



---

Gil Dutra Furtado<sup>1\*</sup>; Felipe Eduardo da Silva Sobral<sup>1</sup>

## Abstract

Animal behavior is closely linked to the process of evolution of nervous tissues that move towards the cephalic region, promoting the creation of a central nervous system with greater proximity to the sense organs, providing an increasing increase in sensory and cognitive functionalities. The functional analysis of animal behavior establishes a relationship between a certain action and changes that occur in the surrounding environment or within the individual. Changes in these factors may occur incidents, where the veterinarian must have an understanding of all the factors involved in order to contribute to the solution of this triggered behavioral pathology.

**Keywords:** Clinical ethology. Behavioral medicine.  
Behavioral disorders.

<sup>1</sup>Maurício de Nassau University Center (UNINASSAU), Av. Pres. Epitácio Pessoa, 1213, CEP: 58039-000, João Pessoa, Paraíba, Brazil

\*Corresponding author: [gdfurtado@hotmail.com](mailto:gdfurtado@hotmail.com)

Submitted on: 12 Jun. 2023  
Accepted on: 08 Oct. 2023  
Published on: 31 Dec. 2023

# 1 Introduction

The study of animal behavior is referred to as “the totality of its movements, vocalizations and postures”, including all externally recognizable changes (DANTZER, 2009; FURTADO, SILVA, TELES, 2018).

Currently, the study of animal behavior becomes more complex based on new discoveries that are being incorporated into the basic definition, which considered behavior as “any movement performed by a given organism” (DANTZER, 2009; FURTADO, SILVA, TELES, 2018).

The new definition takes into account the influence of sounds, colors and recently odors, such as pheromones, as these have a strong influence on some animal attitudes. Therefore, it is now defined as any muscular or secretory response observed by changes in the internal or external environment of animals (DANTZER, 2009; FATJÓ & BOWER, 2020; FURTADO, SILVA, TELES, 2018).

Professionals in the area of behavior, as well as some veterinary psychiatrists, are characterized by a methodological position that revolves around Tinbergen's four questions, which outlined, firstly, observing and describing behavior and then studying this behavior based on in the causal, ontogenetic, phylogenetic and functional analyzes (FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; MIKLOSI, 2015).

The causal analysis is carried out by establishing a relationship between a given behavior and an antecedent condition, studying the external stimuli responsible for the behavior and the internal motivational mechanisms. It can be said that this is the type of learned behavior (MIKLOSI, 2015; RADOSTA, SHOFER, REISNER, 2012).

Ontogenetic analysis involves a relationship between behavior and time, with interest focused on the process of differentiation and integration of behavioral patterns in the course of a young individual's development, which can be well characterized as learning skills (MIKLOSI, 2015; RADOSTA, SHOFER, REISNER, 2012).

Phylogenetic analysis, in turn, studies the history of behavior in the course of species evolution; such behaviors are defined as innate, potentially present from birth (DANTZER, 2009; FURTADO, SILVA, TELES, 2018).

Functional analysis establishes a relationship between a certain behavior and changes that occur in the surrounding environment or within the individual.

The behavior is characterized as a phenotype, product of the action of genes and the environment, in addition to the interaction between both (DANTZER, 2009; FURTADO, SILVA, TELES, 2018).

The current study of animal behavior aims to rationalize breeding methods with improvements in management, food and facilities, providing favorable conditions for animals, aiming at animal welfare and performance (DANTZER, 2009; FURTADO, SILVA, TELES, 2018).

For this rationalization process to be systematically established, studies of the processes and particular knowledge of the nervous and sensory system of each animal species worked on should be the guideline in the veterinary psychiatry clinic (GAIA et al., 2019).

Animal behavior is closely linked to the continuous cephalization process (evolutionary tendency of nervous tissues to move towards the cephalic region, promoting the creation of a central nervous system closer to the sense organs), the enormous development of the cerebral hemispheres and particularly the cortex, providing an increasing increase in sensory and cognitive functionalities in the phylogenetic series (FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; GAIA et al., 2019).

Due to this, a greater degree of refinement of sensitivity and movement is observed in higher animals, provided by the mutual exchange between the sensory and motor systems. Its associative systems serve to correlate various influences that reach the brain, integrating the individual to past experiences, imposing an organized pattern of inhibitory and excitatory activity that will influence the next step of the animal (FURTADO, SILVA, TELES, 2018; GAIA et al., 2019).

Behavior, in mammals or higher organisms, is not so constrained by external stimuli, much of which originates within the organism on the basis of past experience. A good part can be guided by symbolic learning processes, ranging from offering a snack to determine a command for a dog to more complex processes, such as language in humans (FURTADO, SILVA, TELES, 2018; GAIA et al., 2019).

All evolution serves the individual's adaptive purposes, with the sensory systems playing an extremely important role as a whole. Man interferes significantly in natural selection, seeking the animal that best suits him and that has the desirable temperament for his function (FURTADO, SILVA, TELES, 2018; GAIA et al., 2019).

Temperament is an old concept in psychology, but only recently has it been treated as a trait of interest in animal husbandry.

This is defined as the set of behaviors of animals in relation to man and in the face of situations handling routines, among others, being this unique and individual characteristic, providing the opportunity for comparison between individuals. Individuals are evaluated, considering one or several aspects of their temperament, evaluating the tendency, characterized when a certain animal consistently presents certain behaviors, in terms of intensity, relative to aggressiveness, agility, attention, curiosity, docility, cleverness, fear, reactivity, stubbornness, shyness, among others (FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; GAIA et al., 2019).

Over time, various types and ways of measuring "temperament" in domestic animals were defined, although the measures evaluated represented reactivity and would not characterize temperament, in its broadest sense that is the set of a stable psychophysiological traits of a given individual, determining their emotional reactions (FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; GAIA et al., 2019).

With the advancement of scientific research, it is believed to be possible to characterize and measure the "temperament", as well as to correlate it with the production system in order to optimize it and bring new beneficial contributions both to the animals and to the guardians and professionals who work with them (FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; GAIA et al., 2019).

Regarding behavioral therapy for dogs, when an unwanted behavior is observed, or a physical or psychological problem, the animal must be taken to the veterinarian and, if he considers it necessary, he will refer it to a veterinary psychiatrist, who will initiate a treatment to change certain unwanted behaviors (FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; GAIA et al., 2019).

Dogs, like humans, need well-established parameters of behavior and coexistence. Behavioral therapy can help shape a sociable, friendly, and adaptable character. This is even more important in the first five months of life, as it allows the development of a pleasant lifestyle, both for the animal and the owner (DANTZER, 2009; FATJÓ & BOWER, 2020; FURTADO, SILVA, TELES, 2018).

Some dogs engage in socially unacceptable or undesirable behaviors, both for the owner and the environment. These attitudes are expressed with aggression, anxiety, signs of threat, overreactions, or an inability to contain emotions. It can even hurt people, other animals or themselves (FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; GAIA et al., 2019).

In fact, many of these problems derive from a constant situation of stress on the part of the dog. Their reactions are the result of the owner not knowing how to handle the situation. Because of this, many of the problems are solved simply with stress reduction therapies (GAIA et al., 2019; RADOSTA, SHOFER, REISNER, 2012).

Behavioral problems in dogs can have two well-defined causes, which can be of organic origin (that is, any physical problem that causes discomfort or pain) or inorganic (when the animal's behavior derives from non-physical causes). In the case of inorganic, for example, it can be understood when the dog had a difficult or traumatic puppy stage (GAIA et al., 2019; RADOSTA, SHOFER, REISNER, 2012).

These problems can manifest themselves as aggression, fears and phobias, destructive behavior, excessive barking, separation anxiety, excitement and hyperactivity, sadness (DANTZER, 2009; FATJÓ & BOWER, 2020; FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; MIKLOSI, 2015; GAIA et al., 2019; RADOSTA, SHOFER, REISNER, 2012).

**Aggressiveness.** This type of inappropriate behavior requires specialized and urgent treatment, because it can harm other animals of human beings. Fears and phobias. It can be people, objects, sounds, other dogs or animals. Ideally, the owner should accompany the process of supporting and overcoming these fears; Destructive behavior; Excessive barking; Separation anxiety. In this case, therapy is important to give the pet enough confidence to remain calm while he is alone at home; Excitement and hyperactivity. This manifestation is very tiring, both for the dog and for those who live with him. The dog is in a constant state of activity and tension, and does not relax; Sadness.

Behavioral therapy for dogs is important for the well-being of both the animal and the owner. If the behavior is very bad, there are owners who unfortunately choose to abandon, mistreat or kill their pet (FATJÓ & BOWER, 2020; FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; RADOSTA, SHOFER, REISNER, 2012).

The objective of behavioral therapy, developed by the veterinary psychiatrist, involves the guardian's commitment and constancy, which is the most important aspect of this therapy.

If the owner is not willing to train the pet in good habits, it is difficult to help him improve his behavior. Especially important is the emotional component. There must be understanding, empathy and patience on the part of the tutor during the process (Figure 1).

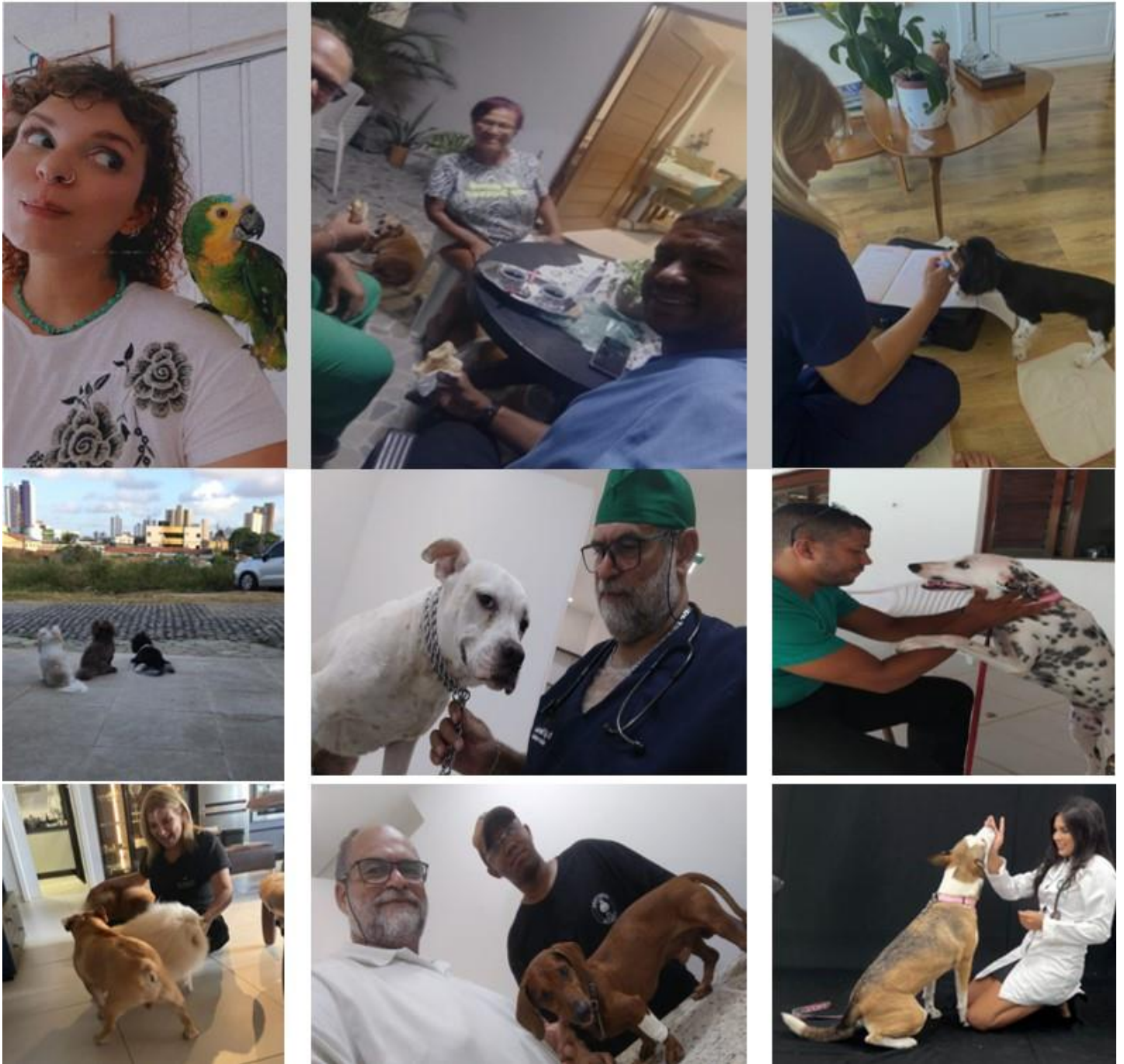


Figure 1: Moments in which the practice of animal psychiatry is applied, leading to a better interaction between guardian, veterinarian and animal patient (Images by the author).

It is recommended to start behavioral training when the animal is still a puppy, before five months of life (FATJÓ & BOWER, 2020; FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; RADOSTA, SHOFRER, REISNER, 2012).

The goal of behavioral therapy is not for the dog to be obedient, but for an improvement in the dog's relationship with the owner. Sharing everyday life should be an experience of pleasure and joy for both (FATJÓ & BOWER, 2020; FURTADO, SILVA, TELES, 2018; FURTADO, 2020; FURTADO et al., 2022; RADOSTA, SHOFRER, REISNER, 2012).

When visiting the specialist at the veterinary clinic, the professional asks a series of questions to the owner and the people closest to the dog. The questions are like: circumstances in which the animal was born, number of dogs in the litter, and what the mother was like (FURTADO, SILVA, TELES, 2018).

All questions are aimed at analyzing the origin of the dog's abnormal behavior problem, in order to then make an effective treatment (FURTADO, SILVA, TELES, 2018).

Depending on the cause of the inappropriate behavior that the owner wants to eliminate, there are general tips that are important for the life of any dog (FURTADO, SILVA, TELES, 2018).

Establish routines, have well established schedules for food, their needs, games, walks, and rests. Meeting these basic needs in an orderly manner will help the animal to have a more organized and peaceful life (DANTZER, 2009; FATJÓ & BOWER, 2020).

Daily physical exercise is especially important for domestic dogs. One of the most common causes of unwanted behavior in dogs is stress build-up and the best way to deal with daily stress is with a good walk. A sedentary lifestyle carries significant risks for the dog, as is the case with obesity and some associated diseases. Whatever the breed of animal, all dogs need some daily exercise (DANTZER, 2009; FATJÓ & BOWER, 2020).

## 2 Conclusions

Veterinary psychology aims to help tutors deal with behavioral changes in their dogs, helping to improve their quality of life.

## CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

GDF: Conceptualization, Practice and Writing of the article. FESS: Participated in the Methodology and Writing. FESS: Writing and Supervision. GDF: Translation and Proofreading.

## DECLARATION OF INTEREST

The authors declare that there is no conflict of interest with the participants or collaborators of this article, either directly or indirectly.

## FUNDING SOURCE

The author declares that no funding is applicable to this research.

## REFERENCES

- DANTZER, R. Cytokine, sickness behavior, and depression. **Immunology and Allergy Clinics of North America**, v. 29, n. 2, p. 247-264, 2009. Available from: <https://doi.org/10.1016/j.iac.2009.02.002>.
- FATJÓ, J.; BOWER, J. **Making the Case for Multi-Axis Assessment of Behavioural Problems**. *Animals*. v. 10, n. 3, 383, 2020. Available from: <https://doi.org/10.3390/ani10030383>.
- FURTADO, G. D.; SILVA, A. dos S.; TELES, J. A. A. ESTUDO DO COMPORTAMENTO E A MEDICINA VETERINÁRIA DA CONSERVAÇÃO. **Environmental Smoke**, v. 1, n. 2, p. 176-182, 2018. Available from: <https://doi.org/10.32435/envsmoke.201812176-182>.
- FURTADO, G. D. RELATOS DAS ATIVIDADES PRÁTICAS EM UMA DISCIPLINA DE ESTUDO DO COMPORTAMENTO ANIMAL EM UM PROGRAMA DE PÓS-GRADUAÇÃO DA UNIVERSIDADE FEDERAL DA PARAÍBA, BRASIL. **Environmental Smoke**, v. 3, n. 1, p. 079-086, 2020. Available from: <https://doi.org/10.32435/envsmoke.202031079-086>.
- FURTADO, G. D.; DE BRITO, S. A. P.; DUARTE, G. D.; SOBRAL, F. E. da S.; CHRISTOFFERSEN, M. L. IMPORTÂNCIA DA ETOLOGIA APLICADA PELOS VETERINÁRIOS PARA A SÍNDROME DE ADAPTAÇÃO EM ANIMAIS DE ZOOLOGICO. **Environmental Smoke**, v. 5, n. 3, p. 38-41, 2022. Available from: <https://doi.org/10.32435/envsmoke.20225338-41>.

GAIA, J. A. de S.; GAIA, C. L. B.; MOURA, E. J. B.; FURTADO, G. D.; ISAZA, C. A. LAS CÉLULAS NEUROLÓGICAS Y SU INTERFAZ EN EL PROCESO DE APRENDIZAJE DE LOS SERES VIVOS. *Environmental Smoke*, v. 2, n. 2, p. 84-101, 2019. Available from: <https://doi.org/10.32435/envsmoke.20192284>.

MIKLÓSI, A. The organization of individual behaviour. In: MIKLÓSI, A. (Ed.). *Dog Behaviour, Evolution, and Cognition*. Oxford, UK: Oxford University Press, 2014. p. 324-345, 2015 Available from: <https://doi.org/10.1093/acprof:oso/9780199646661.003.0015>.

RADOSTA, L. A.; SHOFER, F. S.; REISNER, I. R. Comparison of thyroid analytes in dogs aggressive to familiar people and in non-aggressive dogs. *Vet J.* 192(3):472-475. 2012 Available from: <https://doi.org/10.1016/j.tvjl.2011.06.029>.