



UNIVERSITI PUTRA MALAYSIA

**PERCEPTION OF MALAYSIAN PET OWNERS ON THE TRENDS AND
QUALITY TRAITS OF PET FOOD**

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**PERCEPTION OF MALAYSIAN PET OWNERS ON THE TRENDS AND
QUALITY TRAITS OF PET FOOD**

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It is hereby certified that we have read this project paper entitled “Perception Of Malaysian Pet Owners On The Trends And Quality Traits Of Pet Food”, by Naveesha Kaur Shergill and in our opinion it is satisfactory in terms of scope, quality, and presentation as partial fulfillment of the requirement for the course VPD 4999 – Final Year Project.

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LIST OF ABBREVIATIONS

- %** Percentage
RMB Raw meat-based
PB Plant-based



ABSTRAK

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

PERSEPSI PEMILIK HAIWAN PELIHARAAN MALAYSIA TERHADAP TREND DAN CIRI-CIRI KUALITI MAKANAN HAIWAN PELIHARAAN

Oleh

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2024

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Sejak kebelakangan ini, diet dan keperluan nutrisi haiwan peliharaan telah menarik minat pemilik haiwan. Kajian ini dijalankan untuk mengenal pasti trend makanan dan ciri-ciri yang digemari oleh pemilik kucing dan anjing di Malaysia. Kaji selidik ini disebarikan melalui media sosial dan telah mengumpulkan 180 respons daripada pemilik kucing dan anjing di Malaysia. Kebanyakan pemilik haiwan membeli campuran makanan yang dibeli di kedai dan disediakan di rumah. Menurut hasil kajian, sebanyak 39.9% pemilik setuju bahawa maklumat yang terdapat pada label makanan haiwan adalah sukar untuk difahami dan 36.1% bersetuju dengan kuat bahawa mereka membandingkan harga makanan haiwan dengan jenama yang berbeza. Ciri-ciri pemakanan yang paling penting bagi pemilik haiwan adalah kecenderungan haiwan mereka terhadap makanan tersebut diikuti dengan

bahan-bahan, variasi rasa, jualan, penampilan, bau, populariti jenama dan warna. Lebih daripada tiga perempat (77.8%) responden menganggap kesihatan haiwan mereka dan kesihatan mereka sendiri mempunyai kepentingan yang sama taraf. Lebih daripada separuh (52.2%) pemilik haiwan tidak berminat untuk menukarkan diet haiwan peliharaan mereka kepada diet berasaskan daging di mana kebimbangan utama mereka adalah kekurangan data daripada kajian untuk menyokong diet ini manakala 56.7% pemilik haiwan tidak berminat untuk menukarkan diet haiwan peliharaan mereka kepada diet berasaskan tumbuhan di mana kebimbangan utama mereka adalah bahawa ia tidak bernutrisi.

Kata kunci: haiwan peliharaan; tingkah laku pengguna; ciri kualiti; soal selidik

ABSTRACT

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

PERCEPTION OF MALAYSIAN PET OWNERS ON THE TRENDS AND QUALITY TRAITS OF PET FOOD

By

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2024

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In recent years, pet diet and nutritional requirement has piqued the interest of pet owners as animal welfare has become an increasingly relevant topic. This study was conducted to obtain detailed insight from cat and dog owners in Malaysia on the feed trends and quality traits of pet food. A total of 180 responses were collected from Malaysian cat and dog owners in a questionnaire that was disseminated through social platforms. Most pet owners primarily feed their pet a combination of store bought and home prepared food with retail pet stores being the preferred channel of purchase. 39.9% of owners agree to a certain extent that information on pet food labels is difficult to understand and 36.1% strongly agreed when asked if they compare the prices of pet food among different brands before purchase. Feed

characteristics that pet owners find to be most important is their pet's preference toward the food followed by ingredients, flavour variation, sales, appearance, smell, brand popularity and colour. More than three quarters (77.8%) of the respondents find their pet's health to be just as important as theirs. 52.2% of the pet owners are not keen to put their pet on a raw meat-based diet with the top concern being a lack of data from studies to support this diet while 56.7% of pet owners are not keen to put their pet a plant-based diet with the top concern being 'Not nutritious'.

Keywords: pet; consumer behaviour; quality traits; questionnaire

Introduction

The pet food industry in Malaysia has shown significant growth compared to what it was in the past. According to a journal published in New Zealand, pet humanisation is the assignment of human thought, feelings, motivation and belief to our pets (Forbes et al., 2018). A report done by Mordor Intelligence, 2022 stated "As per a survey conducted in 2021, it was observed that Malaysia was one of the top 10 countries where the pet humanization rate had spiked up in 2020 from the past five years". This clearly reflects that in recent years, pet owners regard their pet as more of a family member than as a mere animal, becoming more aware of the importance of proper pet nutrition. A Canadian study found that the majority of pet owners give equal or more priority when buying healthy food for their pets and not themselves (Schleicher et al., 2019). On top of that, another study done in Italy has shown that pet owners are more willing to spend money on high quality food than on pet accessories such as collars and toys (Vinassa et al., 2020). Pet owners' preferences on their pets' diet could be influenced by numerous factors such as the characteristics of the product (colour, quality, price), income, and societal norms.

It is a general consensus that pet owners have basic knowledge with regard to dietary preferences hence this study on pet owners' perception of Malaysia's pet food industry is indicated. Pet owners will have varying preferences on the types of food fed to their pets and this study will provide insight into the different preferences, such as commercially prepared food, home-cooked meals and plant and meat-based diet. Research done in 2019 found that amongst all pet owners, the concern most commonly reported regarding meat-based pet foods was for the welfare of farm animals while the most common concern regarding strictly plant-based pet foods was regarding the nutritional completeness of the diet (Dodd et al., 2019).

Essentially, this study will involve data on the present feeding trends (super-premium, premium, economy, super-economy), pet food quality traits that are perceived as being more important and expectations of customers for the pet food industry in Malaysia. It is expected that present pet diet trends are influenced by the characteristics of the product, income, societal norms, and cultural beliefs. Besides that, the quality of nutrition from pet food is perceived as being more important to pet owners compared to the colour, odour, and price of the food, and finally pet owners in Malaysia expect the pet food industry to be able to cater to the varying preferences of diet type.

Literature Review

Demographics

In a study conducted in 2020 by Vinassa et al. on cat and dog owners' perception of pet food quality, it was found that the majority of respondents were female, at 61.8%, while most of the respondents were from the 35 to 50 age group. Dog owners reported to be at 39.4% while 30.8% owned cats and 29.8% owned both cats and dogs. Similar findings can be seen in research done by Schleicher et al. in 2019 where respondents were predominantly female and the mean age of all respondents were 46. As for the type of pet, 55% and 45% owned dogs and cats respectively. A 2022 survey done in Portugal found that a large portion of the respondents were female (90.5%) with a mean age of 33 years old and 70.3% were dog owners (Prata, 2022).

Type of Pet Food

Vinassa et al., 2022 found that 24.7% of respondents feed their pet dry food, 10% wet food and 65.3% combination of both dry and wet food. Interestingly, a similar study conducted in Sri Lanka concluded that only 18% of owners fed their pets commercial diets while 42% prepared home-cooked meals for the pets.

Source of Pet Food

It was found that majority of pet owners preferred purchasing pet food from the pet store (Vinassa et al., 2020). However, it is indicated that this data should be considered partial as the survey was conducted in pet stores and trade fairs. Schleicher et al.'s study in 2020 found that 23.6% of respondents, which is the majority, preferred purchasing their pet food from large specialty pet stores as well. In Portugal, most of the pet owners answered 'Supermarket' when asked their preferred source of pet food purchase (Prata, 2022).

Source of Pet's Nutritional Information

Majority of pet owners in Vinassa et al.'s 2020 survey claimed that pet food companies' online websites were their most preferred source of nutritional information for their pet at 30.4%, followed by their veterinarian. This is contrary to Schleicher et al.'s study done in the same year where most owners (43.6%) seek nutritional advice from the veterinary healthcare team, such as vets, nurses and staff, followed by the Internet. Similar results were found by a study in Portugal where 64.9% of the respondents rely on their veterinarian for their pet's nutritional advice (Prata, 2022).

Factors Affecting Purchase

The top 3 characteristics of pet food that owners in Italy find to be most important contains natural ingredients, location of pet food production facilities clearly labelled and comprehension of the label (Vinassa et al., 2020). Comparing this with a study done in Canada, pet owners answered that health and nutrition, quality, and ingredients were the most important characteristic when purchasing their pet's food (Schleicher et al., 2020). Prata, 2022 found that the top 3 food characteristics pet owners in Portugal find to be most important are metabolism and age, ingredients and nutritional table. Besides that, Knight & Satchell, 2021 found that nutrition was the most important criteria when purchasing their pets food followed by diet quality and palatability.

Pet Food Trends

Knight & Satchell, 2021 conducted a study highlighting the diet trends in both cats and dogs. They found that 33% of owners fed their dogs a RMB diet while 12% fed a PB diet. As for cats, 5% and 9% fed a RMB and PB diet respectively. In 2022, Dodd et al., stated that the respondents top 3 concerns with feeding their pet a RMB diet are the welfare of the farm animal, farm animal rights, and that it is unhealthy while concerns surrounding a PB diet are that it is unnatural, unhealthy, and incomplete.

Materials & Methods

This study is an observational descriptive study where simple random sampling was used to study Malaysian pet owners' perception of the quality and trends of pet food. This study is in the form of an anonymous survey that was created using Google Form and questions were asked in both English & Bahasa Malaysia. Approval was obtained from the Human Ethics Committee of Universiti Putra Malaysia with reference code JKEUPM-2022-846. Social media platforms such as WhatsApp, Instagram and Facebook were used to disseminate the survey to the public. A total of 180 valid responses were collected where the inclusion criteria is the respondent must be a Malaysian and must be a cat or dog owner. The survey was broken into multiple sections: (a) Demographics (b) Pet Information (c) Nutritional Information (d) Factors Affecting Purchase (e) Feed Characteristic (f) Pet Humanisation (g) Pet Food Trends. The software SPSS (Statistical Package for Social Sciences) was used to determine mean and statistical significances were calculated using the Pearson chi-square test, where values less than the standard alpha value (0.05) are considered significant.

Results

Demographics

This online survey collected a total of 180 responses where information on the respondents' demographics were studied (Table 1). The majority of pet owners that filled in this survey were female (60%) while males made up 40% of the survey. Slightly more than half of the respondents (52.2%) fell in between the 18 to 25 age group, followed by 15.6% in the 51 to 60 age group and least of all is the 61 to 70 age group at only 3.9%. In terms of annual household income, most (35%) of the pet owners answered less than RM30,000 and only 8.9% answered between RM90,000 and RM130,000. Central Malaysia had the most respondents at 64.4% while East Malaysia had the least at 2.8%.

Table 1. Demographics of respondents

Characteristics	% of valid responses
Gender	
Male	40
Female	60
Age	
18 - 25	52.2
26 - 30	13.3
31 - 40	8.9
41 - 50	6.1
51 - 60	15.6
61 - 70	3.9
71 - 80	0
Annual Household Income (RM)	
< 30,000	35
30,000 – 60,000	27.8
60,000 – 90,000	15
90,000 – 130,000	8.3
> 130,000	13.9
Area of Residence	
Central Malaysia (Selangor, Wilayah Persekutuan, Negeri Sembilan)	64.4
Northern Malaysia (Perlis, Kedah, Pulau Pinang, Perak)	11.1
Southern Malaysia (Melaka, Johor)	5
Eastern Malaysia (Terengganu, Kelantan Pahang)	2.8
Sabah/Sarawak	16.7

Of the 180 respondents that answered this survey, more than three quarters (77.8%) keep omnivorous diets while the vegetarian and vegan diets were at 3.3% and 1.1% respectively as seen in Table 2.

Table 2. Owner's dietary preference

Owners Dietary Preference	% of valid responses
Omnivorous	77.8
Halal	15.6
Vegetarian	3.3
Vegan	1.1
Kosher	0.6
Pescatarian	1.7

Pet Information

Dogs were owned by 56.7% of the respondents while 43.3% owned cats. It was found that most pet owners (40.6%) preferred giving their pet a combination of store bought and home prepared food. The second most preferred type of food is store bought dry and wet food (35%) followed by store bought dry food (18.3%). When asked where respondents preferred purchasing their pet food from, most of them (46.1%) answered retail pet store followed by supermarket (30%). The two least preferred location to purchase pet food at 3.9% is convenience store and veterinarian clinic.

Table 3. Pet Information

Characteristics	% of valid responses
Species	
Cat	43.3
Dog	56.7
Type of Feed	
Store bought dry food	18.3
Store bought wet food	1.1
Home prepared food only	5
Combination of store bought dry and wet food	35
Combination of store bought and home prepared food	40.6
Source of Feed	
Convenience store	3.9
Supermarket	30
Online retailer	16.1
Retail pet store	46.1
Veterinarian clinic	3.9

Nutritional Information

40% of pet owners answered that their primary source of their pet's nutritional information is from a veterinarian with 'Internet' coming in second at 31.1%. Breeder and/or trainer, and groomer seem to be the least preferred source for pet's nutritional information at 2.2% and 0% respectively.

Table 4. Pet's Nutritional Information

Source of Nutritional Information	% of valid responses
Veterinarian	40
Friends and/or family	15.6
Internet	31.1
Pet store staff	11.1
Breeder and/or trainer	2.2
Groomer	0

Based on Table 5, pet owners find that the information they receive when advised by a veterinarian is most important (mean 4.6) while advice received from a groomer is the least important (mean 3.2) to pet owners.

Table 5. Importance of nutritional information received

Characteristics	Score (% for each category)					Average score (n=180)
	1	2	3	4	5	
When advised by a veterinarian	0	1.1	7.2	20.6	71.1	4.6
When advised by a family and/or friend	1.1	6.7	46.1	31.1	15	3.5
When advised by an online source	3.3	7.2	35.6	40	13.9	3.5
When advised by a breeder and/or trainer	2.2	3.9	28.3	39.4	26.1	3.8
When advised by pet store staff	3.3	8.9	36.1	37.2	14.4	3.5
When advised by a groomer	7.8	12.8	41.1	26.7	11.7	3.2
1 = not at all important, 5 = extremely important						

Factors Affecting Purchase

The statement “I get the best quality of food for the best price” received the highest mean score meaning majority of respondents (43.3%) voted that they strongly agree with this statement. 36.1% of pet owners answered strongly agree for the statement “I compare the price of pet food from different brands” meaning this behaviour came in second with a 5.6 mean score. However, almost 50% of pet owners feel that they strongly disagree with the statement of “My cultural, religious and personal beliefs affect the type of food given to my pet” (mean 2.6). Another unpopular behaviour that pet owners disagree with (30.6%) is “I am willing to incorporate novel ingredients (e.g. soldier flies, crickets) into my pet’s food” (mean 3.0).

Table 6. Factors affecting purchase

Characteristics	Score (% for each category)							Average score (n=180)
	1	2	3	4	5	6	7	
I buy pet food that is nutritional regardless of the price	0	2.8	5	16.1	32.8	20.6	22.8	5.3
I read the ingredient label on pet food packaging before purchase	0.6	2.8	5.6	11.7	22.8	23.9	32.8	5.6
I get the best quality of food for the best price	0	1.1	1.7	6.1	18.3	29.4	43.3	6.0
I actively seek out	2.2	5	10	19.4	18.9	21.7	22.8	5.0

information on pet food to stay up to date on new information									
I compare the price of pet food from different brands	2.2	0.6	5.6	10	20.6	25	36.1	5.6	
Information on pet food labels is difficult to understand	5.6	6.7	18.3	29.4	14.4	17.2	8.3	4.3	
My cultural, religious and personal beliefs affect the type of food given to my pet	49.4	11.7	10.6	7.8	7.8	6.7	6.1	2.6	
I purchase the same type of food as the people around me	26.7	15.6	19.4	20.6	8.9	5.6	3.3	3.0	
I am more likely to purchase pet food that has eco-friendly packaging	6.7	6.7	11.1	26.1	16.7	13.9	18.9	4.6	
It is more convenient to purchase pet food online	11.1	11.1	14.4	17.2	10.6	16.1	19.4	4.3	
I am willing to incorporate novel ingredients (e.g. soldier flies, crickets) into my pet's food	30.6	15	16.1	14.4	10	10	3.9	3.0	
I prefer locally manufactured pet food	12.8	12.8	12.2	33.3	11.7	10.6	6.7	3.6	
I prefer pet food that uses sustainable ingredients	2.2	2.2	8.9	33.9	19.4	17.8	15.6	4.9	
I consider certification of pet food (i.e., halal, ISO) during purchase	17.2	7.8	8.9	21.7	16.7	13.3	14.4	4.1	
1 = strongly disagree, 7 = strongly agree									

Feed Characteristic

Pet's preference and ingredients received a mean score of 4.5 out of 5 when pet owners were asked which feed characteristic they find to be most important. 61.1% and 60.6% of pet owners answered these 2 characteristics trumps the other 6. Smell, colour, appearance and sale scored a 3 (moderately important) with percentages that ranged from 20% to 27.2%. Among the aforementioned 4 characteristics, colour was answered as not at all important the most with 17.2%.

Table 7. Feed characteristic

Characteristic	Score (% for each category)					Average score (n=180)
	1	2	3	4	5	
Smell	8.9	10.6	25.6	31.1	23.9	3.5
Colour	17.2	11.7	26.1	19.4	25.6	3.2
Appearance (size & shape)	8.9	7.8	27.2	30.6	25.6	3.6
Ingredients	1.1	1.7	7.8	28.9	60.6	4.5
Pets' preference	0	1.7	6.1	31.1	61.1	4.5
Brand popularity	6.7	12.2	35	30	16.1	3.4
Variety (flavour)	1.7	2.2	13.3	38.3	44.4	4.2
Sale/Discount	4.4	5.0	20	28.3	42.2	4.0

1 = not at all important, 5 = extremely important

Pet Humanisation

In order to analyse the degree of pet humanisation, a question relating to health comparison was asked. 77.8% of owners find that their pets health is just as important as theirs while 15% think that it is more important than their health. Less than 10% of owners answered that their health is more important than their pets.

Table 8. Health comparison

Health comparison	% of valid responses
Just as important as mine	77.8
Less important than mine	7.3
More important than mine	15

More than half (61.7%) of the respondents claim that they are 'extremely close' to their pet followed by 32.8% of the pet owners answering 'close'. Of the 180 responses collected, no pet owners answered 'Not close at all'.

Table 9. Bond with pet

Bond with pet	% of valid responses
Not close at all	0
Slightly close	0.6
Moderately close	5
Close	32.8
Extremely close	61.7

Feed Trends

With new feed trends emerging, pet owners were asked for their opinions on raw meat and plant-based diets. In both questions, more than half of the answers were 'No'. 52.2% and 56.6% of owners disagreed with changing their pets diet to a RMB and PB diet respectively. The difference between the number of pet owners that would consider changing their pets diet to a RMB and PB diet is not significant. 11.1% of pet owners were willing to make the raw meat switch while 9.4% were willing to make the plant-based switch.

Table 10. RMB and PB diet

Diet	% of valid responses		
	Yes	No	Maybe
Raw meat-based	11.1	52.2	36.7
Plant-based	9.4	56.7	33.9

Respondents were also asked on their opinion regarding concerns with RMB and PB diets. With RMB diets, the top concern with 26.1% of answers were that is not enough data from studies to support this type of diet followed by the freshness of animal product (19.6%) and it is not a normal societal practice (15.2%). With PB diets on the other hand, the top concern was that this type of diet is not nutritious with 42% of votes followed by there is not enough data from studies to support this diet (31%) and it is not a normal societal practice (11%).

Table 11. Concerns with RMB and PB diet

Diet	Concerns	% of valid responses
Raw meat-based	Not enough study or data to support diet	26.1
	Freshness of animal product	19.6
	Not a normal societal practice	15.2
Plant-based	Not nutritious	42
	Not enough study or data to support diet	31
	Not a normal societal practice	11

Pearson Chi-square

If $p < 0.05$, data is statistically significant.

- i. Gender X feed colour.

Table 12. Gender of owner & importance of feed colour

	Significance
Pearson Chi-Square	.002
Likelihood Ratio	.002

$P < 0.05$, therefore there is significant association between gender of owner and importance of colour of feed.

ii. Species X feed colour.

Table 13. Species owned & importance of feed colour

	Significance
Pearson Chi-Square	.002
Likelihood Ratio	.001

$P < 0.05$, therefore there is significant association between type of species owned and importance of colour of feed.

iii. Closeness to pet X health prioritisation.

Table 14. Closeness to pet & health prioritisation

	Significance
Pearson Chi-Square	.001
Likelihood Ratio	.024

$P < 0.05$, therefore there is significant association between closeness of owner to their pet and importance of pet's health in relation to owner's health.

- iv. Closeness to pet X 'I buy pet food that is beneficial to my pet regardless of the price'.

Table 15. Closeness to pet & buying beneficial food regardless of price

	Significance
Pearson Chi-Square	.015
Likelihood Ratio	.014

$P < 0.05$, therefore there is significant association between closeness of owners to their pet and the statement that owners buy pet food that is beneficial to their pet regardless of the price.

Discussion

Demographics

More than half of the respondents of this survey was from the 18 to 25 year age group. This is possibly due to the fact that this survey was shared across social media platforms, being more accessible to the age group that frequently spends their time online. 35% of pet owners earn an annual household income of less than RM30,000 and 27.8% earn between RM 30,000 and RM60,000 making these income groups the two highest. This proves that not only those from high income groups are able to afford pet ownership. The availability of cheap and reasonably priced pet food in Malaysia has made it possible for owners across the different income brackets to have the pleasure of owning a pet. 64.4% of pet owners reside in Central Malaysia according to this survey. This high percentage may be possible because the survey was mainly shared among peers from this region despite it being shared online. Majority of pet owners adopted the omnivorous diet lifestyle followed by the halal diet.

According to a study conducted by Rakuten Insight and published by the Statista Research Department in 2022, it is estimated that Malaysians consumed approximately 49 kilograms of poultry meat per person in 2021 making our country amongst the top global consumers of poultry meat.

This high number explains why majority of the respondents adopted an omnivorous diet. The second highest dietary preference is Halal which can be explained by the majority of the Malaysian population practicing Islam.

Pet Information

It was found that slightly more than half (56.7%) of the respondents owned dogs while 43.3% owned cats. This data is inconsistent with a study that was conducted in 2022 by Rakuten Insight which found that 60% of respondents in Malaysia owned cats. This discrepancy can be explained by the small sample size used in this survey. Moving on, It was found that most pet owners (40.6%) preferred giving their pet a combination of store bought and home prepared food while the second most preferred type of food is store bought dry and wet food (35%). Based on these percentages, we can assume that commercial diets as more preferred when compared to non-commercial diets as the option 'Home prepared food only' received a total of only 5%. Prata, 2022 found that 67.6% of respondents fed their pets commercial diets and 2.7% homemade diets.

Another study also found that 54.7% of respondents fed their pets primarily dry food followed by equal amounts dry and canned food (Schleicher et. al., 2019). On top of that, only 3.8% of pet owners prepare homemade meals for their pets. Commercial diets seem to be the more preferred choice by pet owners possibly due to a number of reasons with convenience and cost being the top reason.

In 2020, Vindramini et. al., conducted a study on diets in dogs and found that commercial dry food presented lower costs than wet and homemade food. In this survey, the top two most preferred source of pet food purchase are from online retailers (46.1%) and supermarkets (30%) with only 3.9% from veterinarian clinics.

These results are similar when compared to the study conducted by Schleicher et. al., 2019 that found that majority of the respondents preferred purchasing their pets food from pet stores. This could be largely due to the fact that pet stores offer a variety of pet food brands that are more often than not on the cheaper end. It is also important to bear in mind that pet foods sold at veterinarian clinics are formulated specially pet's with a specific dietary or health requirement.

Nutritional Information

40% of pet owners answered that their primary source of their pet's nutritional information is from a veterinarian with 'Internet' coming in second at 31.1%. In addition to that, 71.1% of the respondents believe that nutritional information when advised by a veterinarian is 'extremely important'. These results highlight two important things. The first is how crucial it is for veterinarians to accurately provide information regarding a client's pet's nutrition. The second is pet owners are being proactive towards their pets' nutritional needs and are not ignoring important advice.

Although an endless amount of information can be found on the internet, it may not all be credible or suitable to your pet's health status.

Factors Affecting Purchase

The statement "I get the best quality of food for the best price" received the highest mean score (6) meaning the majority of respondents (43.3%) voted that they strongly agree with this statement. This reflects that although some owners may have a fixed budget, they still value the quality of their pets' food and nutrition, and would make healthy purchases within their means. 36.1% of pet owners also strongly agreed that they compare the price of pet food from different brands before making a purchase. This shows that owners are aware of differences in prices among brands and are proactively ensuring that they spend a reasonable amount of money on pet food.

Interestingly, 32.8% of respondents strongly agreed when asked if they read the ingredient label on pet food packaging before making a purchase but when asked if information on pet food labels is difficult to understand, a total of 39.9% of owners answered either 5, 6 or 7 on the Likert scale indicating that they agree. Gerstner & Liesegang, 2020 found that dog owners had difficulties comparing the protein content of canned food with dry food. Moreover, only 14% of dog owners were able to correctly choose a potentially correct diet when presented with 2 options.

With that being said, an explanation as to why our results are different may be due to the fact that the Gerstner & Liesegang study had more comprehensive questions that truly tested the owner's comprehension of pet food labels.

The results obtained in this survey regarding pet food labels may contradict one another as being able to read pet food labels is very different from being able to comprehend it. 30.6% of pet owners strongly disagreed when asked if they were willing to incorporate novel ingredients such as flies and crickets into their pets' diet. It is likely that pet owners feel this way as an insect-based diet sounds unnatural and unhealthy. With that being said, a 2014 study on the protein quality of insects as potential ingredients for dog and cat foods produced interesting results where a housefly pupae and black soldier fly were high in crude protein and amino acids but were less digestible. House crickets also had a high crude protein value and amino acids similar to that of a fish meal (Bosch et. al., 2014).

Of the 180 respondents, the majority (71.7%) of them disagreed to different extents that their cultural, religious and personal beliefs affect the type of food given to their pet. The purpose of this question was to determine whether owners found it easier to feed their pet a beef or pork free diet for instance but as already discussed, commercial pet food is a more preferred feed choice as opposed to homemade meals.

Feed Characteristic

Pet's preference and ingredients received a mean score of 4.5 out of 5 when pet owners were asked which feed characteristic, they find to be most important, followed by flavour variation. Vinassa et. al., 2020 pointed out that pet owners' affinity towards healthy and natural ingredients for their pet reflects the current trends observed in human nutrition, making pet food more 'humanised'. Pet humanisation can also be backed up by the fact that the cat or dogs' preference toward their food is an important factor when owners purchase pet food. The colour of the feed was found to be of least importance to pet owners with a mean score of 3.2 possibly because pet owners associate colourful food to unapproved food colourings and additives.

Pet Humanisation

Pet owners highly value their pets' health to the extent where there is an equal priority placed, if not more. 77.8% of owners find that their pets' health is just as important as theirs while 15% think that it is more important than their health. More than half (61.7%) of the respondents claim that they are 'extremely close' to their pet followed by 32.8% of the pet owners answering 'close'. The bond these pet owners share with their pet heavily influences the health prioritisation and as discussed earlier, the respondents admit to sharing a close and strong bond with their pet. There were no reports of respondents answering 'not close at all'.

Pet Food Trends

Pet owners in Malaysia are not keen to change their pets diet to a RMB or PB diet. 52.2% of pet owners answered 'No' when asked if they would consider switching their pets current diet to a RMB diet while 56.6% answered 'No' for PB diet. With RMB diets, the top concern with 26.1% of answers were that there is not enough data from studies to support this type of diet. The second and third reasons were the freshness of animal products (19.6%) and that it is not a normal societal practice (15.2%). With PB diets on the other hand, the top concern was that this type of diet is not nutritious with 42% of votes. The second and third reasons were there is not enough data from studies to support this diet (31%) and it is not a normal societal practice (11%).

Pearson Chi-square

- i. Gender of owner & colour of feed.

$P < 0.05$, therefore there is significant association between gender of owner and importance in colour of feed. The observed count for females that find colour to be an extremely important feed characteristic is higher than the expected count. The observed count for males that find colour to be an extremely important feed characteristic is lower than the expected count.

ii. Species owned & colour of feed.

$P < 0.05$, therefore there is significant association between type of species owned and importance of colour of feed. The observed count for cat owners that find feed colour to be extremely important is higher than the expected count. The observed count for dog owners that find feed colour to be extremely important is lower than the expected count.

iii. Closeness to pet & health prioritisation.

$P < 0.05$, therefore there is significant association between closeness of owner to their pet and importance of pet's health in relation to owner's health. For owners that answered they were moderately close to their pet, the expected count for owners that find their pets health to be less important than theirs was higher than the observed count.

iv. Closeness to pet & 'I buy pet food that is beneficial to my pet regardless of the price'.

$P < 0.05$, therefore there is significant association between closeness of owners to their pet and the statement that owners buy pet food that is beneficial to their pet regardless of the price.

For owners that are extremely close to their pet, the expected count for those who would vote 'strongly agree' when asked if they beneficial food for their pet regardless of the price was lower than the observed count.

Conclusion & Recommendations

To conclude, characteristics of the pet food has an influence on pet owners when purchasing food for their cat or dog, namely their pet's personal preference toward a certain type of food and the ingredients in the food. Annual household income, societal norms, respondents' cultural beliefs and other feed characteristics such as colour, odour and brand popularity do not hold great significance towards an owner's decision when purchasing pet food. Malaysian cat and dog owners do not expect the Malaysian pet food industry to explore raw meat-based and plant-based diet as most of them have no interest in switching their pet's diet.

For future studies in this topic, a larger sample size of at least 500 is recommended to ensure results that are more accurate. Besides that, in order to measure the bond and closeness between owner and pet, a more standardized test may be used such as the Monash Dog Owner Relationship Scale (Calvo et. al., 2016).

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