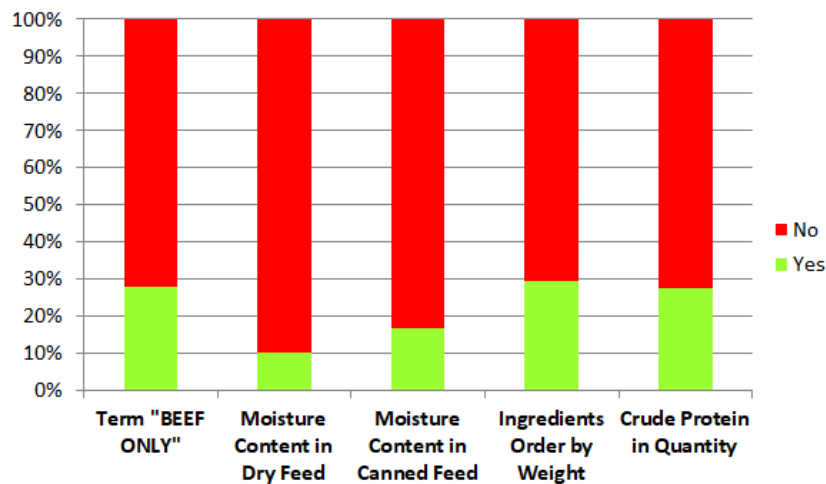


Figure 4: Ingredients of the pet food

According to the ingredients of the pet food, only 28% (n=42) of respondent knows the meaning of the term “BEEF ONLY” which is 70% Beef and 30% of other ingredients. The remaining 72% (n=108) of the respondents don’t know the meaning of the term. In addition, 90% (n=135) of respondents don’t know the moisture content in dry feed and only 10% (n=15) of respondents knew the moisture content in dry feed and 83.3% (n=125) of respondents don’t know the moisture content in canned feed and only 16.7% (n=25) of respondents knew the moisture content in canned feed (Figure 2). Only 29.3% (n=44) respondents know that the ingredients on the feed packaging is being listed in descending order by weight whereas 70.7% (n=106) of them are not aware of this on the pet food packaging. Last but not least, only 27.3% (n=41) of the respondents knew that the crude protein value in the pet food estimates the quantity of the protein and not the quality whereas the remaining 72.7% (n=109) of them didn’t know about this.

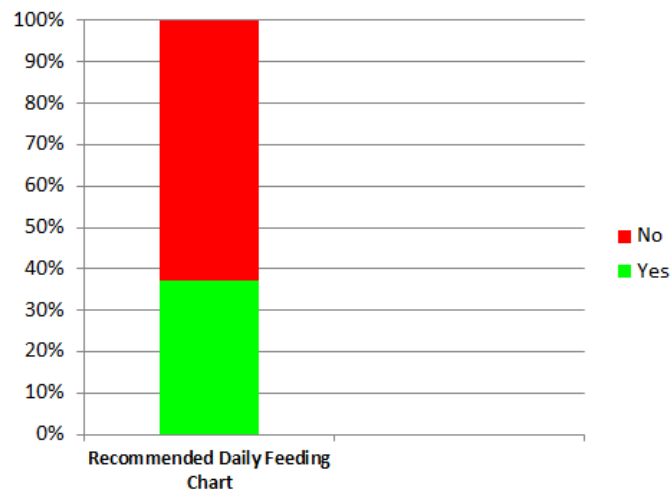


Figure 5: Pet feeding guideline

Based on the pet feeding guideline, only 37.3% (n=56) follows the recommended daily feeding guide which is on the pet food packaging and the remaining 62.7% (n=94) don't actually follow the suitable amount of food that should be given to their pet (Figure 3).

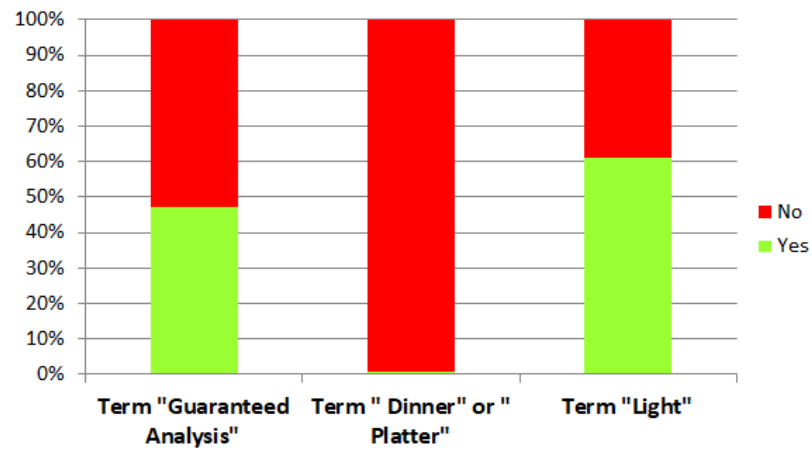


Figure 6: Packaging information

According to the packaging information, for the term guaranteed analysis, 52.7% (n=79) don't know what it meant and about 47.3% (n=71) knew about that term. However, when it came to the term "Dinner" or "Platter", 99.3% (n=149) didn't know what that term was and only 1 person (0.7%) knew about that term. In addition to that, about 61.3% (n=92) knows what the term "Light" meant and only 38.7% (n=58) didn't know what that term was (Figure 4).

4.2 Factors contributing to the awareness of the pet food label

The factors contributing to the awareness of pet food label are customer review charts, fancy and illustrative pictures, simple and direct information, attractive colors of packaging and font size. Therefore, Mann-Whitney and Kruskal-Wallis test was conducted to compare these 5 factors with two major factor which was the respondent factor and product factor. The respondent factor consist of the education level which is degree holders and non-degree holders, pet owners which are cat and dog owners, gender which are male and female, different income level which are (less than RM 100, RM 100 - RM 300, RM 300 – RM 500 and more than RM 500) and different age groups which are (18-35, 36-40, 41-50, 51-65, more than 65). On the other hand, the product factor consists of the product advertisement, nutritional information, packaging design, ingredients and the price).

Upon comparison of the customer review charts, there was a significant value of $p < 0.05$ with the education level, advertisement, packaging design and ingredients. A further analysis using the custom tables found that, those without a degree had a 52.1% ($n=61$) in preference to the customer review charts compared to the degree holders, there was a higher preference which was 66.7% ($n=78$) for the customer review charts compared to those whom did not prefer an advertisement and the respondents also had a higher preference which was 60.7% ($n=71$) towards the customer review charts compared to those whom did not prefer the packaging design. Lastly, there was equal preference between those who preferred the ingredients factor and customer review charts which was 93.2% ($n=109$).

Next, upon comparison for the second factor which were the fancy and illustrative pictures, there was a significant value of $p < 0.05$ with the advertisement and packaging design. A further analysis using the custom tables found that, there was a higher preference which was 53.8% ($n=28$) for fancy and illustrative pictures compared to those whom did not prefer an advertisement. Lastly, there was equal preference between those who preferred the packaging design and fancy and illustrative pictures which was 65.4% ($n=34$).

Then, upon comparison for the third factor which was the simple and direct information, there was a significant value of $p < 0.05$ with only the education level. A further analysis using the custom tables was conducted and found out that, those without a degree had a 54.9% ($n=79$) in preference to the simple and direct information compared to the degree holders.

When it came to the attractive colors of packaging which is the forth factor, there was a significant value of $p < 0.05$ with the advertisement and packaging design. A further analysis using the custom tables was conducted and found out that, there was a higher preference which was 58.1% ($n=36$) for attractive colors of packaging compared to those whom did not prefer an advertisement. Lastly, there was equal preference between those who preferred the packaging design and attractive colors of packaging which was 53.2% ($n=33$).

The last factor which is the font size had a significant value of $p < 0.05$ with the pet owners, advertisement, packaging design and ingredients. A further analysis using the custom tables was conducted and found out that, there was a higher preference for font size which was 60.3% (n=47) among cat owners compared to dog owners. There was a higher preference which was 53.8% (n=42) for the font size compared to those whom did not prefer an advertisement and the respondents also had a higher preference which was 84.7% (n=61) towards the font size compared to those whom did not prefer the packaging design. Lastly, there was equal preference between those who preferred the ingredients factor and font size which was 93.6% (n=73).

5.0 DISCUSSION

This study document that the awareness of pet food labels among pet owners is low. Factors contributing to the awareness of pet food label among pet owners are customer review charts, fancy and illustrative pictures, simple and direct information, attractive colors of packaging and font size but the main contributing factors to the awareness of pet owners on the pet food label would be improper usage of font size and customer review charts.

To determine the first objective which was to determine the level of awareness of pet owners towards the pet food label, the awareness criteria was divided into four different sections. The first section was life stage which means the specific period of age the animal is in such as growth (puppy/kitten), adult (young to middle-aged adult), gestation/lactation (reproductive female), older (senior). Life stage nutrition is a practice of feeding foods designed to meet a pet's optimal nutritional needs at a specific age or physiologic state. Feeding either below or above an optimal nutrient concentration can adversely affect health-sometimes irreversibly over a period of time. For instance, puppy/kitten requires a higher protein, higher energy and higher calcium/phosphorus for growth, the middle- aged animal requires moderate protein, moderate fat, moderate vitamin and minerals and adult animals need an optimal protein, less energy, less fat and a higher fiber level.

The term “Beef” in a product name requires that beef ingredients be 95% or more of the total weight of all ingredients (exclusive of water used in processing). The term “Beef dinner,” “Beef platter,” “Beef entree” or any similar designation requires that beef ingredients be at least 25% but not more than 95% of the total weight of all ingredients (exclusive of water used in processing). The term “Beef flavor” only requires that beef is “recognizable by the pet.” The beef flavor designation usually indicates that beef is less than 3% of the total product. An ingredient that gives the characterizing flavor (e.g., beef digest, beef by-products) can be used instead of the actual named flavor, beef.



Figure 7: Examples of pet food descriptor terms

Moisture is the water content in a pet food, as expressed in percentage. Moisture content of dry kibble is between 6 and 10 percent, semi-moist foods between 15 and 30 percent, and wet foods around 75 percent. There is a lot more water in a canned food than in a dry food. A small change in the moisture content of canned pet foods can result in a difference in the dry matter content and therefore the economics of feeding a given pet food. The dry matter content of the food contains all of the nutrients such as protein, carbohydrate and fat except in water. A food containing 72% water has 28% dry matter compared to a food containing 82% water has 18% dry matter. Foods with less water contain more non-water nutrients.

The crude protein shows the specific analytical procedure which estimates the protein content by measuring nitrogen. Crude protein is an index of protein quantity but does not indicate protein quality (amino acid profile) or digestibility. In addition, for many dry food manufacturers, "crude protein" includes carcasses and other waste from slaughtered animals, rendered into a "meal." The word "meal" on the pet food packaging may indicate the addition of such ingredients.

The ingredient panel on pet food packaging provides information regarding which ingredients were used to make a given pet food and their relative amounts. Ingredients must be listed in descending order by their predominance by weight according to the product's formula. AAFCO has established the name and definition of a wide variety of ingredients. The ingredient names must conform to the AAFCO name (e.g., poultry by-product meal) or should be identified by the common or usual name (e.g., beef, lamb, chicken). The ingredient panel is very useful if specific ingredients are contraindicated for certain animals or whether that ingredient is not being preferred by pet owners. This is especially important if a pet has an allergy to an ingredient. However, the pet food label does not provide information about the quality of the ingredients used.

The daily recommended feeding amount must be followed by pet owners to ensure that their pet receive the right amount of food according to their body weight. All dog and cat foods labeled as complete and balanced for any or all life stages must list feeding guideline on the pet food packaging. This guideline must be expressed in common terms and must appear clearly on the label. Feeding directions should, at a minimum, state, "Feed (weight/unit of product) per (weight unit) of dog (or cat)" and frequency of feeding. These feeding statements are general guidelines at best. Because of individual variation, many animals will require more or less food than that recommended on the label to maintain optimal body condition and health.

The guaranteed analysis is designed to provide consumers with the nutrient information about the pet food they purchase. It indicates minimum or maximum levels of nutrients such as protein, fat and fiber in the product. It is not an indication of the actual nutrient content of the food. The minimum guarantee gives the lowest amount of the nutrient in the food, not the actual amount. For example, a product with minimum guarantee of 8% fat actually contains a higher percentage. Likewise, a product with a maximum guarantee of 5% fiber may only contain as little as 1%.

Pet food labelled “low calorie” or “light” provides the caloric content. Low calorie/light for dog food, the kcals/kg of kibble must be less than or equal to 3100 and for cats must be less than or equal to 3250. Be careful when selecting a pet food that says “weight control” or “weight management”. These foods may not contain less calories than what is being fed currently.

To determine the second objective which was to determine the factors contributing to the awareness of pet food label among pet owners, some criteria such as the customer review charts, fancy and illustrative pictures, simple and direct information, attractive colors of packaging and font size was investigated. “Consumers look for and expect to find certain characteristics on the packages, regarding their color and shape, which allow them to more easily recognize the product, its qualities and usefulness” (Arango, 2008). At the point of purchase, the purpose of the package is to get the customers attention and acts as a silent salesman that aids in selling a particular product. This is a difficult task because customers make choices among various products within seconds when they are shopping.

Some obstacles to the understanding of labels include poor legibility, obscure terminology, small font sizes, multi-lingual labels and lack of standardization of format. Furthermore, nutrition knowledge relevant to the interpretation of labels was reported to be generally low and some terms used on nutrition labels are not well understood (European Heart Network, 2003). Packages not only contain information in the form of text, but also visual information like brand logo, pictorials and different titles. These elements contribute to the visual perception of a product since “the first taste is almost always with the eye” where visual sensations help the perception since the first encounter with products is often visual and affect subsequent willingness to accept a product (Imram, 1999). A research study conducted by (Underwood et al., 2001) addresses that pictures on the package also increase a shopper’s attention to the brand.

On the other hand, some studies support the idea that colors attract attention particularly when consumers seek variety in their brand choices. In highly competitive product categories, it is important to have a strikingly different package and a change in packaging color can increase the total amount of search in the category (Garber et al., 2000). According to (Bloch, 1995), research studies confirm that shape impacts on the attention of consumers. When consumers seek variety in their brand choices, the shape of the package is being considered (Schoormans and Robben, 1997). Last but not least, the design of a product and product packaging determines a consumer’s first impression and effectively communicates product advantage (Creusen and Schoormans, 2005).

6.0 CONCLUSION

In conclusion, it was found that the awareness of pet owners on the pet food label is low and the factors contributing to the awareness of pet food label are customer review charts, fancy and illustrative pictures, simple and direct information, attractive colors of packaging and font size but the main contributing factors to the awareness of pet owners on the pet food label would be improper usage of font size and customer review charts. Last but not least, this study shows that the low awareness of pet food label among pet owners can lead to serious health issues of their pet in the future.

7.0 RECOMMENDATIONS

Based on the findings of this study, it is recommended that future studies should be done in other part of Malaysia such as Perak, Sabah, Sarawak, Terengganu, Johor, Penang, Malacca and others to better evaluate the awareness of pet owners on the pet food label and to also increase the sample size of this survey. Not only that, the future study can be conducted to compare the level of awareness among local people and foreigners which comes from different part of the world. A detailed investigation can be included in future studies by specifying the factors. For instance, the color factor can be further divided into yellow, blue, green, red and more to know the preference of owners when it comes to displaying the information on the pet food packaging. This study was mainly conducted to serve as a feedback to Pets Corner Sdn. Bhd. to further improve their marketing strategies to ensure that the pet food label is better understood by the companion pet owners. This study is also conducted as an eye opener to future veterinarians as they are very important in advising pet owners on proper food to feed their pet. Last but not least, instead of focusing so much on medical advancement, why not go back to basics where nutrition is the root of all problems, as the saying goes, you are what you eat.

8.0 REFERENCES

- Abbott, R. (1997). Food and nutrition information: a study of sources, uses, and understanding. *British food journal*, 99(2), 43-49.
- Ampuero, O., & Vila, N. (2006). Consumer perceptions of product packaging. *Journal of consumer marketing*, 23(2), 100-112.
- Baldwin, K., Bartges, J., Buffington, T., Freeman, L. M., Grabow, M., Legred, J., & Ostwald Jr, D. (2010). AAHA nutritional assessment guidelines for dogs and cats. *Journal of the American Animal Hospital Association*, 46(4), 285-296.
- Bland, I.M., Guthrie-Jones, A., Taylor, R.D. and Hill, J. (2009) 'Dog obesity: owner attitudes and behaviour', *Preventive Veterinary Medicine*, 92(4), pp. 333–340.
- Crane, S. W. (1991). Occurrence and management of obesity in companion animals. *Journal of Small Animal Practice*, 32(6), 275-282.
- Draskovic, N., Temperley, J., & Pavicic, J. (2009). Comparative perception (s) of consumer goods packaging: Croatian consumers perspective (s). *International journal of management cases*, 11(2), 154-163.
- Eastland-Jones, R.C., German, A.J., Holden, S.L., Biourge, V. and Pickavance, L.C. 2014. Owner misperception of canine body condition persists despite use of a body condition score chart. *Journal of nutritional science*, 3.
- Fox, M. A., & Kenagy, R. (2015). Commercial pet food recalls: incentives to improve pet food safety. *Contemporary Readings in Law and Social Justice*, 7(2), 17.
- Freeman, L. M., Chandler, M. L., Hamper, B. A., & Weeth, L. P. (2013). Current knowledge about the risks and benefits of raw meat-based diets for dogs and cats. *Journal of the American Veterinary Medical Association*, 243(11), 1549-1558.
- Jagatheesan, M., De Silva, D. N., & Ariyaratna, H. M. H. S. (2016). Body condition score in large pure bred dogs: a preliminary study on agreement between owner's perception and scientific evaluation. *Sri Lanka Veterinary Journal*, 63(2).
- Kaufmann, H. R. (2011). Internal Stimuli: Differentiation as to Perception, Consumer Profiles and Product and Service Categories. *International Consumer Behaviour: A Mosaic of Eclectic Perspectives*, 129(190), 62.
- Kauppinen-Räsänen, H. (2010). The impact of extrinsic and package design attributes on preferences for non-prescription drugs. *Management Research Review*, 33(2), 161-173.

- Kienzle, E., Bergler, R. and Mandernach, A. (1998) 'A comparison of the feeding behavior and the Human–Animal relationship in owners of normal and obese dogs', *The Journal of Nutrition*, 128(12), pp. 2779–2782
- Lisa, L. K. (2009). Pet Foods: How to Read Labels. NebGuide, 0-4. Retrieved May 26, 2017, from <http://extensionpublications.unl.edu/assets/pdf/g1960.pdf>.
- Martin, A. N. (1997). Food pets die for: shocking facts about pet food. New Sage Press.
- Phinney, S.D. (1992) 'Exercise during and after very-low-calorie dieting', *The American Journal of Clinical Nutrition*, 56(1), 190S-194S.
- Pibot, P., Biourge, V., & Elliott, D. (2006). Encyclopedia of canine clinical nutrition.
- Roudebush, P., & Cowell, C. S. (1992). Results of a hypoallergenic diet survey of veterinarians in North America with a nutritional evaluation of homemade diet prescriptions. *Veterinary Dermatology*, 3(1), 23-28.
- Roudebush, P., Dzanis, D. A., Debraekeleer, J., & Brown, R. G. (2000). Pet food labels. *Small Animal Clinical Nutrition*. 4th ed. Topeka, KS: Mark Morris Institute, 147-161.
- Sandøe, P., Palmer, C., Corr, S., Astrup, A., & Bjørnvad, C. R. (2014). Canine and feline obesity: a One Health perspective. *Veterinary Record*, 175(24), 610-616.
- Weinsier, R.L., Wadden, T.A., Ritenbaugh, C., Harrison, G.G., Johnson, F.S. and Wilmore, J.H. (1984) 'Recommended therapeutic guidelines for professional weight control programs', *The American Journal of Clinical Nutrition*, 40(4), pp. 865–872.
- White G. A., Hobson-west P., Cobb K., Craigon J., Hammond R. & , Millar K. M. (2011) Canine obesity: is there a difference between veterinarian and owner perception? *Journal of Small Animal Practice* 52, 622–626

9.0 APPENDICES

9.1 Client Consent Form



UPM
UNIVERSITI PUTRA MALAYSIA

**JAWATANKUASA ETIKA UNIVERSITI UNTUK
PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM
SERDANG, SELANGOR, MALAYSIA**

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM 2.4

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE :

A SURVEY ON THE AWARENESS OF PET OWNERS TOWARDS THE PET FOOD LABEL

2. INTRODUCTION:

This survey is conducted to evaluate the level of awareness of pet owner on the pet food label and the factors contributing to the negligence of the pet food label. The pet food label may be taken for granted but it has major effect on animal's health and nutrition. Therefore it is very important to educate the owner on the proper interpretation of the pet food labels as under-nourishing or overnourishing of their pet can be detrimental. In this situation, we will understand the factors that contribute to the lack of awareness of the pet food label. We can try to find a solution on how to overcome those factors so that pet owners can be knowledgeable on food product that they purchase for their pet.

3. WHAT WILL YOU HAVE TO DO?

In the study, we need your assistance to complete the questionnaire enclosed with this sheet which takes approximately 10 minutes. The questionnaire consist of information regarding your background information, about your pet food regime and your understanding towards the pet food label. Participation is voluntary and you can withdraw from the study at any time. A translator will be used if the respondents cannot understand the questionnaire in terms of the language.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Only pet owners are recruited into the study.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

To have a better insight on the understanding of pet food label by the pet owners.

(b) TO THE INVESTIGATOR?

However, by participating in this survey, you can help us evaluate as to whether pet owners understand the pet food label properly before feeding their pet.

6. WHAT ARE THE POSSIBLE RISKS?

Participation is voluntary and you can withdraw from the study at any time. There are no risks.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

Yes, all the information gathered will be kept strictly confidential. Any information which related to you such as personal information will not be identifiable in published material. Your data will not be disclosed to any regulatory body and it is **ONLY** for research purpose only.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

If you have queries regarding your involvement in this study, please feel free to contact the researcher with the number and email address provided below:

Dinaesh Kumar a/l Sivananthan
Final Year DVM student
Faculty of Veterinary Medicine,
University Putra Malaysia.
Tel: 017-6178245
Email: dinaeshkumar@yahoo.com

Dr. Hasliza Abu Hassim (Supervisor)
Department of Veterinary Preclinical Sciences,
Faculty of Veterinary Medicine,
University Putra Malaysia.
Tel: +603-8609 3417
Email: haslizaabu@upm.edu.my

I Identity Card No.
address.....

.....hereby voluntarily agree to
take part in the research stated above *(clinical /drug trial/video recording/ focus
group/interview-based/ questionnaire-based).

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.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be
used in any form of publication or presentation (if applicable)

* delete where necessary

Signature
(Respondent)

Signature
(Witness)

Date :.....

Name :.....

I/C No. :.....

I confirm that I have explained to the respondent the nature and purpose of the above-
mentioned research.

Date

Signature
(Researcher)

9.2 Human Ethics Approval

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)

Date: 29/1/2018

Dear Prof / Dr. / Mr. / Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled '**A Survey on the Awareness of Pet Owners Towards the Pet Food Label**' has been approved.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly please remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (<http://www.rmc.upm.edu.my/documentfile>).

If you have any enquiries, please contact Ms. Nursuraya (03-89471605) or Ms. Nor Ellia (03-89471244).

Note: Please use this reference number for any transaction.

- JKEUPM-2017-278

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi
Chair
Ethics Committee for Research Involving Human Subjects
Universiti Putra Malaysia