

## Evaluation on Shelter Medicine and Stray Animal Shelters in Turkey <sup>[1][2]</sup>

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### Abstract

In Turkey, the institutions established to serve the purpose of sheltering and rehabilitating abandoned, weakened and stray animals are known as an animal shelter, rehabilitation centre or a (temporary) animal sanctuary. In this study, we aim to explore the general structure of the care and treatment services provided in shelters in Turkey which host stray animals and to take the veterinarians' opinions on veterinary care, who work in these shelters. Twenty-eight shelters from 28 provinces, with four cities from seven regions of Turkey, were included in this study. Data was collected through the survey form (personnel status, physical condition, routine practices, duties and authorities of the personnel and functioning of the institution) prepared as a result of the legislation texts and literature reviews. In addition, 67 veterinarians working in these institutions were interviewed face to face to determine attitudes about shelter practice and their opinions and recommendations were obtained. It is identified that the number of shelter staff is generally insufficient. Routine care includes vaccination, spaying, marking with microchip/ear tag, registration and adopting etc. It is determined that there are differences between regions in terms of giving specialization training for medicine in shelters (P=0.031). In addition, almost all veterinarians reported that a veterinarian should be conscientious and patient (95.5%). There are many reasons behind the problem of stray animals in Turkey and veterinarians have critical roles to play on behalf of the solution to this problem. For solutions to the problems, proposals include providing cooperation between the institutions and sharing responsibilities; increasing the staff recruitment of veterinary and auxiliary staff; ensuring information and raising the awareness of veterinarians and assistants by training and courses; increasing the number and opportunities of shelters.

**Keywords:** Animal shelter, Shelter medicine, Stray animal, Street animal

## Türkiye'de Sahipsiz Hayvan Barınakları ve Barınak Hekimliği Üzerine Bir Değerlendirme

### Öz

Türkiye'de sahipsiz, güçten düşmüş, terk edilmiş hayvanların barındırılması ve rehabilitasyonu için kurulan ve bu amaçla hizmet veren kurumlar, hayvan barınağı, rehabilitasyon merkezi ya da (geçici) bakımevi olarak adlandırılmaktadır. Çalışmada, Türkiye'de sahipsiz hayvanların barındırıldığı, bakım ve tedavilerinin yapıldığı hayvan barınaklarında verilen hizmetlerin genel yapısı ve bu barınaklarda görev yapan veteriner hekimlerin barınak hekimliği konusundaki görüşlerinin araştırılması amaçlandı. Türkiye'nin yedi bölgesinde, her bölgeden dört il olmak üzere 28 ilde toplam 28 hayvan barınağı, çalışmanın kapsamına alındı. Konu ile ilgili mevzuat metinleri ve literatür taramaları sonucu hazırlanan veri formu (personel durumu, fiziki durum, rutin uygulamalar, personelin görev ve yetkileri ile kurum işleyişi) aracılığıyla veri toplandı. Ayrıca bu kurumlarda görev yapan 67 veteriner hekimle yüz yüze görüşme yöntemi ile barınak hekimliği konusundaki tutumları belirlenerek, görüş ve önerileri alındı. Barınaklarda personel sayısının genelde yetersiz olduğu; rutin yapılan uygulamaların aşılama, kısırlaştırma, mikroçip/kulak küpesi ile işaretleme, kayıt ve sahiplendirme vb şeklinde olduğu belirlendi. Barınak hekimliğine ilişkin uzmanlık eğitiminin verilmesi konusunda bölgelere göre farklılık olduğu (P=0.031) saptandı. Ayrıca barınak hekimlerinin tamamına yakını (%95.5), veteriner hekimin vicdanlı ve sabırlı olması gerektiğini bildirmişlerdir. Türkiye'de sahipsiz hayvan sorununun arkasında birçok neden yatmakta olup bu sorunun çözümü adına veteriner hekimler oldukça kritik bir role sahiptir. Sorunun çözümü için, kurumlar arasında işbirliğinin sağlanması ve sorumlulukların paylaşılması; veteriner hekim ve yardımcı personel istihdamının artırılması; veteriner hekim ve yardımcı personelin eğitim ve kurslarla bilgilendirme ve bilinçlendirilmesinin sağlanmasının yanı sıra barınak sayısı ve imkânlarının artırılması gerektiği söylenebilir.

**Anahtar sözcükler:** Hayvan barınağı, Barınak hekimliği, Sahipsiz hayvan, Sokak hayvanları



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## INTRODUCTION

Nowadays, stray animals have become an important and a current issue among municipalities and the people in terms of modern urbanism <sup>[1,2]</sup>.

Dodurga <sup>[3]</sup> defines the concept of street animal as stray animals, who live on the street and/or were born on the street or abandoned by their previous owners. The World Organisation for Animal Health (OIE) has a dog-centric definition for stray animals in three ways: 1) free-range animal that is not under control for a certain time; 2) free-range animal that does not have an owner; 3) the animal which is domestic and abandoned to the wild, returned to wild life and cannot be produced directly for humans <sup>[4]</sup>.

Legal regulations regarding stray animals vary by country. It is reported that the European Union does not have a legal draft nor principles on the subject, and there is no exemplary state in the member countries, and each country takes appropriate measures according to its own conditions <sup>[4]</sup>.

As a result of the efforts made for years in order to shelter and rehabilitate abandoned, weakened and stray animals in Turkey, Animal Protection Law No. 5199 entered into force in 2004<sup>1</sup>. The animal care facility/shelter, which refers to a facility where animals will be rehabilitated, which is also stated in the fourth article of the same law as *"It is essential that local governments establish shelter and hospitals in order to protect weakened and stray animals in cooperation with voluntary organizations to provide their care and treatment and to conduct training activities."* has been assigned to the responsibility of municipalities in accordance with the provisions of the law <sup>[5]</sup>.

In this study, our aim is to explore the general structure of care and treatment services provided in shelters in Turkey which host stray animals and to take the veterinarians' opinions on veterinary care, who work in these shelters.

<sup>1</sup> Animal Protection Law, No. 5199, Official Gazette no. 25509 of 01.07.2004.

## MATERIAL and METHODS

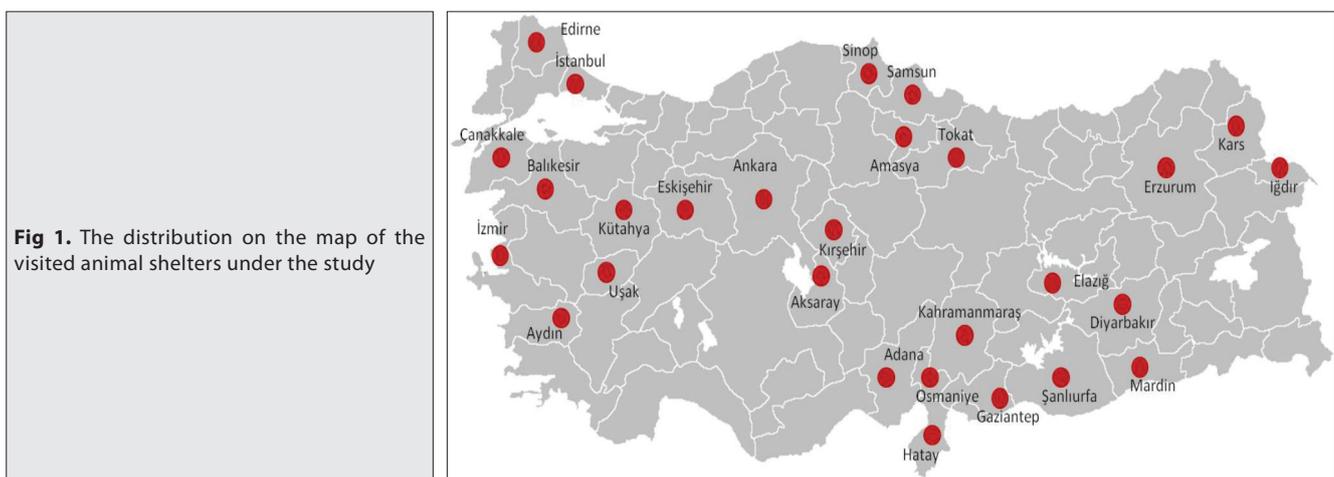
In 2015, 200 municipal and private animal shelters available in Turkey according to data of the Ministry of Agriculture and Forestry (then known as the Ministry of Forestry and Water Affairs) have created the target population of the study. A total of 28 provinces (all of municipal animal shelters), each four taken from seven regions of Turkey, were included into this study (Fig. 1). In determining the provinces, criteria such as the existence of a veterinary faculty and whether it is metropolitan or not are taken into consideration.

Data was collected through the survey form (personnel status, physical condition, routine practices, duties and authorities of the personnel and functioning of the institution) prepared as a result of the legislation texts and literature reviews. One on one interviews (face-to-face) with the shelter' management, which are determined within the study, were conducted. In addition, by face-to-face interview method <sup>[6]</sup> and conducting a poll with 67 veterinarians about shelter practice and medicine, their attitudes were determined and their opinions and recommendations were obtained.

The statistics packaged software SPSS 25 (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) was used to evaluate the data of the poll. Median (IQR), percentage and frequency values of the variables were used. Categorical data was analysed by Fisher's Exact Test, Mann-whitney U and Chi-Square Test. In cases where the expected frequencies are less than 20%, *"Monte Carlo Simulation Method"* was used to include these frequencies into the analysis. For the significance level of the tests,  $P < 0.05$  and  $P < 0.01$  were accepted.

## RESULTS

According to data received from the Ministry of Agriculture and Forestry during the study's data collection period (July 2015-June 2016), it was determined that there are 200 animal shelters in Turkey and the animal capacity in these



shelters are 65.000. As a result of the records made on the Wild Life Information System (YABİS) dated January 1, 2015, the total capacity of the shelters was determined to be 82.287. It was determined that the total capacity of the 28 animal shelters in the study was 15.760 and 9.056 stray animals (cats, dogs, poultry and wild animals) were taken care of in these shelters (Table 1). A total of 80 veterinarians working under permanent, covenanted or by tender model (subcontracted) were confirmed in these 28 shelters.

The stalls are generally in the form of panel fencing, reinforced concrete and/or sheet metal in the shelters, and all of the shelters observed in the study were determined to have open spaces and huts in these areas. In the evaluation of the required areas in accordance with the legislation<sup>2</sup> which should be located in shelters, it is presented in Table 2 whether they have an Administrative Section, Operation-Examination Room, Quarantine Room, Cemetery, Pension, Aquarium, Cage, Training Room or not.

<sup>2</sup> Regulation on The Protection of Animals. Official Gazette no. 26166 of 12.05.2006.

Routine practices in shelters were determined as follows.

1. Neutering/Spaying
2. Vaccination (rabies, mixed vaccine, *Bordetella*, *Echinococcus granulosus*)
3. Antiparasitic control (endo- and ecto-parasitic control)
4. Treatment
5. Adopton by contract
6. Disinfection
7. Identification (earring, microchip, collaring)
8. Procedures to the dead animals (proper embedding, calcined burial)

Some socio-demographic characteristics of the veterinarians participated into the study are presented in Table 3.

It was determined that the veterinarians interviewed in shelters, also provided services in the below stated work/duty area(s).

- Manager/Management
- Animal adaptation and control

**Table 1.** Frequency values of animals in animal care centres

Regions	Province	Animal Number/Species							Capacity
		Dogs		Cats		Poultry	Wild	Total	
		M	F	M	F				
Mediterranean	Adana	500	500	50	50	-	-	1100	2000
	Hatay - Antakya	120	170	7	8	4	4	403	500
	Kahramanmaraş	150	100	42	38	-	-	330	250
	Osmaniye	1	5	-	10	-	-	16	650
Eastern Anatolia	Elazığ*	-	-	-	-	-	-	-	-
	Erzurum	120	129	12	10	-	-	271	350
	Iğdır	-	-	-	-	-	-	-	-
	Kars	180	40	-	1	-	-	221	250
Aegean	Aydın - Söke	90	90	-	-	-	-	180	300
	İzmir - Karşıyaka	200	500	40	60	100	-	900	800
	Kütahya	131	93	4	11	-	-	243	350
	Uşak	50	100	20	20	-	-	190	200
Southeastern Anatolia	Diyarbakır	200	330	30	23	-	-	583	750
	Gaziantep	200	250	5	-	-	-	455	600
	Mardin	100	150	30	30	-	20	290	250
	Şanlıurfa	100	100	5	3	-	-	208	250
Central Anatolia	Aksaray	15	30	-	-	-	-	45	150
	Ankara - Merkez	510	518	3	3	-	-	1037	2500
	Eskişehir	40	60	-	-	-	-	100	200
	Kırşehir	30	40	-	-	-	-	70	150
Black Sea	Amasya	75	175	-	-	-	-	250	250
	Samsun	150	200	70	80	-	-	500	3000
	Sinop	90	230	4	16	-	-	341	600
	Tokat	58	57	-	-	-	-	145	150
Marmara	Balıkesir	150	175	10	15	-	1	350	350
	Çanakkale	5	20	-	-	-	-	25	250
	Edirne	6	7	-	-	-	-	13	60
	İstanbul	350	200	55	40	-	-	645	600
<b>Total</b>								<b>9.056</b>	<b>15.760</b>

\* It is stated that during the data collection period, the shelter belonging to the Elazığ municipality was under construction and a couple of animals (dogs) that were rehabilitated in a shelter which is near the clinics of Veterinary Faculty, were observed. The shelter is currently active. M: Male, F: Female

**Table 2.** Some data on the physical properties of animal shelters

Regions	Province	Sections of Shelter								
		Management	Operation Practice	Quarantine	Cemetery	Hostel	Aquarium	Cage	Training	Production
Mediterranean	Adana	+	+	+	+	-	-	-	-	-
	Hatay-Antakya	+	+	+	+	-	-	+	-	-
	Kahramanmaraş	+	+	+	-	+	-	-	-	-
	Osmaniye	+	+	+	+	-	-	-	-	-
Eastern Anatolia	Elazığ	-	-	-	-	-	-	-	-	-
	Erzurum	+	+	+	-	-	-	+	-	-
	İğdır	-	+	-	+	-	-	-	-	-
	Kars	+	+	+	-	-	-	-	-	-
Aegean	Aydın - Söke	+	+	+	-	-	-	+	-	-
	İzmir - Karşıyaka	+	+	+	-	-	-	+	-	-
	Kütahya	+	+	+	-	-	-	+	-	-
	Uşak	+	+	+	+	-	-	-	-	-
Southeastern Anatolia	Diyarbakır	+	+	+	-	-	-	-	-	-
	Gaziantep	+	+	+	+	-	-	-	-	-
	Mardin	+	+	+	+	-	-	-	-	-
	Şanlıurfa	+	+	+	+	-	-	-	-	-
Central Anatolia	Aksaray	+	+	+	-	-	-	-	-	-
	Ankara	+	+	+	+	+	-	-	-	-
	Eskişehir	+	+	+	-	-	-	-	-	-
	Kırşehir	+	+	+	-	-	-	-	-	-
Black Sea	Amasya	-	+	-	-	-	-	-	-	-
	Samsun	+	+	+	+	-	-	-	-	-
	Sinop	+	+	+	+	-	-	-	-	-
	Tokat	+	+	+	+	-	-	-	-	-
Marmara	Balıkesir	+	+	+	+	-	-	+	-	-
	Çanakkale	+	+	+	+	-	-	-	-	-
	Edirne	+	+	+	-	-	-	-	-	-
	İstanbul	+	+	+	-	-	-	-	+	-

- Routine animal health services
- Registration system, follow-up
- Administrative procedures (paperwork, correspondence)

Participants stated that they were tasked with other works of the municipality such as food control, spraying, etc. in addition to above services.

The problems reported as a result of the interviews with the participants are given below under the headings of animal(s), shelter, volunteer-media and society, education-faculty.

#### Problem Related to Animals;

- Excessive number of animals (difficulty in population control)
- Insufficiency of prophylactic (preventive and protective) medicine
- Patients' coming as late cases
- Lack of information about incoming (stray) animals
- Insufficiency of treatment options in response to disease

#### diversity

- Dropping of earrings in time

#### Problems Related to Shelters;

- Insufficiency of staff and lack of suitably qualified staff
- Excessive burden of work and responsibility (services such as administration, animal health and etc.)
- Political problems (There have been a number of staff members who have left)
- Difficulty in communicating with the staff
- Inadequate training of the staff on care conditions
- High risks such as infection and injury of personnel
- Lack of love for animals by the employees (unwillingly working, bad behaviour to the animals)
- Misuse by some employees (e.g. Sale of animals)
- Shelter' not being hygienic places
- Inadequate allowances
- Insufficiency of diagnostic methods (laboratory, x-ray, ultrasound, etc.)

**Table 3.** Some socio-demographic characteristics of the veterinarians participated into the study

Socio-demographic Data		Number	Percent
Gender	Female	16	23.9
	Male	51	76.1
Age	≤25	1	1.5
	26-35	30	44.8
	36-45	21	31.3
	≥46	15	22.4
Working time	1-5 years	38	56.7
	6-10 years	15	22.4
	11-15 years	5	7.5
	16-20 years	3	4.5
	≥21	6	22.4
Working before another practice	Clinic	37	55.2
	Food industry	7	10.4
	Pharmaceutical industry	4	6.0
	Poultry industry	1	1.5
	Others	5	7.5
	No	13	19.4
Membership in a non-governmental protection of animals organization for the	Yes	7	10.4
	No	60	89.6
Personal status	Municipality	46	68.7
	Contractual	10	14.9
	Other (Subcontractor)	11	16.4
Training/course on shelter medicine	No	49	73.1
	1-7 dates	14	20.9
	8-14 dates	1	1.5
	15-30 dates	2	3.0
	≥ 31 dates	1	1.5
Relations to municipality management for shelter medicine	Supported	47	70.1
	Not supported	11	16.4
	Not sure	9	13.4

- Necessity to work out of working hours
- Lack of systematically working shelters in every district
- Conflict in authority (e.g. in adoption-Having the authority of fining in different units)

#### Volunteer-Media - Problems Related to Society;

- Unfair pressure by media
- Difficulty/Challenge in public relations (having to deal with extra problems instead of the main job such as caring for animals and health care)
- Destructive rather than constructive criticism by animal lovers
- Involvement of volunteers in administrative processes and their attempts to participate in veterinary medicine
- Citizens' unawareness and lack of interest in stray animals
- Impulsive behaviour of animal lovers in general
- Lack of education on animal adoption and its responsibility

#### Problem Related to Education-Faculty;

- Inadequate training in shelter medicine, even if not in specialization level

- Not (being able to) giving training about the shelter services and its functioning
- Not having a better education in emergency medicine
- Inadequate training in zoonotic diseases that may be found in shelters
- Inadequate education in communication with the community and shelters

The opinions of the participants about shelter medicine and the qualifications required for the shelter physician are presented in *Table 4* and the categorical evaluation of these opinions is presented in *Table 5*.

In the study, the approaches of metropolitan municipalities on the organization of student visits and training-seminar studies with primary and secondary schools are presented in *Table 6*.

## DISCUSSION

By the year 2012, there are, according to sources, 159 animal shelters with a capacity of approximately 38.970 animals

**Table 4.** Frequency, percentage, median (IQR), min and max values of participants' views on shelter medicine

Questions*	Number	Percent	Median	Minimum	Maximum
Special training on shelter medicine should be given	57	85.1	1 (1)	1	5
Shelter physician should have good clinical knowledge	51	76.1	2 (3)	1	5
Shelter physician should have good knowledge on management and organization as well as medical knowledge	66	98.5	1 (.00)	1	2
Shelter physician should be conscientious	64	95.5	1 (.00)	1	3
Shelter physician should be patient	66	98.5	1 (.00)	1	2
Shelter physician should be good in human relationships	65	97.0	1 (.00)	1	2

\* In questions asked through five-point Likert shows as: 1: Strongly agree; 2: Agree; 3: Not sure; 4: Disagree; 5: Strongly disagree. IQR: Interquartile Range

**Table 5.** Evaluation of categorical data on shelter medicine

Region	Specialization Training is Required						X <sup>2</sup> =38.233 P=0.031*			
	Strongly Agree		Agree		Not Sure		Disagree		Strongly Disagree	
	n	%	n	%	n	%	n	%	n	%
Mediterranean	8 <sub>a</sub>	11.9	3 <sub>a</sub>	4.5	0 <sub>a</sub>	.0	1 <sub>a,b</sub>	1.5	2 <sub>b</sub>	3.0
Eastern Anatolia	3 <sub>a</sub>	4.5	0 <sub>a</sub>	.0	2 <sub>b</sub>	3.0	0 <sub>a</sub>	.0	0 <sub>a,b</sub>	.0
Aegean	6 <sub>a</sub>	9.0	8 <sub>b</sub>	11.9	0 <sub>a,b</sub>	.0	2 <sub>a,b</sub>	3.0	0 <sub>a,b</sub>	.0
Southeastern Anatolia	5 <sub>a,b</sub>	7.5	0 <sub>b</sub>	.0	1 <sub>a</sub>	1.5	1 <sub>a</sub>	1.5	0 <sub>a,b</sub>	.0
Central Anatolia	8 <sub>a</sub>	11.9	3 <sub>a</sub>	4.5	0 <sub>a</sub>	.0	0 <sub>a</sub>	.0	0 <sub>a</sub>	.0
Black Sea	3 <sub>a</sub>	4.5	4 <sub>a</sub>	6.0	0 <sub>a</sub>	1.5	1 <sub>a</sub>	3.0	0 <sub>a</sub>	.0
Marmara	4 <sub>a</sub>	6.0	2 <sub>a</sub>	3.0	0 <sub>a</sub>	.0	0 <sub>a</sub>	.0	0 <sub>a</sub>	.0
Total	37	55.2	20	29.9	3	4.5	5	7.5	2	3.0

Age	Shelter Physician Should be Patient						X <sup>2</sup> = 13.296 P=0.025*			
	Strongly Agree		Agree		Not Sure		Disagree		Strongly Disagree	
	n	%	n	%	n	%	n	%	n	%
≤25	1 <sub>a</sub>	1.5	0 <sub>a</sub>	.0	0	.0	0	.0	0 <sub>a</sub>	.0
26-35	28 <sub>a</sub>	41.8	2 <sub>b</sub>	3.0	0	.0	0	.0	0 <sub>a,b</sub>	.0
36-45	12 <sub>a</sub>	17.9	8 <sub>b</sub>	11.9	0	.0	0	.0	1 <sub>a,b</sub>	1.5
46-55	14 <sub>a</sub>	20.9	1 <sub>a</sub>	1.5	0	.0	0	.0	0 <sub>a</sub>	.0
≥56	0	.0	0	.0	0	.0	0	.0	0	.0
Total	55	82.1	11	16.4	0	.0	0	.0	1	1.5

\* P<0.05

in 81 provinces of Turkey [1]. In the first Congress of Stray Animals Welfare in 2016, it was reported that there should be a sufficient number of veterinarians and assistant personnel who would answer/face the capacity of shelters [7]. The increase in the number of shelters increases the need for veterinarians and their guidance in the fields of animal health and public health [8]. By the year 2014, 200 animal shelters were identified in the study. It can be said that from 2012 to 2014, the increase in the number of shelters was an important step for resolving the stray animal problem and the increasing of the number of shelters and veterinarians and assistants who will serve here should increase day by day. In addition, it is determined that the majority of the participants became permanent staff (68.7%; n=46) (Table 3). Employment security is very important in working life; and parallel to the increase in the number of shelters, it can be said that municipalities should increase the number of veterinarians with permanent staff cadre and also, especially the current problems of veterinarians should be solved.

According to Steven and Gruen [9], shelters give lots of training

opportunities for the veterinary faculty students. Because, these students have the practice chance on the control of species-typical zoonotic and contagious diseases; on behavioural assessment and its management; on primary care; on animal welfare, ethics and public policies.

It was uttered that the necessity of providing adequate training specific to the shelter medicine (Table 4). When 25 veterinary faculties in Turkey which have begun to give education, at least in the shelters in their provinces, combine their facilities' potential with the facilities of shelter, it can be said that both veterinarian candidates will have the opportunity to practice on many subjects and the existing problems experienced in the shelters will be eliminated

In the veterinarian-oriented survey, that attained 37 of the 39 district municipalities in Istanbul, it found that only 37.2% of the participants were employed in temporary animal shelters, while others were employed in food control, administrative and spraying units [10]. In this study,

**Table 6.** Status of organizing student visits and training-seminars in metropolitan municipal shelters

Are student Visits Organized?					Z=297.000 P=0.004**	
Answers	Yes/Metropolitan Municipality		N/Not Metropolitan Municipality		Total	
	Number (n)	%	Number (n)	%	Number (n)	%
Yes	54	80.6	11	16.4	65	97.0
No	0	.0	2	3.0	2	3.0
Total	54	80.6	13	19.4	67	100
Is Information and/or Seminar Being Held?					Z= 173.000 P<0.000	
Answers	Yes/Metropolitan Municipality		No/Not Metropolitan Municipality		Total	
	n	%	n	%	n	%
Yes	44	65.7	4	6.0	48	71.6
No	10	14.9	9	13.4	19	28.4
Total	54	80.6	13	19.4	67	100

\*\* P<0.01

we determined that the veterinarians were assigned in different units and in different fields. Providing veterinary medicine services in municipalities and when the conditions of nursing veterinary medicine are evaluated and can be asserted that the channelling of the people working in a single area is important for the quality and continuity of the service they will perform.

Yalçın <sup>[11]</sup> states that for the right shelter/temporary shelter design, firstly, the welfare of the animals that will live in has to be considered. In the shelter, suitable food and water for each species should be provided; an environment should be created in which animals can exhibit their typical behaviour patterns; they should be allowed to communicate with other animals and it should be organized in order to prevent unnecessary pain and suffering of animals. In addition, it has been reported that an accurate shelter design cannot be mentioned without these criteria being provided, and that structural standards, interior design, equipment and cage standards should be applied for a proper temporary shelter <sup>[11]</sup>. In the study, it was determined that shelters differed from region to region, from city to city, such as some had some units and some didn't have some parts at all (aquarium and training place) (Table 2). When considered from this point of view, there is no standardization on this issue. It can be said that in current and future of shelters, the missing parts should be completed by taking animal welfare criteria into consideration and should be built standardized shelters to provide better quality services.

In shelter medicine, besides surgical practices, a comprehensive understanding, knowledge and skills such as preventive medicine, control of contagious disease, public health, animal behaviour, veterinary forensic medicine, epidemiology, developing policies relating to the solution of the problems and the design of facilities should play an important role <sup>[8]</sup>. Along with the difficulties experienced in the rehabilitation process of street animals, it is stated that various ethical problems are encountered due to the

inadequate education and information studies on the subject <sup>[1]</sup>. In 1<sup>st</sup> Congress of Stray Animals Welfare held in Istanbul in 2016, it is indicated that the assistant staff working in the animal shelters should be employed after a minimum of 200 hours of training on animal care, animal behaviour, animal welfare, hygiene, catching and keeping the animals <sup>[7]</sup>. In the study, it was found that most of the veterinarians were not subject to any training (73.1%; n=49) before starting to work in shelters (Table 3) and they required specialization training (85.1%; n=57) (Table 5). It can be said that nowadays, when information about veterinary medicine changes and updates quickly, it is quite necessary to educate veterinarians and the staff that work or will work there in certain periods.

It is an important issue whether municipalities have enough budget for treatment and care of animals due to excessive number of stray animals <sup>[2]</sup>. 70.1% of the veterinarians interviewed in the study stated that enough contribution was provided in municipal services (Table 3). However, stray animal problems such as the number of animals, deficiency in staff education, seeing shelters as a place of exile, shelter management, inadequacy of community communication, the existence of chaos in authority become difficult to be solved because of the cultural and socio-economic reasons, lack of information and education, lack of communication and coordination between stakeholders and decision-makers which are the basis of the stray animal problem and also which are mentioned by FECAVA <sup>[4]</sup>. For this reason, it can be asserted that the communication and coordination of the municipalities and the relevant ministry (Ministry of Agriculture and Forestry), which is the authorized unit for the practice of animal protection legislation, is very important for the solution of the issue.

Signal and Taylor <sup>[12]</sup> stated that those who are members of a non-governmental organization related to the protection of animals have a more positive attitude towards the protection of animals than those who are not. Likewise, in Turkey, Özkul et al. <sup>[13]</sup> found that the members have

more positive attitude on the same subject. In Turkey, non-governmental organizations (NGO) for the protection of animals are perceived by society as the place that you can call only when you witness an animal abuse. Today, most of these organizations have difficulties in terms of both financial and to have qualified staff<sup>[14]</sup>. In the study, it was determined that only seven of 67 veterinarians (10.4%) were found members of NGOs' working on animal protection (Table 3). It can be said that this situation may occur especially in order to avoid the increasing pressures of animal lovers/volunteers. However, it can be asserted that veterinarians should be more involved in these NGOs in order to change the perception of the society towards NGOs, to eliminate the deficiency in qualified people, in particular to create a healthy communication with the society by explaining veterinary practices appropriately.

Veterinary medicine services provided in shelters, because of their containing many features, may be said to require certain characteristics from veterinarians, who are employed and/or will be employed in these shelters. In the study, it was determined that a significant part of the participants participated in the questions about education, knowledge-skills and communication related to veterinarians working in shelters. Shelter veterinarians' being agreed on the characteristics such as education, knowledge-skills, empathy and communication can be accepted as an indicator of knowing which skills are required from themselves for the work. In addition, it can be said that by developing themselves in this direction, they can be even more beneficial to stray animals; they are generally aware of the problems which were expressed in different categories in face-to-face interviews and they are disposed to solve them.

Özkul et al.<sup>[13]</sup> indicates that discussing animal rights deliberately in schools by teachers will built strong basis in the perspective of animal rights. Some authors have reported that there is a positive relationship animal ownership in childhood and positive behaviour towards animals in older ages<sup>[15,16]</sup>. In the study, it was determined that metropolitan municipal shelters give more importance to the activities of organizing trainings and seminars in primary and secondary schools compared with non-metropolitan cities (Table 6). It can be asserted that animal love given at early ages can have a positive effect on the perspective of stray animals and also can make a contribution by raising awareness to solve stray animal problem.

In conclusion, there are many reasons behind the problem of stray animals in Turkey and veterinarians have a critical

role to play on behalf of the solution of stray animal problem. In order to solve the problem, it can be said that providing cooperation between the institutions and sharing the responsibility; increasing the employment of veterinarians and auxiliary personnel, informing the veterinarians and auxiliary staff and raising awareness of them by training and courses, and increasing the number of shelters and their facilities.

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