

## Signalment Factors, Comorbidity in Behavior Diagnoses in Dogs in Bursa Region, Turkey (2000 - 2004)

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*Received July 24, 2006*

*Accepted July 9, 2007*

### Abstract

Yalcin E., H. Batmaz: Signalment Factors, Comorbidity in Behavior Diagnoses in Dogs in Bursa Region, Turkey (2000 - 2004). Acta Vet. Brno 2007, 76: 445-450.

The aim of this study was to classify the behaviour problems of dogs reported by owners in the Bursa region. A survey was conducted with the owners of 80 dogs with behaviour problems in 2000 - 2004. The questionnaire consisted of questions related to the demographics of the problems the owners observed in their dogs. Sixty eight dogs were selected from animals referred to the Clinic of the Internal Medicine Department of the Uludag University, Faculty of Veterinary Medicine and 12 dogs were selected at a private kennel. The 68 dogs diagnosed at the clinic as having behaviour problems represented 6.2% of the 1086 patient dogs older than 6 months seen in the same period. Twelve dogs with behaviour problems were selected from a total of 150 dogs at a private kennel.

A total of 110 behavioural problems were detected. Some dogs showed more than one behavioural disorder. The classification of the problems was as follows: 65 dogs (59%) with aggression, 13 dogs (12%) with separation anxiety, 12 dogs (10.5%) with phobia of veterinary clinics and high-volume noises such as thunders and fireworks, 12 dogs (10.5%) with compulsive disorders (9 dogs with tail chasing, 2 dogs with lick dermatitis, 1 dog with self mutilation), 4 dogs (4%) with inappropriate elimination, 2 dogs (2%) with coprophagia, and 1 dog (1%) with puppy killing, 1 dog (1%) with false pregnancy. The breeds most often presented in our study were: German shepherd (19%), Terrier (18%), mixed breed (15%), Anatolian sheepdog (10%).

The results of the study showed that behavioural problems are common among dogs in Bursa and aggression ranks first, followed by separation anxiety, phobia and tail chasing.

*Dog, behavioural problems, aggression, separation anxiety, phobia, compulsive disorder*

Within the last 25 years, it has become increasingly more common for veterinarians to see animals presented for behaviour problems, and behaviour medicine is a quickly developing field of the profession. Dissatisfaction with the behaviour is also one of the most common reasons for owners to abandon or euthanize their pets (Voith 1989). In one study, dogs were euthanized due to one or more behavioural problems in 23.6% of cases and, in about 2/3 of these cases, the problem was classified as aggressive behaviour. A relatively large proportion of dogs euthanized due to aggressive behaviour displayed combinations of: 1) aggression towards family; 2) aggression towards strangers; and/or 3) aggression towards other dogs (Mikkelsen and Lund 2000). The types of behaviour problems and their degree of severity vary greatly. Knol (1987) reported that aggressive behaviour and/or fear (agonistic behaviour) were most frequently presented behaviour problems of dogs. Aggression is the most common presenting complaint (Beaver 1992) and potentially the most serious behaviour problem confronting the pet owner and small animal practitioner (Voith and Borchelt 1996c). Similarly, Bamberger and Houpt (2006) diagnosed aggression in nearly 75% of all dogs evaluated, mostly because of aggression directed at humans rather than other animals. In addition to these problems, separation anxiety was determined as an important behavioural problem of dogs (Takeuchi et al.

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2000). Separation anxiety is the most common behavioural problem in dogs at referral to behavioural practices; diagnosed in 20 to 40% of dogs referred to animal behaviour practices in North America (Voith and Borchelt 1996a). Approximately one third of the dogs presented to the Veterinary Hospital of the University of Pennsylvania Behaviour Clinic are presented for complaints related to separation anxiety (Voith 1989). Separation anxiety is also a very common behaviour problem in dogs in Turkey and its rate has been reported to be as high as 27% (Dodurka et al. 2000). Takeuchi et al. (2001) reported the three major behaviour problems: aggression toward owners, aggression towards strangers and separation anxiety. Fear of loud noises, especially thunder, firecrackers, and guns, is a normal behavioural reaction, but in some dogs the usual signs of fear - panting and pacing - escalate to frantic attempts to escape (Houpt and Reisner 1995). Compulsive disorders are acral lick dermatitis, flank sucking (in Dobermans), tail chasing (in German shepherds), whirling (in Bull terriers), freezing (in Bull terriers and Miniature schnauzers), pacing, floor scratching, growling at self, jumping in place, chasing real or imaginary objects, vocalizations, excessive grooming or hair chewing, self-mutilation, and licking or eating of atypical objects (Beaver 1992). Tail chasing is a repetitive behaviour that is expressed as slow to rapid circling with the dog's attention directed toward its tail or rapid spinning in tight circles with no apparent focus on its tail (Moon-Fanelli and Dodman 1998). Blackshaw et al. (1994) reported that 4% of the dogs in their behavioural practice were referred for tail chasing. Affected dogs consisted primarily of Bull terriers (Beaver 1992), Bull terrier crosses, other terriers, and German shepherd dogs (Moon-Fanelli and Dodman 1998). Acral lick dermatitis, also known as a lick granuloma, results from an urge to lick the dorsal aspect of the carpal region, producing a thickened, firm, oval plaque. Behaviour of psychogenic origin can be facilitated by stress, including changes in schedules or even little environmental stimuli (Beaver 1992). Predisposed breeds include the Doberman pinscher, Great dane, Labrador retriever, Irish setter, Golden retriever, and German shepherd. Other breeds, including smaller dogs, can also develop acral lick dermatitis. It can occur at any age, although most dogs are over 5 years of age when presented for treatment. Males with the disorder outnumber females by two to one (Scott et al. 1995).

The main purpose of this study was to provide information concerning the types and frequencies of behavioural problems of dogs in the Bursa region, Turkey.

#### **Materials and Methods**

The material of this study consisted of 80 dogs of different breeds, age and both sexes. Sixty-eight of these dogs were selected from animals referred to the Clinic of the Internal Medicine Department of the Uludag University, Faculty of Veterinary Medicine and twelve dogs were bred at a private kennel in 2000 - 2004. In each case, history-taking was performed by one of the authors (E.Y.) by asking questions according to a standardized questionnaire (Houpt 1998). The 68 dogs diagnosed at the clinic as having behaviour problems represented 6.2% of the 1086 patient dogs older than 6 months which seen in the same period. Twelve dogs with behaviour problems were selected from a total of 150 dogs at the private kennel. The study included 16 rural and 64 urban dogs. Breed types were categorized as an American Kennel Club recognized breed or as a mixed-breed.

Aggression has been classified by Beaver (1992) as dominance, fear-induced, idiopathic, intrasexual, learned, object-protective, food-protective, maternal, medically related, owner-protective, pain-induced, play, predatory, redirected, sex-related, territorial/protective.

#### **Results**

A total of 110 behavioural problems were detected in 80 dogs. Some of the dogs showed more than one behavioural disorder. One, two and three behavioural problems were detected in 52, 26 and 2 dogs, respectively. The classification of the problems was as follows: 65 dogs (59%) with aggression, 13 dogs (12%) with separation anxiety, 12 dogs (10.5%) with phobia of veterinary clinics and high-volume noises such as thunders and fireworks, 12 dogs (10.5%) with compulsive disorders (9 dogs with tail chasing, 2 dogs with lick dermatitis, 1 dog with self mutilation), 4 dogs (4%) with inappropriate elimination, 2 dogs

(2%) with coprophagia, and 1 dog (1%) with puppy killing and 1 dog (1%) with false pregnancy.

Behaviour disorder was observed in 68 dogs of 18 different pure breeds and 12 dogs of mixed breeds. The breeds most often represented in our study were German shepherd (19%), Terrier (18%), mixed breed (15%), Anatolian sheepdog (10%), Golden retriever (5%), Rottweiler (4%), Husky (4%) and Cocker (4%). The age of the 80 dogs varied between 1 - 12 years and the mean age was  $4.4 \pm 0.3$  years. Patient ages were grouped as: 1 - 3 years (n = 37, 46.3%), 3 to 8 years (n = 32, 40%), 8 to 12 years (n = 11, 13.7%). Fifty-eight dogs (72.5%) were males (5 neutered) and 22 (27.5%) were females (8 neutered) in this study.

Aggression was the most commonly observed (n = 65) disorder. Most of the aggressive dogs (57 of 65) showed more than one aggression type. A total of 200 aggression cases were observed in this study. It was determined that 39 (19.5%) of aggressive behaviours were territorial/protective, 25 (12.5%) predatory, 23 (11.5%) intrasexual, 21 (10.5%) owner protective, 20 (10%) fear induced, 15 (7.5%) food protective, 14 (7%) dominance, 8 (4%) material protective, 6 (3%) idiopathic, 5 (2.5%) redirected, 3 (1.5%) medically related, 2 (1%) maternal, 1 (0.5%) play and sex related. The ages of 65 aggressive dogs varied between 1 - 12 years and the mean age was  $4.6 \pm 0.3$  years. The distribution of dogs with aggression was reported according to sex, age, and castration status in Table 1.

The second most commonly observed behavioural problem was separation anxiety (13 dogs). Most of the dogs with separation anxiety were intact males and this disorder was observed in juvenile dogs. All dogs with separation anxiety and compulsive disorders in this study lived in urban areas. Phobia and compulsive disorders were commonly seen as two behavioural problems in this study. When phobia was considered, there was no predisposition due to sex and age in dogs. However, compulsive disorders were observed mostly in intact male dogs. Distribution of dogs with these behavioural problems was reported according to sex, age, and castration status in Table 1.

Table 1. Dogs with regard to sex, age and castration status

| Dog Factor        |          | Aggressive dogs |       | Dogs with separation anxiety |       | Dogs with phobia |       | Dogs with compulsive disorders |       |    |    |    |
|-------------------|----------|-----------------|-------|------------------------------|-------|------------------|-------|--------------------------------|-------|----|----|----|
|                   |          | n               | %     | n                            | %     | n                | %     | n                              | %     | TC | LD | SM |
| Sex               | Male     | 47              | 72.30 | 11                           | 84.60 | 7                | 58.34 | 11                             | 91.67 | 9  | 1  | 1  |
|                   | Female   | 18              | 27.70 | 2                            | 15.40 | 5                | 41.66 | 1                              | 8.33  | -  | 1  | -  |
| Age               | Juvenile | 29              | 44.60 | 7                            | 53.85 | 5                | 41.67 | 5                              | 41.67 | 5  | -  | -  |
|                   | Adult    | 29              | 44.60 | 4                            | 30.77 | 4                | 33.33 | 6                              | 50.00 | 3  | 2  | 2  |
|                   | Senior   | 7               | 10.80 | 2                            | 15.38 | 3                | 25.00 | 1                              | 8.33  | 1  | -  | -  |
| Castration status |          |                 |       |                              |       |                  |       |                                |       |    |    |    |
| Intact            |          |                 |       |                              |       |                  |       |                                |       |    |    |    |
|                   | Male     | 42              | 89.36 | 10                           | 76.92 | 7                | 58.34 | 9                              | 75.00 | 8  | -  | 1  |
|                   | Female   | 10              | 55.55 | 2                            | 15.38 | 4                | 33.33 | 1                              | 8.33  | -  | 2  | -  |
| Neutered          |          |                 |       |                              |       |                  |       |                                |       |    |    |    |
|                   | Male     | 5               | 10.64 | 1                            | 7.70  | -                | -     | 2                              | 16.67 | 1  | -  | -  |
|                   | Female   | 8               | 44.45 | -                            | -     | 1                | 8.33  | -                              | -     | -  | -  | -  |

TC: Tail chasing LD: Lick dermatitis SM: Self mutilation

## Discussion

This survey provides an insight into occurrence of behaviour problems in dogs in the Bursa Region, Turkey. Aggression is the most disturbing and ultimately the most dangerous canine behaviour problem, resulting in human injury and sometimes in euthanasia of the dog (Houpt 1998). Also, Knol (1987) showed that the problems most frequently presented

are concerned with aggressive behaviour and/or fear (agonistic behaviour). Our study supported these findings that aggression, separation anxiety, and phobia were the most frequently observed behavioural problems in our region.

The relative incidence of behavioural problem in a breed can vary by location (Landsberg 1991). The most often presented behavioural disorder breeds were German shepherd, Terrier, mixed breed, and Anatolian sheepdog in our study, however, these dogs are very popular breeds in our region.

Previous work has indicated that male dogs are more prone to behaviour problems than their female counterparts (Flannigan and Dodman 2001), and the results of the present study also supported previous researchers that male dogs were more likely to have behavioural problems than female dogs. Over 50% of dogs presented for behaviour problems are intact males (Beaver 1992). This fact suggests that testosterone may be important in the development of behaviour problems.

The incidence of aggression as a behaviour problem varies, depending on the stage examined. Aggression is not frequently mentioned as a problem by the average dog owner, but it represents a high percentage of cases seen by veterinary behaviourists-anywhere from 20% to 66% (Beaver 1992). In our study, aggression was observed in 81% (65/80) of the dogs. The five most commonly represented types of aggressive behaviours in this study were territorial/protective, predatory, intrasexual, fear induced, and dominance. Results of earlier studies (Blackshaw 1991; Beaver 1992) were similar to our findings. The main age at which aggression appears as a behaviour problem is generally between 2 and 3 years old but it can occur in geriatric dogs as well as in puppies (Beaver 1992). In our study, age varied greatly, from 1 to 12 years, with the average of  $4.6 \pm 0.3$ .

Intact male dogs are more likely to be involved in aggression problems (Beaver 1992). Our results supported previous results that aggression was observed much more amongst intact male dogs.

Separation anxiety, defined as excessive vocalization, inappropriate elimination, and destruction associated with the owner's absence, is the second most common behavioural problem in dogs at referral behavioural practices (McCrave 1991; Voith and Borchelt 1996a). In this study, similar proportion (12%) was found to that reported (14%) in another study (Simpson 2000). However, separation anxiety was determined to be in higher proportion (20 - 40% in North America and 27% in Turkey) in some earlier studies (Voith and Borchelt 1996a; Dodurka 2000). We found that male dogs (84%) outnumbered females (16%) in this study. However, some reports of separation anxiety have indicated that males and females are presented in equal numbers (Wright 1987; Landsberg 1991; Lund 1996; Voith and Borchelt 1996a), but Takeuchi et al. (2000) found that males were over-represented. The reason for the differences between studies is unclear. In this study, separation anxiety was seen at any age (juvenile, adult and senior) but more in juvenile dogs (54%); similar results have been shown by Simpson (2000). All dogs with separation anxiety and compulsive disorders in this study lived in urban areas.

Fear of loud noises, especially thunder, firecrackers, and guns, is a normal behavioural reaction, but in some dogs the usual signs of fear-panting and pacing escalate to frantic attempts resulting in damage to the house and injury of the dog. One of the previous studies indicated that 0.8% of pet owners had discussed fearful behaviour as a problem with their veterinarians, but the actual incidence of fear in dogs has not been established (Beaver 1992). In contrast to this study, Tuber et al. (1982) found 20% of dogs seen at the clinic treated for fear of loud noises. Similar to this, fear of loud noises was found in 10.5% cases included in our study. Voith and Borchelt (1996b) reported that fobia could develop at any age and gender, as in our study.

Canine compulsive disorder commonly presents as tail-chasing, grooming, flank-sucking, pacing, whirling, snapping at the air, and chewing (Hewson and Luescher 1996).

Blackshaw et al. (1994) reported that 4% of the dogs in their behavioural practice were referred for tail chasing. Tail chasing was the most common compulsive disorder (82%) in our study. Compulsive disorders were observed mostly (75%) in intact male dogs. Overall and Dunham (2002) reported that male dogs significantly outnumbered females (2 : 1). Canine compulsive disorder may be common in Great danes, German shorthaired pointers, German shepherds, and Bull terriers (Moon-Fanelli and Dodman 1998). In this study, only 2 German shepherd dogs were found with this disorder.

As a result it was detected that behavioural problems are common among dogs and aggression takes the first place of behavioural problems, followed by separation anxiety, phobia and tail chasing. Approaching behavioural problems in dogs in Turkey is a new subject and this study will lead to future studies.

### **Predispoziční faktory a komorbidity poruch chování v rámci diagnóz v regionu Bursa, Turecko (2000-2004)**

Cílem studie bylo klasifikovat poruchy chování psů popisovaných majiteli v regionu Bursa. Průzkum byl prováděn s majiteli 80 psů s poruchami chování v letech 2000-2004. Dotazník sestával z otázek vztahujících se k popisu problému, který majitelé pozorovali u svých psů. Bylo vybráno 68 psů, kteří byli doporučeni na kliniku katedry interní medicíny Uludagské univerzity, fakulty veterinární medicíny a 12 psů bylo vybráno ze soukromého psince. Šedesát osm psů s diagnostikovanými poruchami chování na klinice reprezentovalo 6,2 % z 1086 psích pacientů, starších 6 měsíců léčených ve stejné době. Dvanáct psů s poruchami chování bylo vybráno ze 150 psů v soukromém psinci. Bylo zjištěno celkem 110 poruch chování. U některých psů se projevovала více než jedna porucha chování. Klasifikace poruch byla následující: 65 psů (59 %) s agresí, 13 psů (12 %) se separační anxiétou, 12 psů (10,5 %) s nadměrným strachem z ordinace a hlasitých zvuků jako např. bouřky a ohňostroje, 12 psů (10,5 %) s kompulzivními poruchami (9 psů honění za ocasem, 2 psi s kožními lézemi z lízání, 1 pes s automutilací), 4 psi (4 %) s nežádoucí eliminací, 2 psi (2 %) s koprofágií, 1 fena (1 %) zabijela štěňata a 1 fena (1 %) s falešnou březostí. Nejčastěji se jednalo o tyto plemena psů: německý ovčák (19 %), teriéři (18 %), kříženec (15 %), anatolský ovčák (10 %). Výsledky studie ukázaly, že poruchy chování jsou častým problémem u psů v regionu Bursa. Na prvním místě je agrese, následována separační anxiétou, strachem a honěním za ocasem.

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