



**UNIVERSITI PUTRA MALAYSIA**

**A RETROSPECTIVE ANALYSIS OF ACUPUNCTURE PRACTICE IN  
DOGS IN SELECTED VETERINARY CLINICS IN KLANG VALLEY**

**GOH JOY XINE**

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FPV 2018 29**

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DOGS IN SELECTED VETERINARY CLINICS IN KLANG VALLEY**

The logo of Universiti Putra Malaysia (UPM) is a shield-shaped emblem. It features a red and white design with a central book and a stylized 'U' shape. The letters 'UPM' are prominently displayed in a red box at the top left of the shield.

**GOH JOY XINE**

A project paper submitted to the  
Faculty of Veterinary Medicine, Universiti Putra Malaysia

In partial fulfilment of the requirement for the  
**DEGREE OF DOCTOR OF VETERINARY MEDICINE**

Universiti Putra Malaysia  
Serdang, Selangor Darul Ehsan.

FEB 2018

## **CERTIFICATION**

It is hereby certified that I have read this project paper entitled “A retrospective analysis of acupuncture practice in dogs in selected veterinary clinics in Klang valley”, by Goh Joy Xine and in my 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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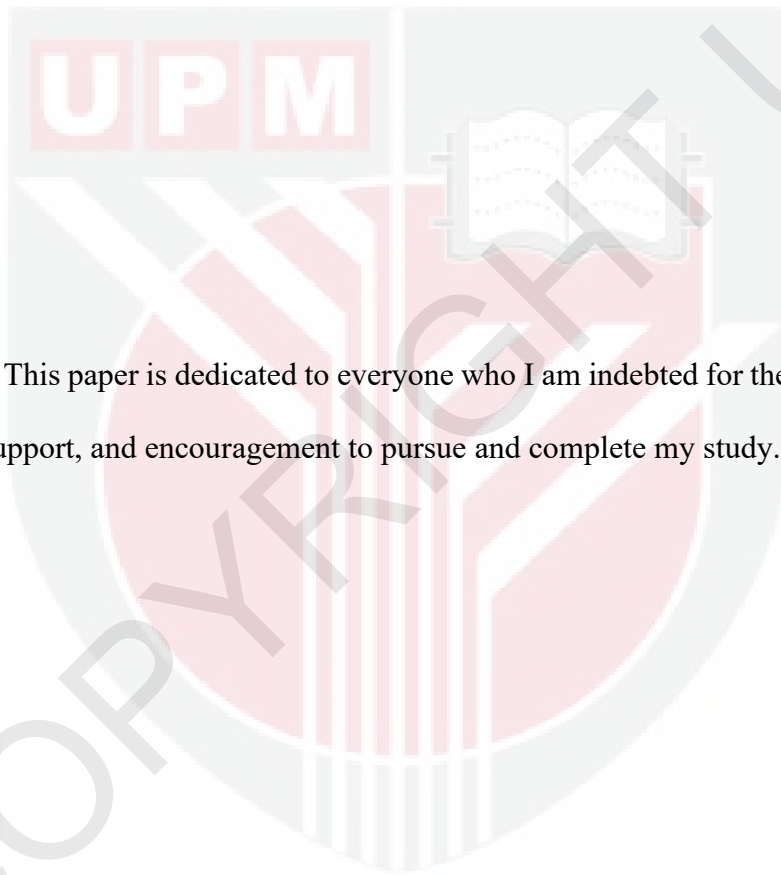
Faculty of Veterinary Medicine

Universiti Putra Malaysia

(Supervisor)

**DEDICATIONS**

This paper is dedicated to everyone who I am indebted for their unyielding love, support, and encouragement to pursue and complete my study.



## ACKNOWLEDGEMENTS

I am most grateful to my supervisor, Dr Intan Nur Fatiha Shafie whose generous guidance and advice made it possible for me to work on a topic that was of great interest to me. My deepest gratitude also extends to Dr Susanna and Dr Liu for providing me the precious opportunity and unlimited support during the course of this project. The knowledge which I have gained I will perceive as very valuable component in my study. Special thanks to Ms Shakira, Rose, and Eleni, for being so kind to assist me in my project and the completion of this project could not have been possible without the constant help from them. I am also hugely indebted to the companionship from fellow friends and I value our friendship more than words can express.

Last but not least, I adore my family, whose value to me only grows with age, for their loving care and encouragement.

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**LIST OF ABBREVIATIONS**

TCM Traditional Chinese Medicine

IVAS International Veterinary Acupuncture Society

IVDD Intervertebral disc disease

FCE Fibrocartilagenous Embolism



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## **ABSTRAK**

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

### **PENELITIAN RETROSPEKTIF AKUPUNKTUR DALAM ANJING DI KLINIK TERPILIH DI LEMBAH KLANG**

**Oleh**

**Goh Joy Xine**

**2018**

**Penyelia: Dr. Intan Nur Fatiha Shafie**

Akupunktur telah digunakan secara meluas sebagai adjuvan dalam konvensional perubatan veterinar. Oleh sebab kekurangan data mengenai akupunktur veterinary dalam anjing di Malaysia, kajian retrospektif telah dijalankan untuk mendokumenkan maklumat berkaitan dengan distribusi kes, kaedah akupunktur, rawatan serentak dengan akupunktur, hasil rawatan subjektif dan kesan sampingan dalam kalangan anjing yang menerima rawatan akupunktur. Rekod perubatan anjing yang menerima rawatan akupunktur dari dua klinik veterinar terpilih yang mempunyai pakar akupunktur bersijil di Lembah Klang dari

Januari hingga Disember 2017 telah dikaji. Data seperti maklumat pesakit, tanda-tanda sakit yang biasa, rawatan serentak, hasil rawatan dan kesan sampingan akupunktur telah dikumpul dan dianalisis dengan menggunakan cara statistic deskriptif.

Sebanyak 194 kes akupunktur dalam anjing telah direkodkan. Kebanyakan anjing yang menerima rawatan terdiri daripada kumpulan geriatri (71%). Baka anjing kecil merangkumi 49% daripada keseluruhan kes akupunktur. Penyakit yang paling biasa dirawat dengan akupunktur ialah masalah neurologi (40.9%) diikuti dengan masalah ortopedik (27.4%). Kebanyakan masalah neurologi ialah penyakit cakera intervertebral (IVDD) (56.3%) manakala kebanyakan masalah ortopedik ialah penyakit arthritis (46.3%).

Sebagai kesimpulan, kajian ini menggambarkan penggunaan akupunktur veterinar dalam anjing di Lembah Klang. Maklumat ini akan berguna apabila merancang kajian keberkesanan akupunktur pada masa akan datang.

Kata Kunci: akupunktur veterinary, anjing, ortopedik, neurologi

**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.

**A RETROSPECTIVE ANALYSIS OF ACUPUNCTURE PRACTICE IN  
DOGS IN SELECTED VETERINARY CLINICS IN KLANG VALLEY**

**By**

**Goh Joy Xine**

**2018**

**Supervisor: Dr. Intan Nur Fatiha Shafie**

Acupuncture has been widely used as an adjunct to conventional western veterinary medicine. Due to lacking of data on veterinary acupuncture in dogs in Malaysia, a retrospective study was carried out to document the distribution of acupuncture cases, acupuncture methods used, concurrent treatments with acupuncture, subjective outcomes and side effects in dogs treated with acupuncture. Medical records of dogs underwent acupuncture therapy at two selected veterinary clinics with the certified acupuncturists in Klang Valley from January to December 2017 were reviewed. Data on signalments, common presenting signs, concurrent

treatments, treatment outcomes, and side effects of acupuncture were retrieved and were summarised as descriptive statistics.

A total of 194 acupuncture cases in dogs had been recorded. Patients presented were mainly composed of the geriatric group (71%). Small breed dogs made up 49% of the overall acupuncture cases. The most common chief complaints presented were neurological problems (40.9%) followed by orthopaedic problems (27.4%), with intervertebral disc disease (IVDD) (56.3%) and arthritis (46.3%) being the predominant issues respectively.

In summary, this study visualized the use of veterinary acupuncture in dogs in Klang valley and the information will be useful for designing efficacy study in the future.

Keywords: veterinary acupuncture, dog, orthopaedic, neurological

## 1.0 INTRODUCTION

Acupuncture is one of the principal treatment in Traditional Chinese Medicine (TCM). For the purposes of this study, the term acupuncture is defined as the insertion of a solid needle into the body for therapy, maintenance of health, or prevention of disease (Acupuncture Regulatory Working Group, 2003). This needle is inserted at specific points on the body, which are known as acupoints or acupuncture points. In traditional Chinese medical theory, these points communicate with the internal organs by the way of meridian and its collateral. If an acupoint becomes tender, it may reflect pathophysiologic changes of a related organ which can be issued by applying acupuncture on that acupoint. The concept of interaction between acupoints and organs resembles the western medical concept of viscerosomatic and somatovisceral reflexes (Hwang & Egerbacher, 2001).

From a neurophysiologic point of view, the traditional acupuncture could be redefined in a number of mechanisms, mainly the neural mechanism and inflammation mechanism. For instance, stimulation of peripheral nerve evoking pain inhibitory system by needling at acupoints can produce an analgesic effect. Needling will also induce microtrauma, which stimulates local inflammation and vasoactive effect. The vasoactive effects of acupuncture can improve local tissue perfusion and heighten local tissue immune status (Steiss, 2001).

There are a few other techniques that often are subsumed under the term “acupuncture” such as dry needle acupuncture, electroacupuncture, laser acupuncture, or acupressure (Filshie & White, 1998). In this study, focus will be given mainly on dry needle acupuncture and electroacupuncture. Dry needle acupuncture is the application of solid needle alone at acupoints with no intentional introduction of haemorrhage (Rose, 2016). Electroacupuncture is the technique which the dry needles are connected to the electroacupuncture machine via the attachment of electrical leads to the needles at the acupoints. The frequency and amplitude of the electrical energy applied to the acupoints can be controlled using the machine and this will result in more effective stimulation if compared to dry-needle alone (Xie & Ortiz-Umpierre, 2006).

Acupuncture has been integrated into veterinary practice since 659 BCE. In 1974, with the formation of the International Veterinary Acupuncture Society (IVAS) that started to offer veterinary training and promote clinical uses of acupuncture, veterinary acupuncture has been receiving greater acceptance globally, resulting in increased research on the mechanism and efficacy of acupuncture in animals. A recent PubMed search using keyword “veterinary acupuncture” produced over 427 papers on veterinary acupuncture (PubMed, 2018), which provide evidence to validate the application of veterinary acupuncture and support the safety of acupuncture treatment (Xie & Wedemeyer, 2012).

Surprisingly, many animals can tolerate the acupuncture treatment remarkably well. This could be the result of the production of mood-altering neurotransmitters during and immediately after the treatment (Scott, 2001) which facilitates the relaxation response of the patients. Hence, the owners are more willing to visit the clinic for treatment as there is no indication of distress and their pets appear to make positive associations with their visit to the clinic (Lindley & Cummings, 2006). On the other hand, the relaxation response also aids in enhancing the responsiveness of the body to acupuncture treatment (Chang *et al.*, 2010). For that reason, it is important for practitioners to create a relaxing therapeutic environment for the patients.

To treat diseases with acupuncture, TCM diagnosis will first to be made followed by the selection of appropriate acupoints. The canine acupuncture atlas written by Hwang and Limehouse (2001) contains 136 acupoints that are listed according to the meridian numbering system together with information concerning the anatomical location, cutaneous nerve innervation of the points and therapeutic indications. Christman and Xie (2007) also reviewed transpositional acupoints in dogs with locations of useful skeletal landmarks to localize the acupoints. In each session of acupuncture treatment, the needle will be left for ten to twenty minutes. Weekly or a twice-weekly treatment usually will be carried out for the first four to six weeks (Scott, 2001).

Although there is a general impression on veterinary acupuncture are becoming increasingly popular, the up-to-date data regarding the patient population, presenting complaints, and therapeutic modalities of veterinary acupuncture practice in our local veterinary community have not been described. Therefore, a preliminary study is necessary to review the application of veterinary acupuncture and preparing database for future efficacy studies.

The objective of this study is:-

- 1) To document data on distribution of cases, acupuncture methods used, concurrent treatments with acupuncture, subjective outcomes and side effects in dogs underwent acupuncture therapy

## **2.0 LITERATURE REVIEW**

### **2.1 Application of Acupuncture for General Veterinary Practice**

The therapeutic value of veterinary acupuncture in treating a variety of clinical conditions in animals confirmed by the effort of numerous research and practitioners over the years has initiated the increasing interest of veterinarians to integrate acupuncture practice into their practice. By knowing the main indications which are responsive towards acupuncture treatment, it will help the clinicians in the decision making of applying acupuncture therapy on their patients.

According to Xie and Ortiz-Umpierre (2006), acupuncture treatment applied to three main areas: pain management, geriatric medicine, and sports medicine. Some examples of conditions indicated for acupuncture treatment include muscle soreness, soft tissue injuries, degenerative joint disease, hip dysplasia, chronic renal failure, chronic gastric disease, oncological diseases and congestive heart failure.

In addition, Chan *et al.* (2001) reported acupuncture was used for resuscitation of emergency cases as well as being combined with reduced doses of modern sedation to produce an analgesic effect in surgical operations. Acupuncture could also be used as the treatment of non-painful conditions include dermatological conditions, seizure, vomiting and behavioural problems (Lindley & Cummings, 2006).

The most common indication for the use of acupuncture is musculoskeletal conditions (Rose *et al.*, 2017) (Chan et al, 2001). Xie and Preast (2007) reported that out of so many musculoskeletal conditions, arthritis and intervertebral disc disease (IVDD) are the most responsive disorders.

## **2.2 Efficacy of Acupuncture in Dogs**

Scientific evidence of efficacy is one of the factors which veterinary clinicians will take into consideration before deciding an appropriate treatment option for their patients. This applies to the acceptance of acupuncture therapy into the profession of veterinary medicine.

The efficacy of acupuncture centres on the relief of chronic pain which associated with numerous diseases, especially the pain associated with musculoskeletal disorders. Acupuncture is found to be safe and effective to provide an analgesic effect in various species (Hackett *et al.*, 1997) (Kenney, 2011) (Fry *et al.*, 2014). The mechanism of pain relief by needling could be related to the complex neurohormonal effect (Steiss, 2001) (Kenney, 2011). A study conducted by Xie *et al.* (2005) provided scientifically-based evidence that sign of back pain in horses successfully resolved after three sessions of electroacupuncture treatment.

Previous research on efficacy of acupuncture treatment for neurological issues in small animal reported shorter recovery time from spinal cord injury (Habacher et al., 2006), improved reflexes and weight-bearing in the cases of sciatic nerve damage (Shin et al., 1995) and recovery from focal seizure within 7 days in dogs (Cho, 1992).

The effect of acupuncture in the treatment of wound can be proved by previous studies. A single-blinded, controlled pilot study performed by Saarto *et al.* (2010) reported oedema reduced significantly in the dogs submitted to soft tissue or/and orthopaedic surgeries while Frauenfelder (2008) reported the effectiveness of acupuncture in controlling excessive granulation tissue formation in horses.

An updated scoping and systematic reviews of the efficacy of veterinary acupuncture have identified numerous related published literature (Rose, 2016). However, the author could not draw any conclusion regarding the efficacy of acupuncture treatment on dogs due to the limitations of the existing body of evidence and high risk of bias.

### **3.0 MATERIALS AND METHODS**

#### **3.1 Site Selection**

A retrospective study was conducted based on database archive at two selected veterinary clinics with certified veterinary acupuncturists in Klang Valley as these clinics were mainly focusing on veterinary acupuncture practice. These clinics were also the most common referral clinics for veterinary acupuncture from University Veterinary Hospital (UVH), Universiti Putra Malaysia (UPM).

#### **3.2 Case Selection**

Canine patients presented for veterinary acupuncture treatment with their first visit between January to December of 2017 were included in this study. Cases presented with non-specific problems or with lack of essential information were excluded as those cases could not be classified into any categories.

#### **3.3 Data Collection**

Medical records were used as primary source of data. Data recorded included patient signalments, common presenting signs, acupuncture techniques, concurrent treatment, subjective treatment outcome and lastly side effects.

### 3.4 Data Analysis

Collected data were tabulated using Microsoft Excel software and was summarized using descriptive analysis. Bar graphs and pie charts were plotted to demonstrate the findings.



## 4.0 RESULTS

### 4.1 Case Distribution

#### *Total Number of Acupuncture Cases*

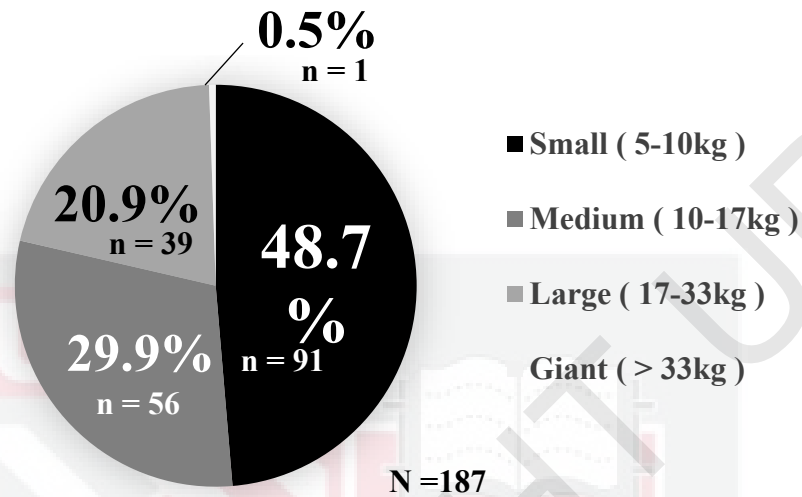
A total of 194 dogs were admitted to the selected clinics for acupuncture treatment with their first visit fell within January to December of 2017.

#### *Age Group Distribution*

Age Group*	Frequency	Percentage (%)
Puppy (< 2 years old)	18	9
Adult (2-5 years old)	37	20
Senior (> 5 years old )	134	71
Total	189	100

**Table 1.0** Age group distribution for canine acupuncture cases

In this study, the age of dogs at presentation was with a range from 3 months to 18 years old with a mode of 14 years. Majority of the patients came for acupuncture treatment were from the senior group aged at 5 years and above (71%), followed by the adult (20%) and the least were the puppy (9%).

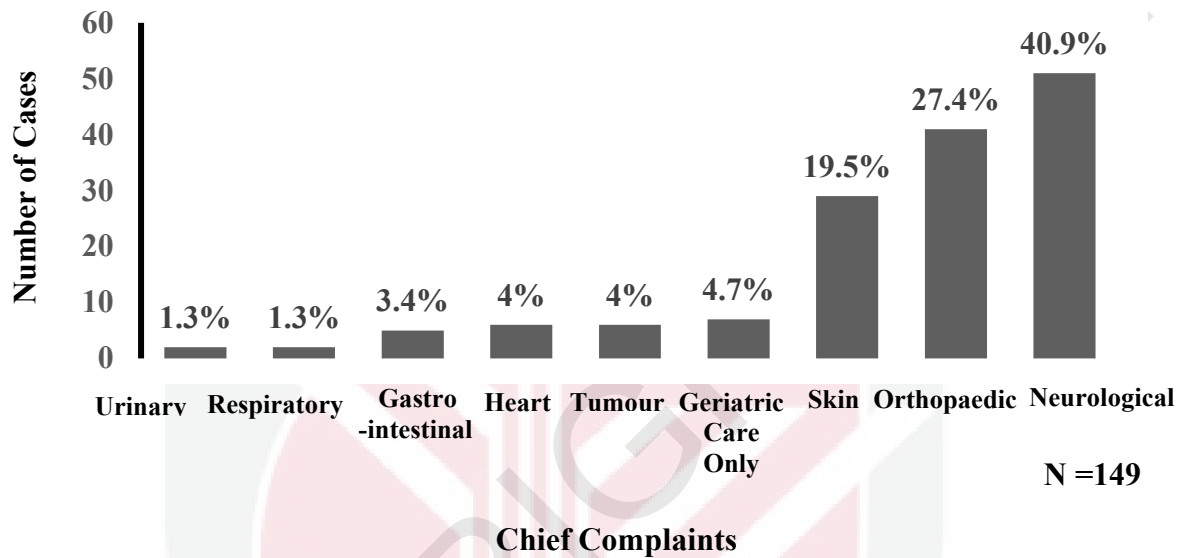
**Breed Distribution****Figure 1.0** Size categories of canine acupuncture cases

Breed	Frequency	Breed	Frequency
<b><u>Small</u></b>		<b><u>Large Breed</u></b>	
Toy Poodle	28	Golden Retriever	6
Silky Terrier	4	GSD	4
Pekingese	3	Dalmatian	2
Shih Tzu	26	Husky	5
Pug	2	Doberman	3
Pomeranian	6	Labrador	10
CK Charles Spaniel	2	Boxer	1
Maltese	2	Mastiff	2
Miniature Schnauzer	6	Rottweiler	2
Dachshund	2	Rhodesian Ridgeback	1
Chihuahua	4	Chowchow	1
Yorkshire	1	Rough Collie	1
Miniature Pincher	1	Hungarian Vizsla	1
Jack Russel Terrier	3		
Maltese	1		
<b><u>Medium</u></b>		<b><u>Giant Breed</u></b>	
Corgi	4	Great Dane	1
French Bull dog	1		
Shiba Inu	6		
Beagle	3		
Cocker Spaniel	3		
Basset Hound	1		
Mongrel	9		
Crossed	29		

**Table 2.0** Breed distribution of canine acupuncture cases

Figure 1.0 displays the classification of dog breeds according to body weight in canine acupuncture cases. Thirty-seven breeds of dogs were recorded. The distribution of breeds based on size group from greatest to least was as follow: small breed (48.7%), medium breed (29.9%), large breed (20.9%) and giant breed (0.5%). The cases were predominated by small breed dogs (n=91), of which, toy poodle (n=28) had the highest count.

### *Chief Complaints for Acupuncture Treatment in Dogs*



**Figure 2.0 Chief complaints of canine acupuncture cases**

From this bar chart, the most common chief complaints being presented for canine acupuncture cases in our study include neurological problems (n=51), followed by orthopaedic problems (n=41), skin problems (n=29), geriatric care only (n=7), tumour (n=6), heart problems (n=6), gastrointestinal problems (n=5), respiratory problems (n=2) and urinary problems (n=2).

### Neurological Problems

Chief Complaints	Frequency	Age Group		
Neurological Problems		Puppy	Adult	Senior
Intervertebral Disc Disease (IVDD)	29 (56.9%)	1	3	25
Trauma	9 (17.6%)	2	3	4
Seizure	4 (7.8%)	1	0	3
Vestibular syndrome	3 (5.9%)	0	2	1
Spine deformity	2 (4%)	0	0	2
Lumbosacral stenosis	1 (2%)	0	0	1
Vertebral luxation	1 (2%)	1	0	0
Acute disc protrusion	1 (2%)	0	1	0
Fibrocartilaginous Embolism (FCE)	1 (2%)	0	1	0
<b>Total</b>	<b>51</b>	<b>5</b>	<b>10</b>	<b>36</b>

**Table 3.0 Neurological problems presented for acupuncture in dogs**

Specifically, 56.9% of the patients (n=29) presented with neurological problems were being tentatively diagnosed with IVDD. Of these, majority was from senior group (n=25).

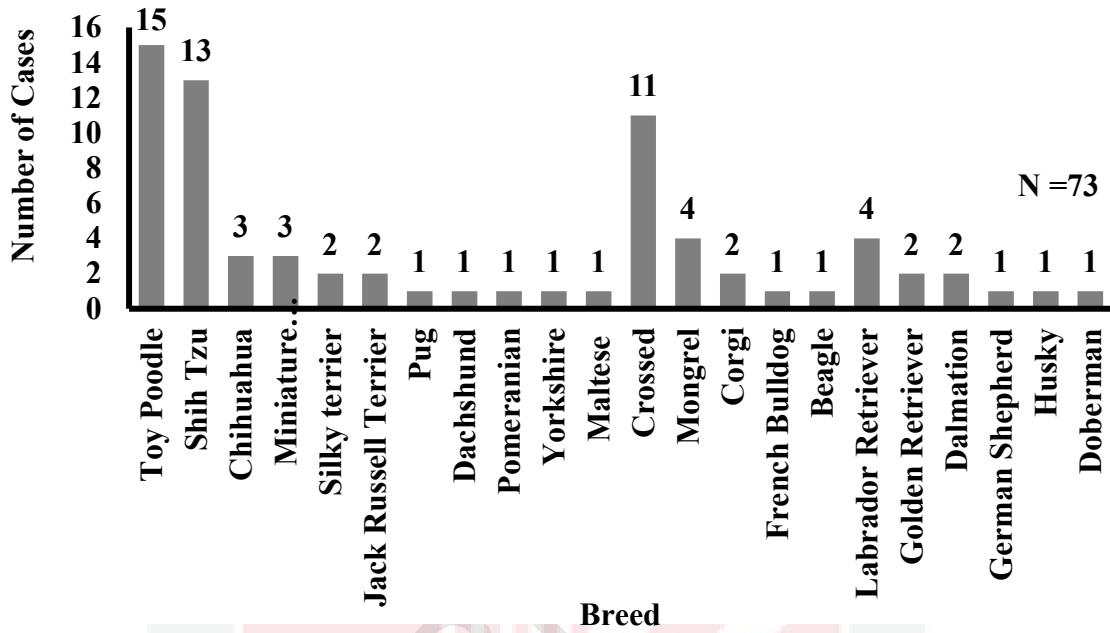


Figure 3.0 Breed distribution of patients with neurological problems

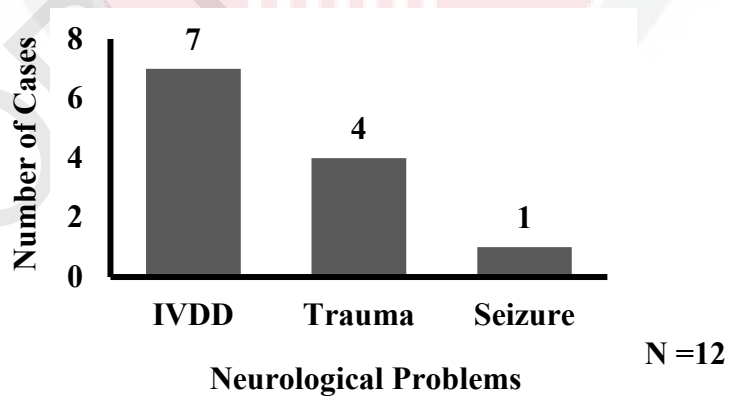
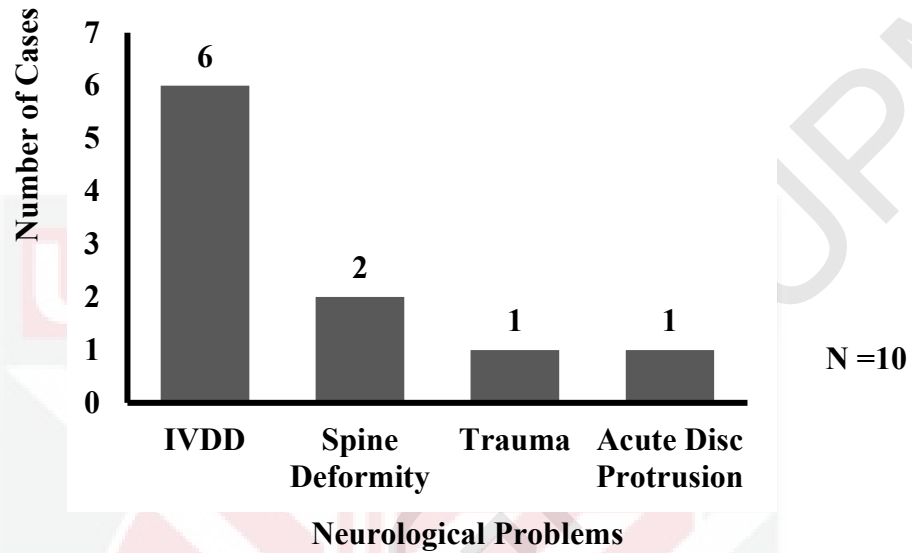


Figure 4.0 Neurological problems in Toy Poodle



**Figure 5.0 Neurological problems in Shih Tzu**

Among the canine patients presented for neurological problems, toy poodle and Shih Tzu were over-represented with the percentage of 20.5 % (n=15) and 17.8% (n=13) of the patient population, respectively. Both breeds were presented mainly due to IVDD.

### Orthopaedic Problems

Chief Complaints	Frequency	Age Group		
Orthopaedic Problems		Puppy	Adult	Senior
<b>Orthopaedic Problems</b>				
Arthritis*	19 (46.3%)	0	2	17
Hip dysplasia	13 (31.7%)	1	0	12
Patella luxation	9 (22%)	1	3	5
<b>Total</b>	41	2	5	34

Table 4.0 Orthopaedic problems presented for acupuncture in dogs

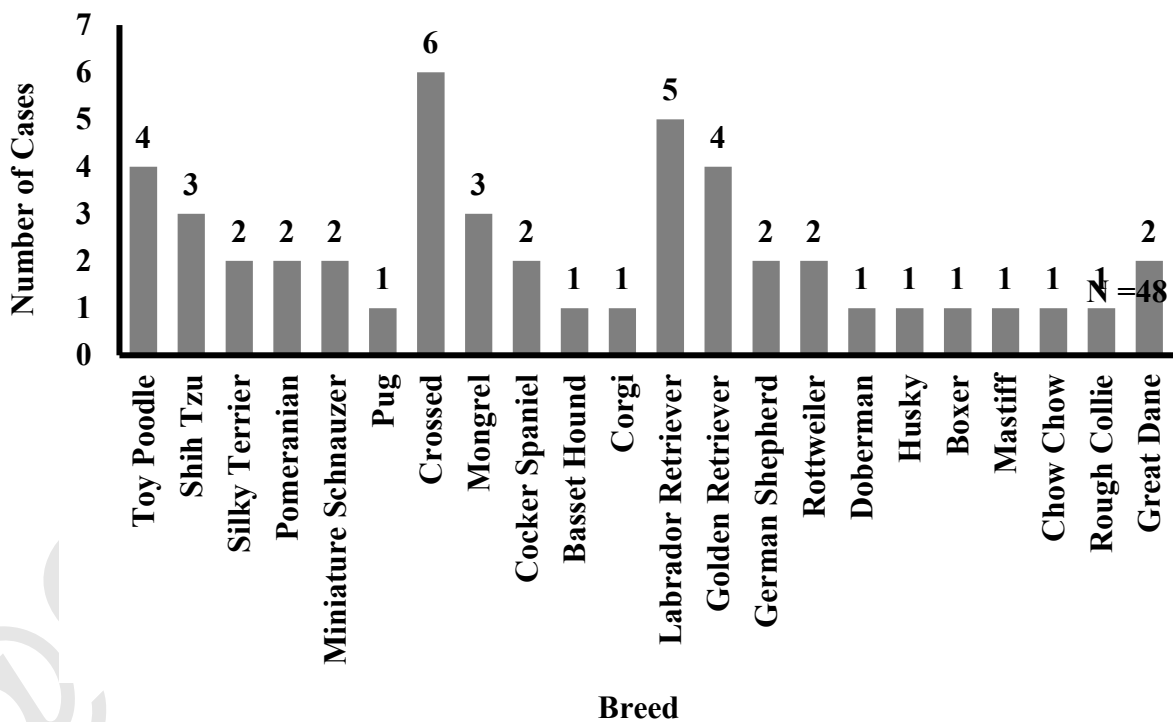
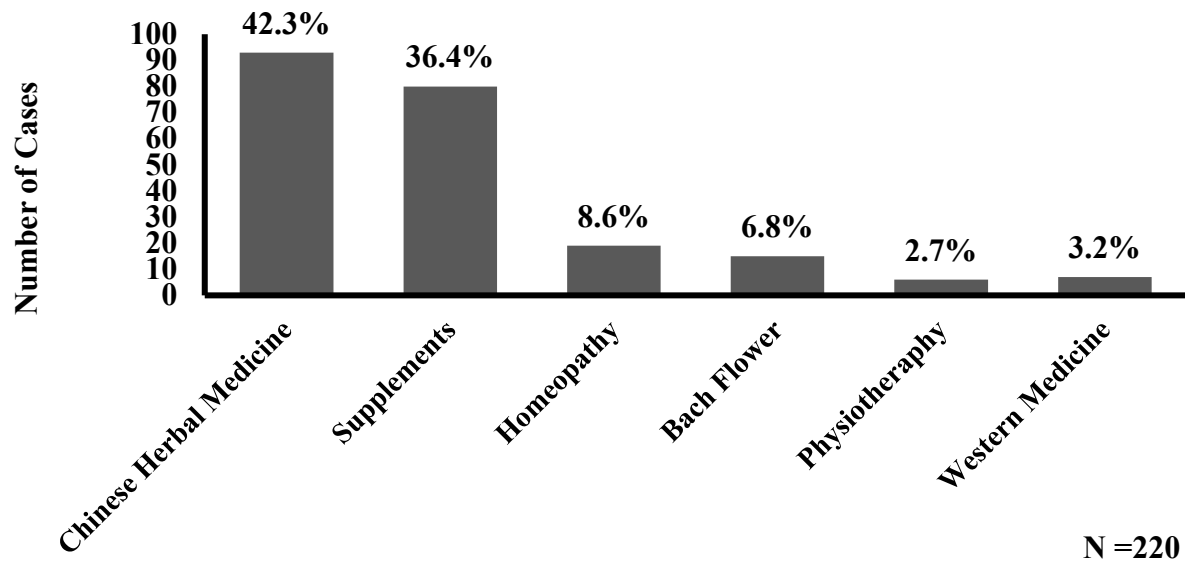


Figure 6.0 Breed distribution of patients with orthopaedic problems

Table 4.0 reveals that nearly half (46.3%) of the patients with orthopaedic problems had arthritis and majority of them came from senior group (n=17). From Figure 6.0, 12.5% (n=6) of the patient presented for orthopaedic problems were crossed breed followed by Labrador retriever which made up of 10.4% (n=5).



#### 4.2 Concurrent Treatment with Veterinary Acupuncture

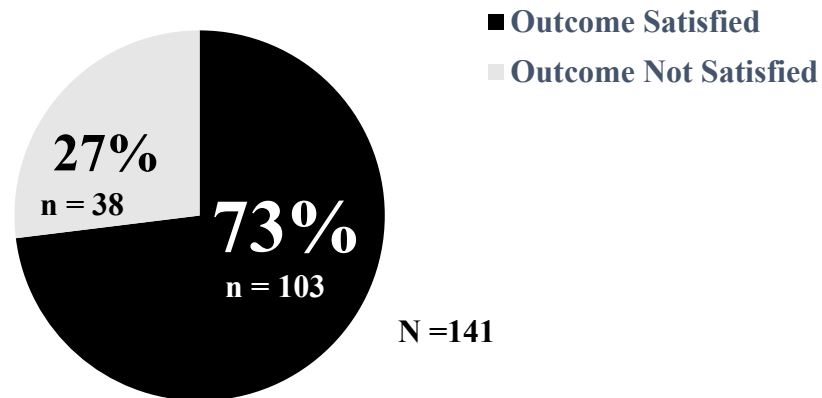


#### Concurrent Treatment

**Figure 7.0** Concurrent treatment with veterinary acupuncture

Among the concurrent therapies recorded in our study, the application of Chinese herbal medicine accounted for 42.3% (n=93). The other modalities being used concurrently with veterinary acupuncture include supplements (n=80), homeopathy (n=19), Bach Flower Remedy (n=15), physiotherapy (n=6) and Western medicine (n=7).

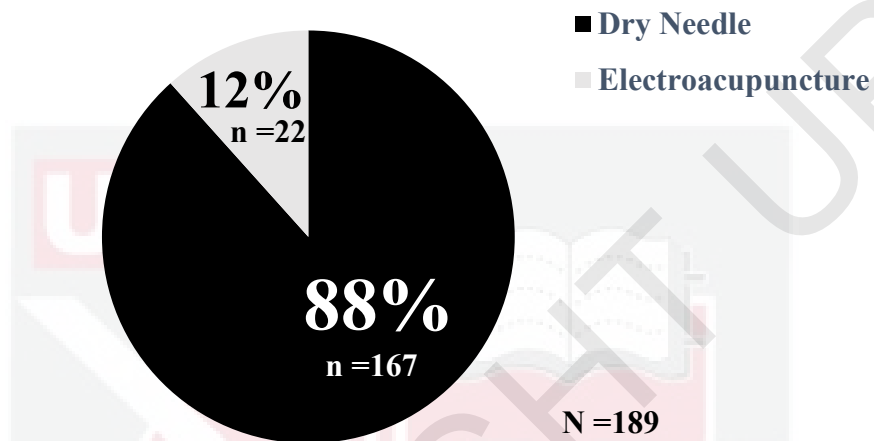
### 4.3 Subjective Treatment Outcome



**Figure 8.0 Subjective treatment outcome of acupuncture treatment**

Out of 141 cases, 73% of the clients was satisfied with the outcome of acupuncture treatment on their pets.

#### 4.4 Acupuncture Techniques Used



**Figure 9.0** Acupuncture techniques used in dogs

The present data demonstrates that dry needle technique (88%) was used more frequently compared to electroacupuncture (12%) in dogs presented for acupuncture treatment.

#### 4.5 Side Effects of Veterinary Acupuncture

There was no written side effects reported. However, based on personal communication, after treatment the patients usually will have better sleep and more urination.

## 5.0 DISCUSSION

The principal objective of this study was to document data on canine acupuncture cases in two selected veterinary clinics in Klang valley. Based on medical records of canine patients with their first visit in 2017, the recorded patient population was 194 dogs, showing there is a client demand for veterinary acupuncture service in our local community.

The findings of this study suggested geriatric patients (71%) were the most frequent age group attended for acupuncture treatment. After the dogs have entered their geriatric stage, they suffer from a wide range of aging-associated chronic diseases which will hinder their Quality of life (QoL). Xie (2010) listed the acupoints used for supporting patients with numerous geriatric conditions such as osteoarthritis, IVDD, congestive heart failure and other chronic diseases. Osteoarthritis, for instance, more than 50% of the cases were observed in dogs aged between 8 to 13 years (Mele, 2013). Conventional interventions specifically surgical operation in geriatric patient carry a great risk due to greater anaesthetic risk as reported in a prospective cohort study of perianaesthetic mortality in dogs by Hosgood and Scholl (1998). Deterioration of organ function in geriatric dogs can also be devastating because decreased glomerular filtration rates as well as reduced metabolic capacity can result in longer xenobiotic half-lives (Beasley, 1999). Thus, there is projected to be a corresponding increase in demand among pet owners for a safe, natural and effective alternative treatment for their pets.

Acupuncture is one of their choice as the general public perception of acupuncture is that the effect of acupuncture is natural (Lindley & Cummings, 2006).

The present data demonstrated that main applications of acupuncture in dogs were for neurological conditions followed by orthopaedic problems. It could be hypothesized that this is because the treatment effects of acupuncture for neurological and orthopaedic problems are more responsive compared to other issues, hence acupuncture is more commonly recommended.

In this study, small breed dogs such as toy poodle and Shih Tzu were more likely to be treated for a primary neurologic condition, of which, IVDD was the main presenting complaints. Conversely, medium-sized dogs and large breed dogs were more likely to present with an orthopaedic issue especially arthritis. These findings were similar to the findings by Shmalberg and Memon (2015), which retrospectively reported neurologic patients were significantly more likely to receive acupuncture and electroacupuncture as compared to orthopaedic patients.

IVDD Hansen Type I occur exclusively in small chondrodystrophic breeds and both toy poodle as well as Shih Tzu are classified under chondrodystrophic breed (Bergknut, 2010). This explained the high frequency of toy poodle and Shih Tzu with IVDD being presented for acupuncture treatment in our study. Brown *et al.* (2017) cited chondrodystrophic breed with the highest risk was dachshund (20-62%). In our study, it can be postulated that dachshund population in our study area is lesser compared to toy poodle and Shih Tzu.

A number of retrospective studies reported positive outcome of electroacupuncture treatment in dogs with IVDD (Han *et al.*, 2010) (Joaquim *et al.*,

2010). In addition, a prospective controlled study conducted by Hayashi *et al.* (2007) described the improvement showed by treatment group as shorter recovery time for ambulation and deep pain perception in dogs with thoracolumbar IVDD. Pain relief was also observed in affected dogs (Still, 1989). Hence, acupuncture is a reasonable option for the treatment of IVDD in combination with conventional veterinary medicine.

In our study, 46.3% of dogs with orthopaedic issues had the problem of arthritis. There are a few types of arthritis, including osteoarthritis and rheumatoid arthritis. The type of arthritis was not recorded in this study. However, Bland (2015) reported osteoarthritis had higher prevalence in dogs if compared to rheumatoid arthritis. Osteoarthritis is a chronic degenerative inflammatory disease which is more commonly being known as degenerative joint disease. Predictably, dogs with larger size are more predisposed with orthopaedic problem. The predisposition of large breed dogs such as Labrador retriever to osteoarthritis was reported in a number of studies (Mele, 2013) (Bland, 2015). Chronic pain and stiffness caused by osteoarthritis can be treated effectively by acupuncture. Janssens (1989) reported hips, shoulder and knee joints responded better than the other joints from his study on acupuncture treatment of chronic osteoarthritis in dogs.

Among the 6 treatment being used concurrently with acupuncture, Chinese herbal medicine had the highest tendency and was being practiced in both clinics. Both acupuncture and Chinese herbal medicine are one of the principal modalities in TCM. The concurrent utility of two or more treatment can produce a more synergistic effect and improve treatment response vastly (Yamate, 2009). The

detailed usage and pharmacology of herbal medicine formulas were being featured in a book entitled Chinese Herbal Formulas for Veterinarians written by Chen *et al.* As the selection of herbs were based on TCM diagnosis performed by practitioners and it varies among individuals, our study did not describe the formula used for each case in detail. In a case report presented by Hayashi *et al.* (2007), the Chinese herbs chosen for the treatment of cervical IVDD in a dog were to enhance kidney and liver energy, help Qi circulation and alleviate pain.

Dry needle technique was more commonly used in our study and this finding was consistent with the previous report (Xie & Ortiz-Umpierre, 2006). However, the selection of modalities varies between practitioners. Electroacupuncture usually will be applied to a patient which was less active and able to comply with the attachment of the electrical wire to their body.

From the record, 73% of the cases were with a satisfying outcome, conveying a very positive message that most of the clients were satisfied with the treatment outcome. This will definitely encourage the practice of acupuncture in our local veterinary community. However, there was also limitation due to the subjective nature of the records. In order to evaluate the efficacy of veterinary acupuncture, evidence-based objective outcome measures should be established. Differences between treatment sessions for each primary complaint were not evaluated in this study as difficulties were encountered in case selection. Most of the cases had very irregular treatment period which was highly depending on owner compliance for attending regular treatment.

Acupuncture could be perceived to be a safe technique. In our study, there was no written record on the side effects reported by clients or practitioners. Patients usually would have better sleep and more urination following acupuncture (Santhiram-Hofherr, Personal Communication, 2018). Lindley and Cummings (2006) described some animals slept for extended periods of time but it would usually indicate a positive response of the therapy which could delight owners as it indicated that something 'real' has happened. According to Scott (2001), there were no reports of cathartic reactions of acupuncture treatment in animals. Potential safety problems such as bleeding, septicaemia, and pneumothorax have been reported in human medicine (Chung *et al.*, 2003) but not in veterinary species. However, responsible practitioners should be aware of the potential adverse effects.

## 6.0 CONCLUSION

Study findings could be useful for researchers as a foundation to conduct further prospective evaluations of veterinary acupuncture. Our study have concluded that there were in total 194 acupuncture cases in dogs from selected clinics in Klang Valley from January to December 2017. Geriatric small breed dogs with neurological diseases were more commonly to be presented for acupuncture treatment followed by patients with orthopaedic issues. The data suggests that these patients could be serve as the target sample population for future study.

## 7.0 LIMITATIONS AND RECOMMENDATIONS

Due to time constraints, our study focused only on cases with first visits fell between January to December 2017. Collection of additional data from different years will be beneficial before a comparative conclusion can be made to identify whether there is an increasing client demand for veterinary acupuncture.

Furthermore, only 29% (n=53) out of the patient population (N=181) were presented with a tentative or confirmative diagnosis due to the large number of geriatric patients which owners have concerned that their pets pose a high anaesthetic risk for diagnostic procedures such as X-rays, computerised tomography (CT) scan and magnetic resonance imaging (MRI). Apart from that, not all patients underwent the same diagnostic procedure. This limitation will be the greatest challenge for conducting a prospective evaluation.

Lastly, due to the retrospective nature of this study, the main limitation was the missing of data due to lack of referral documentation. Therefore, it was not possible for us to collect all desired data for every case. The culture of preparing proper documentation for the clients should be encouraged in our local veterinary community as it will not only benefit the data collection for future study but also enable both clients and other veterinarians to trace back the type of treatment and diagnostic procedure that had been done on the patients. This could help in planning for further diagnosis and treatment as well as to prevent medical issues such as antibiotic resistance. Consequently, this culture will definitely benefit the whole industry.

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