

**SEPARATION ANXIETY
SYNDROME (SAS) IN
DOGS SERVED AT
UNIMAR VETERINARY
HOSPITAL, MARÍLIA, SP**

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Abstract: Animal Separation Anxiety Syndrome (SASA) is one of the most frequent behavioral problems in companion dogs, tending to increase the number of cases due to the lifestyle of modern society. This clinical condition arises as a result of hypervigilance and anxiety in relation to the attachment figure, usually the guardian, which causes intense dependence. The main symptoms presented in the syndrome are: excessive vocalization, destruction of objects, defecation and urination in inappropriate places, mainly when left alone. Animals with at least one of these classic signs associated with three hypervigilance behaviors are considered positive. Behavioral medicine is a field that requires greater attention in veterinary medicine, since animal welfare is being increasingly advocated, which also reflects on the physical health of animals. Therefore, due to the impact it causes on the quality of life of dogs and their tutors, this research aims to identify and correlate the syndrome with several factors to find out which ones are directly related to it through a validated questionnaire applied to tutors of dogs treated at the UNIMAR veterinary hospital, according to criteria published in the literature from August to November 2022. The results showed that 83% of the animals were considered positive for the syndrome, concluding that the current lifestyle and the lack of behavioral orientation of the veterinarian to the tutor directly reflect on the mental and physical health of the dogs.

Keywords: anxiety in dogs, animal behavior, canine hyperlinking

INTRODUCTION

Anxiety is a physical and psychic suffering that also affects animals, generating negative results for them and their guardians. Anxiety can be developed by recurring scenarios of fear, frustration, idleness, unpredictable

punishments, inconstant interactions, traumas, or any uncomfortable situation that the animal cannot get rid of (RUNCOS, 2019).

Separation Anxiety Syndrome (SAS) is one of the most common types of anxiety found in dogs and can be defined by a set of physiological and behavioral responses, exhibited during the absence or physical removal of the attachment figure, and may occur even in the presence of other people who are not. This figure can be human or another animal (APPLEBY & PLUIJMAKERS, 2003; SOARES, PEREIRA and PAIXÃO, 2010; BASTOS et.al, 2013; HUNTER et al., 2020). This syndrome approaches an emotional dependence that the dog creates in relation to the attachment figure, affecting its well-being. Dogs that have this behavior are usually already anxious (SARGISSON, 2014).

Studies carried out in Canada, USA and Australia demonstrate its occurrence between 14% to 40% of dogs, despite the high incidence, it is little diagnosed, mainly in Brazil (SOARES, PEREIRA and PAIXÃO, 2010; SOARES, TELHADO and PAIXÃO, 2009; BORDIN, 2012). Studies carried out in Rio de Janeiro show that 59.2% (61/103) of dogs have behavioral problems resulting from SASA (SOARES et al, 2010). Another study (NOVAIS et al, 2010) showed that 68% (51/75) of animals have the syndrome (SOARES et al, 2015). A survey conducted with veterinarians from 101 colleges throughout Brazil showed that 91.1% of professionals consult about behavioral problems (SOARES et al., 2010).

Dogs suffering from SAS have a lower survival rate due to excessive stress, affecting their health, impairing the immune and endocrine systems, increasing the risk of other comorbidities (BEZERRA and ZIMMERMANN, 2015).

In Hunter et al. (2020) a survey was carried out with dog trainers and reported that among the most observed signs in a dog

with the syndrome are excessive vocalization, attachment to the tutor, escape attempt and repetitive behavior. The main complaints reported by tutors in routine consultations are excessive use, destruction of objects, aggressiveness and disposal in inappropriate places (TEIXEIRA, 2017).

The cause of the disorder is multifactorial, such as idleness due to lack of environmental enrichment, lack of space and socialization, and negative punishments (LINHARES et al., 2018). The associated destructive behavior is interpreted as a sign of rebellion, which can generate unconscious positive reinforcements on the part of this (TEIXEIRA, 2017). Other probable causes come from some traumatic experience that the animal has had, such as being trapped in a place without being able to get out, high-pitched sounds such as alarms, thunder noises, etc. (PALESTRINI, 2014). Among the dogs that have the syndrome, 63% have a phobia of noise and 52% of thunder. Introducing both, the probability of having the syndrome is 86 to 88% (OVERALL et al., 2001).

Due to personality and history since pregnancy, behavioral changes during life, such as SASA, phobias, aggressiveness, may occur (BORDIN, 2012).

Regarding the pre-disposition of dogs to the development of the disease, there is a greater possibility of it occurring in males (TEIXEIRA, 2017). As for the breeds, there are few studies on the Cocker Spaniels, however, it was cited by Storengen et al. (2014). Regarding the age group, in young dogs there may be a relationship with the fact of early separation from the mother, where they do not overcome the suffering of weaning (BORDIN, 2012). With elderly dogs, the syndrome is common, as they generally become highly dependent on their tutor for their needs (BEAVER, 2004; LANDSBERG et al., 2005).

The four basic signs of the syndrome,

counting destructive behaviors (chewing or scratching objects of attachment or possible access routes to the attachment figure), are excessive vocalization (howling, crying, barking), and eliminations in inappropriate places (often in places or objects that refer to the bond figure) (MACHADO and SANT'ANNA, 2017; ROSSI, 2018; RUNCOS, 2019).

Other clinical signs that may fit the syndrome are limb or flank trichotillomania, self-mutilation, hypersalivation, tremors, lack of appetite, aggressiveness, crying or jumping for attention, pre-match anxiety, escape attempt, emesis and even depression. The association of SASA with compulsive disorders is common (OVERALL & DUNHAM, 2002; APPLEBY & PLUIJMAKERS, 2003; LANDSBERG et al, 2004; BEZZERA and ZIMMERMAN, 2015; MACHADO and SANT'ANNA, 2017; ROSSI, 2018; RUNCOS, 2019). Depressive behaviors are characterized by the total inactivity of the dog, failing to perform basic needs and often sleeping all the time while alone (OVERALL & DUNHAM, 2002; LANDSBERG et al., 2004).

The diagnosis of the syndrome is based mainly on clinical signs (BALLANTANY, 2018). An efficient way of observing them is by recording videos in moments of solitude, in order to visualize the classic signs, especially those not detectable when the tutor arrives (PALESTRINI et al., 2010).

It is, then, a disorder diagnosed almost exclusively by history and anamnesis, which are detailed about its development (social and environmental conditions, routine, indirect evidence of the syndrome); knowing what the tutor did to solve the problem, passing by other veterinarians, pharmacological treatments and the response obtained. Medical evaluation is also important to rule out other clinical and behavioral diagnoses (BEAVER, 2001; APPLEBY; PLUIJMAKERS,

2003; SOARES; TELHADO; PAIXÃO, 2009; HORWITZ; NEILSON, 2018).

Early intervention is important; the faster the diagnosis and treatment, the greater the probability of cure, which may be 100% (OVERALL, 2014; MACHADO and SANTANNA, 2017). There are no detectable metabolic and biochemical changes in the syndrome, however, blood count, biochemical profile and urinalysis must be performed for geriatric patients or those with urination and defecation disorders. (BEAVER, 2001; SOARES; TELHADO; PAIXÃO, 2009).

The treatment basically depends on behavioral therapy, that is, modifying the behavior, the environment and the understanding and dedication of the tutor mainly. In some treatments, there is a need to associate therapy with drugs (BEAVER, 2001; TEIXEIRA, 2009; MOREIRA, 2011). If started in the initial phase, simple techniques are efficient, but still require tutor collaboration (CAROLINO E FLORENCIO, 2019).

According to the severity of the case, it is indicated to take short-term measures, such as the use of drugs, mitigating clinical signs while the therapy is established, which usually occurs between two and four weeks (SHERMAN, 2000). It is also important to identify the primary cause, whether there is a primary or secondary linkage to the tutor; the focus will be on creating activities of independence and detachment, reducing insecurity and leaving the animal relaxed when alone; or if it is motivated by phobias and fears, the treatment will be directed towards their desensitization (APPLEBY; PLUIJMAKERS, 2003, LANDSBERG; HUNTHAUSEN; ACKERMAN, 2005).

Behavioral modification is based on measures learned by the tutor that do not encourage attachment and dependence, especially in arrivals and departures (LANDSBERG; HUNTHAUSEN;

ACKERMAN, 2005). Those responsible have to differentiate between calm and anxious behaviors, rewarding only the calm fraction, otherwise, anxious behavior will be reinforced (OVERALL, 2014).

Desensitization and counter conditioning techniques are applied to avoid triggers (OVERALL, 2014). These occur with gradual and superficial exposure to the trigger, for example, with false exits and returns, desensitizing at the moment of actual departure. In addition, it can be counterconditioned to departures, that is, learning a new response that is antagonistic to fear and anxiety (BARROS E SILVA, 2012; HORWITZ; NEILSON, 2018; LINHARES et al., 2018). Before leaving, it is indicated to ignore the dog for 15 to 30 minutes beforehand (BARROS E SILVA, 2012).

In environmental modifications, distractions are used, such as interactive rugs, chewable or stuffed toys resulting in independence, physical and cognitive stimulation, in addition to performing a positive association with absence, with a brief absence indicated at the beginning (BAMPI, 2014; BEZERRA & ZIMMERMANN, 2015; HAUSER, 2020). Another example is to create an association with the presence of the human, such as leaving the television on, creating an association with moments of presence of the tutor (CRUZ, 2012; REECE, 2014; MATTOZO, 2016; LINHARES, 2018).

In cases related to sound phobia, the animal must be moved to an acoustically isolated place (APPLEBY; PLUIJMAKERS, 2003). It is necessary to include desensitization to these sounds in therapy (APPLEBY and PLUIJMAKERS, 2003; ROSSI, 2018).

Animal training is important. It is indicated to teach commands such as stay, to make the animal remain alone even if for a short time at first (BAMPI, 2014). Another option is the use of synthetic pheromones, its indication

is tranquilization and relaxation (PERUCA, 2012).

In drug therapy, it may be necessary to use anxiolytics, antidepressants and other psychotropic drugs (OVERALL, 2014). Before initiating it, a complete check-up must be performed, since these require adequate liver and kidney functions to have correct metabolism (LANDSBERG; HUNTHAUSEN; ACKERMAN, 2005). It is important that the treatment is accessible and easy to administer so as not to harm the tutor's routine (BAMPI, 2014).

Clomipramine may be the drug of choice if characterized by ritualistic behaviors. It is one of the most used medications for treatment. The dose varies in dogs from 1 to 2 mg/kg, VO, BID (BAMPI, 2014; OVERALL, 2014; TEIXEIRA, 2017; TEIXEIRA, 2009). If the dysfunction is characterized by explosive and even aggressive components, fluoxetine, sertraline, paroxetine can be used. (OVERALL, 2014). Fluoxetine, widely used, ranges from 0.5 to 2 mg/kg, PO, SID. It is indicated, after a while, even with improvement, to maintain or reduce the medication, always gradually (TEIXEIRA, 2017).

In severe cases (self-mutilation; noise reactivity/phobia, or specific triggers) benzodiazepine may be used. As, alprazolam (0.02 to 0.1 mg/kg), PO, BID (SHERMAN, 2008; BAMPI, 2014). Drug association may occur. Trazodone can also act in these cases, as it acts on the brain regions responsible for motor activity (OVERALL, 2014).

MATERIAL AND METHOD

The present work is an exploratory study of a descriptive nature. Tutors completed a questionnaire prepared by the medical clinic sector, exclusively for the diagnosis of the disease in dogs that went to the UNIMAR veterinary hospital, in the year 2022, for various reasons of illness. 100 dogs, male and

female, crossbred and mixed breeds were studied.

The dogs were divided into groups, according to age and sex, as described below: Group 1 (25%) (adult males): more than 1 year; Group 2 (25%) (young males): less than 1 year old; Group 3 (25%) (adult females): more than 1 year; Group 4 (25%) (young females): less than 1 year old. The assessment of the dogs in relation to SASA was based on information provided by the tutors, according to the questionnaire, guided by data obtained in the literature, such as Simpson (2000), Appleby and Plujmakers (2003), Teixeira (2009), Canani and Faraco (2010) and Bastos et. al (2013) (TABLE 1). The comparison took into account some behaviors considered "normal" for the age or reproductive status in question. Reports by SIMPSON (2000), show that destructiveness is common in puppies and must be a differential diagnosis for the syndrome through association with other signs of SASA and hyperlinking.

The questionnaire format was chosen, as it has an objective and well-defined character, being considered the best sources for collecting epidemiological data related to behavioral problems (SOARES, TELHADO; PAIXÃO, 2009). The questionnaire consists of 23 objective questions to identify the classic signs of hyper-attachment (suggested as a necessary condition for ASS by several authors), depression and behaviors not related to the disease, however, that may be directly related to it.

Animals that showed at least one of the classic signs (excessive vocalization, destructive behavior, eliminations in inappropriate places), associated with at least three manifestations related to hyperlinking (agitation, aggression, panting, salivation, hypotension) were considered positive. or hyperreactivity). Those animals whose signs showed an association with another pathology,

such as urinary incontinence related to lower urinary tract disease, were excluded from the research.

The questions were grouped into different domains to identify the animal's characteristics, also about the environment, the animal's relationship with the guardian or another animal and the presence or absence of sterilization, in order to later relate these with the syndrome.

To verify hyperlinking, three questions were proposed: Does the dog, if possible, accompany someone from the family when at home? How does the dog behave when people get ready to leave? How does it behave when the residents return?

Date of birth __/__/__
Sex () male () female
Castrated: () yes () not Castration age: _____
Has behavior changed after neutering?
What is the animal's personality?(Quiet, confident, excitable, rebellious, sassy, stubborn)
Environment data
Type of feeding
How often is it fed?
Do you offer Snacks?
Daily activities and routine
Type of exercise/play:
How often/For how long?
Punishment
Physical?
Sound (tin rattle/whistle)?
Verbal reprimand?
Behavior
How long is the animal alone?
Does it show destructive behavior?
What objects are usually destroyed?
Does this behavior occur when the owner is away?
Excessive vocalization?
Does it occur when the owner is absent?
Does this behavior occur when the owner is away?
Excessive vocalization?
Does it occur when the owner is absent?
Are there any complaints from neighbors?

Do you urinate in an inappropriate place?
Does this behavior occur when the owner is away?
Defecation in an inappropriate place
Does this behavior occur when the owner is away?
Do you usually accompany the owner to all places inside the house?
Does he experience vomiting or depression during the owner's absence?
Other relevant information

Figure 1. Separation anxiety syndrome assessment questionnaire in dogs

RESULT AND DISCUSSION

The need for the questionnaire arose in order to collect consistent data for a survey on SASA and hyperlinking.

Of the 100 animals, 18 were acquired before two months of age, 23 between two and six months of age and 59 animals were acquired over six months of age.

Most dogs were castrated, totaling 57 and only 23 were not, with a predominance of females, in agreement with studies carried out by Soares (2015). In research carried out by Soares et al. (2010) and Dalzochio, Mira (2014) the fact that the animal is whole or not, influences SASA, since sex hormones have a great participation in the development of several behavioral alterations, such as aggressiveness and territorial demarcation, but in the present study, this fact was not taken into account, due to the higher rate of animals that, even castrated, presented the syndrome.

Among the sterile animals, it was asked if there was any change in their behavior after the procedure, and 81% of the tutors said yes, demonstrating calmer, totaling 46 animals, 19% reported not having observed any type of behavior changes. These data agree with Silva (2017) who states that castration has the potential to change behavior, by modifying the production of some hormones, such as testosterone.

Environmental aspects were evaluated, such as the type of food offered to the animal

and frequency, whether snacks are provided, daily activities, exercises and games. Of the 100 animals, 20% eat only feed, 16% only homemade food, and 64% both. Regarding snacks, 63% of tutors offer them. Only 36% of the animals are fed twice a day, while the rest are fed ad libitum. The type of food does not influence the disease, but the frequency does, resulting in anxiety when there is a lack of constancy at the time of eating (SILVA, 2017).

In relation to daily activities and exercises, 76 of the dogs walk, perform outdoor activities and have contact with other animals, 79 have daily interactive games with the tutor, and 56 have chew toys.

As punishment, 78% of the animals received verbal reprimand, while 22% received physical punishment. This way, questions were asked about the time of daily solitude, in which 86% are alone for more than 12 hours, 10% are alone for more than 8 hours and only 4% are alone for up to 4 hours, according to studies carried out by Soares et al. (2010) and Soares (2015), animals that are routinely left alone for long periods develop the disease significantly more when compared to the others.

Excessive vocalization associated with destructive behavior are one of the main signs observed in studies carried out by Soares et al (2010) and Teixeira (2017). In the present work, 67% present excessive vocalization, mainly when alone, ranging from crying, yelping, howling or barking (BAMPI, 2014), and 73% of the animals have destructive behavior (owner's objects or toys), mainly when alone, predominating in the younger, common to male and female, agreeing with findings by Novais, Lemos, Faria Junior (2010). The destruction at this stage can also be explained by tooth growth and immaturity, as also described in Teixeira (2017) and Silva (2012). Other behavioral factors can trigger this clinical sign: frustration, idleness, lack of play, phobias, territorial aggression and

cognitive dysfunctions (BAMPI, 2014).

Of the animals, 36% urinate in inappropriate places, mainly non-castrated males, being in the absence or presence of the attachment figure, occurring with a higher prevalence in adult males, agreeing with Novais, Lemos, Faria Junior (2010) and Teixeira (2017), due to the constant demarcation of territory, or it may indicate severe anxiety or an immediate reaction to stimuli, in which inadequate elimination is related to loss of control with greater involvement of the hypothalamic-pituitary-adrenal axis, related to situations of intense fear (BAMPI, 2014). Defecation in inappropriate places occurred in 23% of the animals, mainly in the absence of a tutor, occurring more in young males, in agreement with findings by Novais, Lemos, Faria Junior (2010).

Typical manifestations of hyperattachment occurred in 87% of the animals in the present study, in which 86% used to accompany the tutors around the house, 68% of the animals received the tutors in a totally euphoric way, while 32% did not show so much agitation, mainly animals. Older. 42% of the animals are agitated when the tutor is absent, 37% isolate themselves from the others and 21% are indifferent, agreeing with findings in a study by Soares (2015).

Another frequently observed sign is depression, in which 76% present during the absence of the owner, such a sign must be highlighted because it is usually not noticed by the owner, although it has direct consequences on the quality of life of the animal, such findings were also found by Novais, Lemos, Faria Junior (2010), in which most dogs showed signs of following their owners around the house, in addition to expressing restlessness when temporarily separated. Such cited signs were also reported by Dalzochio, Mira (2014).

Thus, 83% of the animals were considered

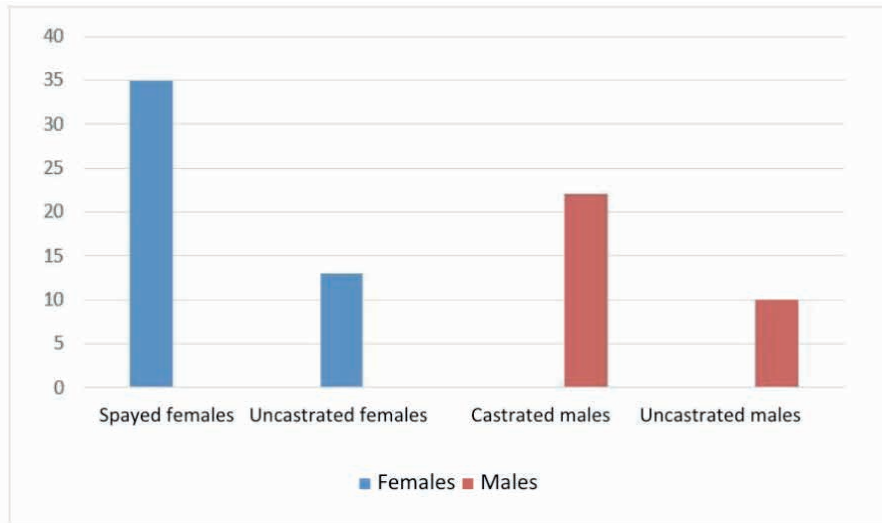
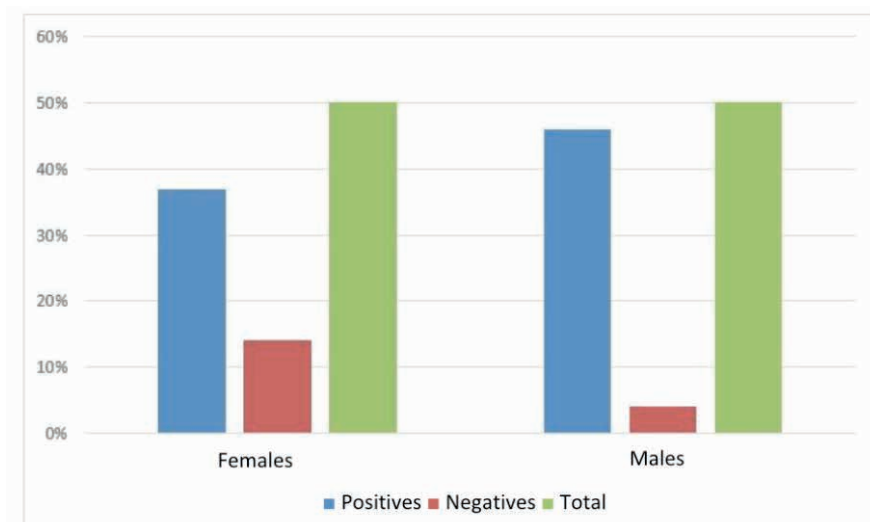


Figure 1. Number of castrated and non-castrated females and males who participated in the present study

Variable	Female	Males	Total
Excessive vocalization	22	45	67
Destructive behavior	35	38	73
Urination in an inappropriate	12	24	36
Defecation in an inappropriate place	6	17	23
Depression	34	42	76
Hyperlink	38	49	87

Table 1. Clinical signs observed in SASA according to a questionnaire carried out with guardians of animals treated at the Veterinary Hospital of UNIMAR



Graph 2. Number of dogs, positive and negative for SASA, divided by sex

positive for separation anxiety syndrome, according to criteria published in the literature, as they had the four basic clinical signs, which consist of excessive vocalization, destruction of objects, defecation and urination. in inappropriate places, agreeing with Soares, Pereira, Paixão (2010) and Dalzochio, Mira (2014), however, excessive vocalization was observed mainly in young males when compared to females, different from the data observed in a study reported in Novais, Lemos, Faria Junior (2010), in which excessive vocalization had a higher rate in adult males.

CONCLUSION

The present work obtained as results 83% of the positive animals for separation anxiety syndrome, this high percentage can be explained by the lifestyle that people currently have, spending most of the day away from home, in addition to having the dog as their only company, which this way ends up creating an intense affective bond, making him psychologically dependent on the individual. Inadequate socialization, inconstancy in interactions, unconscious incorrect reinforcements, stimulate hyper-attachment, especially for dogs that have already suffered some type of abandonment, are situations that can develop an anxious, idle and dependent condition in the animal.

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