

**The importance of the facial and body expressions interpretation of domestic feline in  
clinical practice**

**A importância da análise das expressões faciais e corporais dos felinos domésticos na  
prática clínica**

**La importancia de analizar las expresiones faciales y corporales de los gatos domésticos  
en la práctica clínica**

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**Abstract**

Felines can express several emotions through their behavior. Based on this, it is essential to understand the meaning of the feline body and facial expressions since they will assist in

carrying out the procedures safely and without causing discomfort to the patient. Therefore, this article aimed to evaluate the behavior and welfare of felines through the visualization of body language during clinical care and the procedures performed. Thirty adult felines, 16 females and 14 males participated in this study, all neutered and mixed breed. The felines were exposed to several clinical procedures during the physical examination, blood pressure measurement by the non-invasive method, assessment of the body condition score and morphometric measurements, electrocardiogram examination, and blood collection. The behavioral assessment observed the most prevalent facial and postural expression. In general, most felines reacted well to the procedures performed and felt comfortable with relaxed and alert facial and body expressions. Few animals showed signs of fear. Thus, the use of practices aimed at welfare together with the use of feline synthetic facial pheromone contributed positively to the results found. Therefore, it is concluded that most felines show signs of relaxation and welfare during the manipulation of the clinical examination and the performance of the procedures with a quiet and safe environment for care and also with the use of feline synthetic facial pheromone.

**Keywords:** Cat; Body language; Comfort; Welfare.

### **Resumo**

Os felinos são capazes de expressar diversas emoções por meio do seu comportamento. Com base nisso, torna-se fundamental compreender o significado das expressões corporais e faciais dos felinos, pois isso auxiliará para a realização dos procedimentos com segurança e sem promover desconforto ao paciente. Portanto, o objetivo deste artigo foi avaliar o comportamento e bem-estar de felinos por meio da visualização da linguagem corporal durante o atendimento clínico e os procedimentos realizados. Participaram deste estudo, 30 felinos, adultos, 16 fêmeas e 14 machos, todos castrados e sem raça definida. Os felinos foram expostos a uma série de procedimentos clínicos durante o exame físico aferição da pressão arterial pelo método não invasivo, avaliação do escore de condição corporal e medidas morfométricas, exame eletrocardiograma e coleta de sangue. A avaliação comportamental foi realizada por meio observacional da expressão facial e postural mais predominante. De um modo geral observou-se que a maioria dos felinos reagiram bem frente aos procedimentos realizados e sentiram-se à vontade com expressões faciais e corporais relaxadas ou em alerta. E poucos animais demonstraram sinais de medo. Dessa forma, a utilização de práticas, que visam o bem-estar aliado ao uso do feromônio sintético facial felino contribuiu positivamente para os resultados encontrados. Conclui-se que a maioria dos

felinos demonstram sinais de relaxamento e bem-estar durante a manipulação do exame clínico e a realização dos procedimentos com o ambiente tranquilo e seguro para o atendimento e também com uso do feromônio sintético facial felino.

**Palavras-chave:** Gato; Linguagem corporal; Conforto; Bem-estar.

## **Resumen**

Los felinos son capaces de expresar diversas emociones a través de su comportamiento. En base a esto, es fundamental comprender el significado del cuerpo y las expresiones faciales felinas, ya que esto ayudará a realizar los procedimientos de forma segura y sin causar molestias al paciente. Por tanto, el objetivo de este artículo fue evaluar El comportamiento y el bienestar de los felinos a través de la visualización del lenguaje corporal durante la atención clínica y los procedimientos realizados. En este estudio participaron 30 felinos, adultos, 16 hembras y 14 machos, todos castrados y mestizos. Los gatos fueron expuestos a una serie de procedimientos clínicos durante el examen físico, medición de la presión arterial por el método no invasivo, evaluación del puntaje de condición corporal y mediciones morfométricas, examen de electrocardiograma y extracción de sangre. La evaluación del comportamiento se realizó observando la expresión facial y postural más prevalente. En general, se observó que la mayoría de los felinos reaccionaron bien a los procedimientos realizados y se sentían cómodos con expresiones faciales y corporales relajadas y alertas. Y pocos animales mostraron signos de miedo. Así, el uso de prácticas orientadas al bienestar combinado con el uso de feromonas faciales sintéticas felinas contribuyeron positivamente a los resultados encontrados. Se concluye que la mayoría de felinos muestran signos de relajación y bienestar durante la manipulación del examen clínico y la realización de los procedimientos con un ambiente tranquilo y seguro para el cuidado y también con el uso de feromonas faciales sintéticas felinas.

**Palabras clave:** Gato; Lenguaje corporal; Comodidad; Bienestar.

## **1. Introduction**

The domestic cat (*Felis silvestris catus*) can express several emotions through its behavior (Heath, 2018). In this way, they can transmit their mood and intentions through their body language such as ear position, tail, and body posture (Tuzio et al., 2004). Therefore, the interpretation of feline emotions becomes indispensable during clinical care since the

presentation of a certain behavior considered undesirable can be associated with some change such as illness, pain, anxiety, and stress (Rodan et al., 2011).

The feline's displacement to the veterinary clinic can generate uncomfortable situations that cause stress, fear, and anxiety. For this reason, some owners report taking a long time to seek veterinary service due to the momentary stress that can cause cats (Volk, 2011). Therefore, promoting a comfortable environment during clinical care is essential, which provides tranquility and security for felines and owners (Rodan et al., 2011).

Thus, understanding the meaning of the body and facial expressions and the natural behavior of felines becomes essential for clinical management since this will help and contribute to the safe performance of the intended procedures and without promoting discomfort and stress to the patient (Rodan et al., 2011; Rodan, 2015). Therefore, this article aimed to evaluate the behavior and welfare of felines through the visualization of body language during clinical care and the performed of some procedures.

## **2. Materials and Methods**

The Animal Ethics and Experimentation Committee of UFPel approved these procedures (23110.030811/2019-10) and the owners signed the informed consent form (ICF). This study involved the participation of thirty adult cats, 16 females and 14 males, all neutered and mixed breed. The felines were exposed to different clinical procedures such as physical examination (cardiac and respiratory auscultation, temperature checking, blood pressure measurement using the non-invasive vascular Doppler method, body condition score assessment, and morphometric measurements), electrocardiogram examination, and collection of blood. These animals remained since the anamnesis with their owner.

The consultation was previously scheduled so there was no considerable time in the waiting room. Therefore, during the handling of animals, some friendly practices of cats were used in order to minimize any possible stress. (Rodan et al., 2011). Thus, 15 minutes before the consultation, we used Feliway® CLASSIC spray in the environment and on the table where the feline would be handled. At the beginning of the anamnesis, we recommended opening the feline's transport box to let the patient explore the environment voluntarily. Soon, the animals that did not voluntarily leave the transport box was removed the upper part of the box, in order not to promote discomfort to these animals. After recognizing the environment and social contact with the veterinarian, the clinical examination and nutritional assessment calmly began.

For the clinical examination, a cover was placed on the table to provide comfort. For the measurement of systolic blood pressure, the evaluator used a headset connected to the vascular Doppler and in most cases, the patient was rolled up on the cover, providing more comfort. Regarding the manipulation during the electrocardiogram exam, we recommended providing a quiet environment with little restraint. During blood collection, we used a 23G scalp for venipuncture, with the femoral, cephalic, and jugular veins being the last option. These procedures were always performed in that chronological order.

Two evaluators performed the behavioral assessment through observational feline body language. They chose the most prevalent behavior during the service. The analysis was based on the interpretation of facial expression (ears position, pupil dilation and mouth opening), posture (standing, lying down, head posture and curved back), tail (relaxed or moving), presence or absence of vocalization, and the way the feline reacted during manipulation (well, uncomfortable or aggressive). In Table 1, it is possible to analyze in the image on the left nine different facial expressions, where it is observed that the direction of the arrow indicates expressions initially of relaxed animals and later animals with signs of fear and aggression and similarly in the right image where there are 16 different postural expressions. (Tuzio et al., 2004; Overall et al., 2005; Rodan et al., 2011; Rodan, 2015). The data were analyzed and the observational method was used as the visualization of the most frequent behavior. Therefore, an average of the two evaluators was performed using descriptive statistics.

**Table 1.** Behavioral analysis during clinical management by observing feline body language.

Temperament	( ) confident/at ease ( ) shy/nervous ( ) aggressive active
Facial expression	Body posture
Tail	( ) relaxed ( ) moving
Vocalization	( ) absent ( ) present ( ) meow ( ) purr ( ) snarl
During management reacted	( ) good ( ) uncomfortable/ fear ( ) aggressive

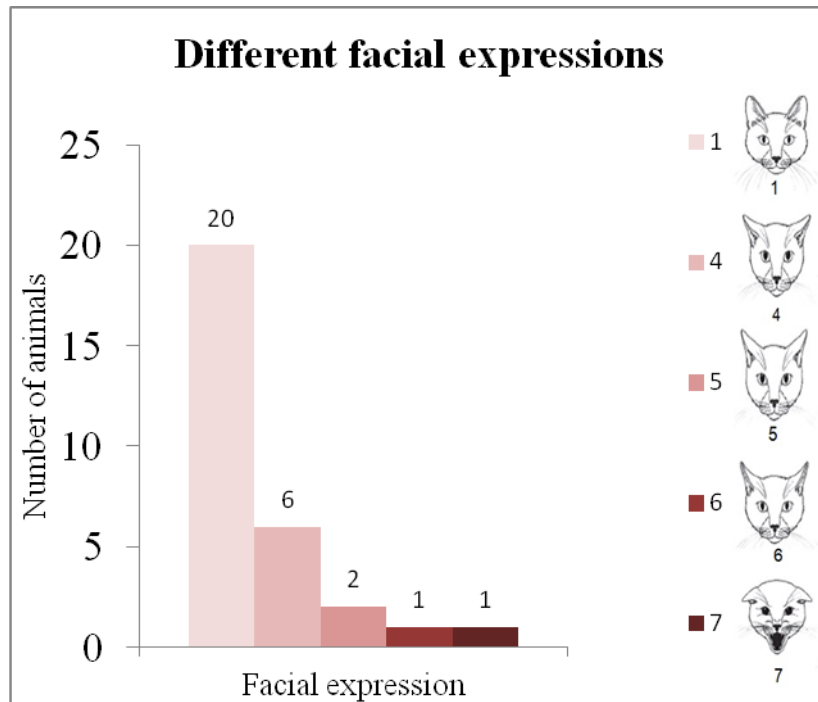
Source: Imagery adapted Bowen & Heath (2005); Rodan, (2015).

### 3. Results and Discussion

Regarding the feline's temperament, it was observed that most 22 (73%) showed to be confident/at ease. Thus, 28 (93%) animals kept their facial expression calm and relaxed, keeping their eyes open or closed, pupil relaxed or slightly dilated, ears turned forward or slightly lateralized and facial muscles relaxed and 22 (73%) animals had their bodies relaxed posture without signs of aggression keeping the head facing up, the back slightly arched or not, standing or sitting and the tail relaxed). However, it was observed that some animals showed signs of fear and aggression, 2 (6.7%) kept the pupil dilated, ears low or turned back, facial muscles tense and some cases with open mouth, and 8 (27%) maintained head lowered, back contracted and arched, lying down (Figures 1 and 2).. Fear is characterized as a response to a stimulus or situation considered non-routine for the feline and usually occurs in

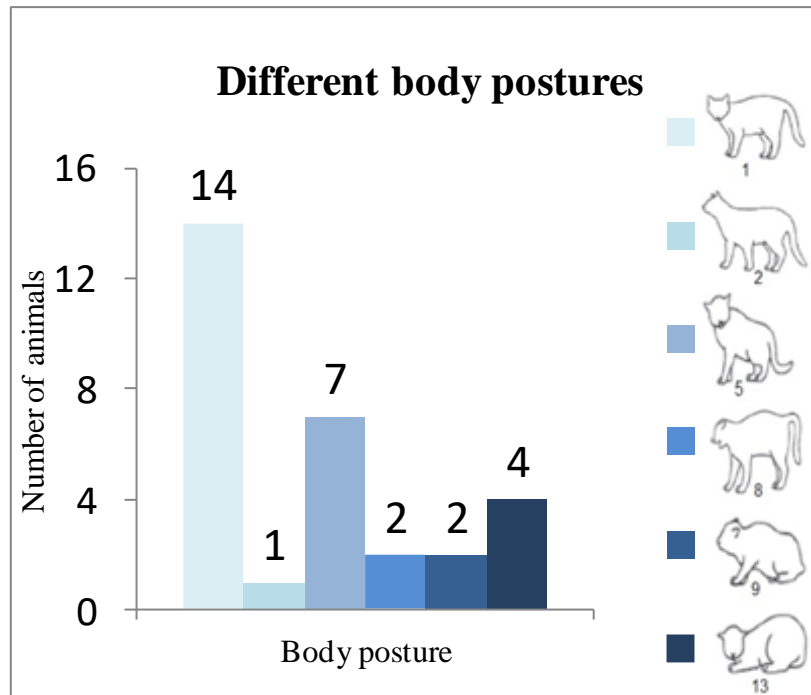
unfamiliar environments, being one of the main causes of aggression in a hospital environment (Moffat, 2008; Ellis, 2018; Heath, 2018). It often occurs due to the lack of socialization when kittens to different stimuli, to negative experiences in the veterinary environment, or due to improper punishment of owners (Tuzio et al., 2004; Snitcofsky, 2013).

**Figure 1.** Demonstration of the different facial images found in the felines studied during clinical care.



Source: Authors.

**Figure 2.** Demonstration of the different postural images found in the felines studied during clinical care.



Source: Authors.

In general, it was observed that more than half of the felines reacted well and felt at ease with relaxed and alert facial and body expressions. Few animals showed signs of fear (figures 1 and 2). Felines are able to transmit various signals with different meanings through their body language, such as arching the back can mean fear or aggression, so, the patient must be evaluated in their total body language (Pereira e Pereira, 2013; Ellis, 2018). Therefore, evaluating the facial expression is essential, enabling us to analyze whether the feline is relaxed, curious, or even aggressive. Thus, a relaxed feline is characterized by presenting the muscles of the relaxed face, the position of ears turned forward or slightly to the side, eyes open or closed. Also, a curious feline resembles the facial features of a relaxed one; however, the ears are turned to the focus of their attention and eyes open. An aggressive feline is different by its tension in the musculature of the face, ears turned back or against the head, eyes open and the pupil may be dilated or contracted (Pereira e Pereira, 2013).

The analysis of the position and movement of the tail can also indicate signs of relaxation or even aggression as in this study that most cats, 23 (77%), kept their tail relaxed and 7 (23%) in movement. However, we analyzed that calm animals keep the tail vertically or folded. Agitated or animals with discomfort tend to move their tails frequently (Rodan, 2015). In addition 13 (43%) did not show the presence of vocalization, 17 (57%) vocalized, and 11

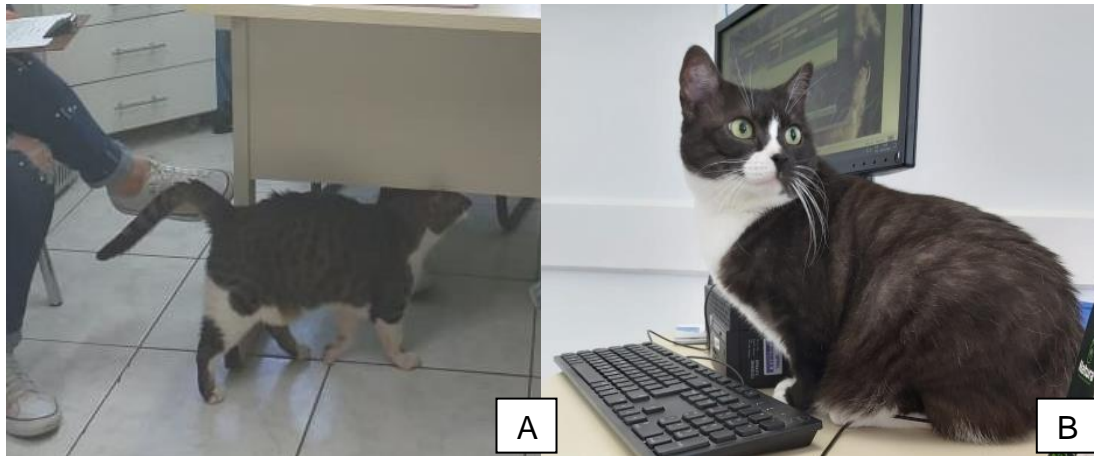


of them (65%) meowed, 3 (18%) purred and 3 (18%) snarled. Feline social communication also occurs through their vocalization, the meowing being a general communication sound, the purring can indicate tranquility or in some situations the presence of extreme pain. Growling can occur in situations in which animals are defensive and can become aggressive (Ley e Seksel, 2015).

During each service, it was possible to analyze that most animals voluntarily left the transport box and showed curiosity to explore the environment, as shown in the figure 3. The patient's welfare involves everything from placing the feline in the transport box, traveling to the clinic and the service period can be factors that trigger acute stress in felines (Rodan et al., 2011). Based on this, we tried to establish a bond with the owners before the consultation to provide information regarding the management of the patient to the clinic. Therefore, physical and emotional conditions should be evaluated to avoid misdiagnosis and unnecessary treatments, as stress can alter hematological parameters, such as the leukogram (Horwitz e Rodan, 2018). Thus, veterinarians should know how to recognize and interpret body language and its meanings during care (Rodan et al., 2011).

Given the above, it is important to guide owners from placing the animal in the transport box, as placing it abruptly can cause stress, anxiety, and fear. Leaving the patient out of the box in the office can also trigger stress, so it is important to first ensure that the environment is closed to open the transport box (Tuzio et al., 2004). Some felines go out voluntarily and enjoy exploring the environment as a positive experience. However, other felines do not leave voluntarily, in these animals it is recommended to remove the upper part of the box, minimizing the negative effects and discomfort caused by the removal of the animal in an erroneous way (Rodan et al., 2011).

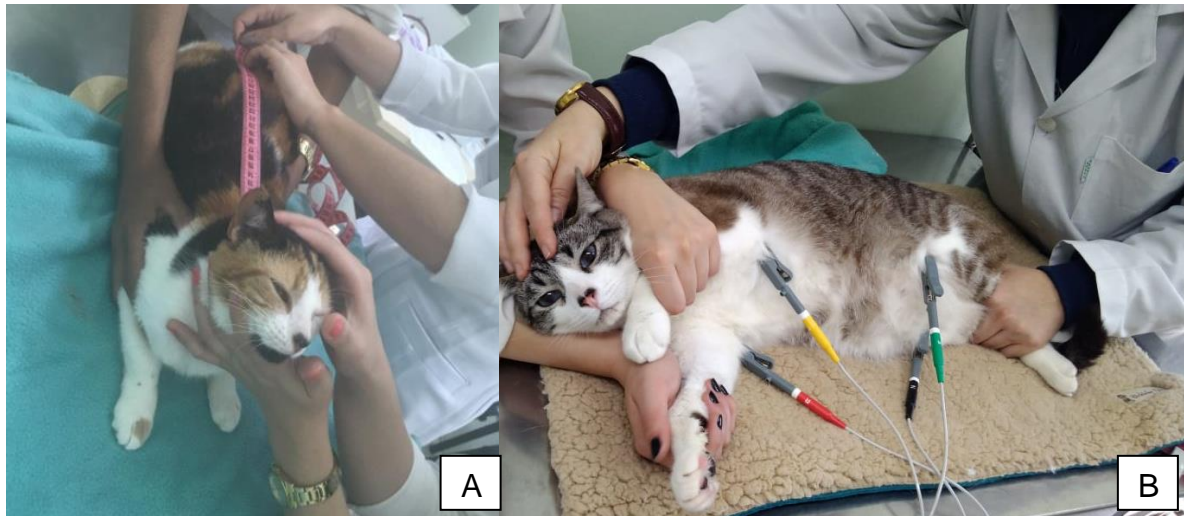
**Figure 3.** In both images, the felines showed interest in exploring the ambulatory environment, in (A) the floor, and on the table (B).



Source: Authors.

During clinical examination, nutritional assessment, morphometric measurements and pressure measurement, we tried to make the animals as comfortable as possible. Thus, the cats did not show signs of discomfort during clinical examination and body evaluation Figure 4. Thus, it was found that 16 (54%) patients felt more comfortable and safe being wrapped in the cover, allowing better manipulation of the limbs to measure blood pressure, as shown in Figure 5. In addition, the electrocardiogram exam was performed in 26 (87%) patients who remained in the right lateral decubitus for the determined time Figure 4. During blood collection, it was sought to involve the patient in the cover, without much physical restraint to minimize the stress of the collection. Thus, it was observed that the femoral vein was the most accepted vein for venipuncture, followed by the cephalic vein.

**Figure 4.** Assessments performed on feline patients during clinical care, in A- height measurement and B- electrocardiogram exam in the right lateral position.



Source: Authors.

**Figure 5.** Feline patient measuring systolic blood pressure in lateral decubitus, A - in the left thoracic limb and B - left pelvic limb.



Source: Authors.

In general, it was observed that the use of practices aimed at welfare and the use of feline synthetic facial pheromone (Feliway®) contributed positively to the results found. Through the visualization of body language, we observed that most felines showed signs of relaxation and comfort during clinical care. Thus, calm handling without sudden movements, noises, and smells of other animals should be recommended during clinical care (Rodan et al., 2011). Also, the use of a feline synthetic pheromone analog can prevent the patient from

becoming reactive, stressed, or even aggressive (Frank, 2010; Pereira et al., 2016; Freitag e Morato, 2018). Therefore, it is essential in clinical practice to promote this environment to minimize the fear and stress of felines, optimize the handling and performance of procedures in the patient and establish a bond of trust between the owner and the veterinarian (Rodan et al., 2011).

#### **4. Conclusion**

Therefore, it is concluded that most felines showed signs of relaxation and welfare during the manipulation of the clinical examination and the performance of the procedures with a quiet and safe environment for care and also with the use of feline synthetic facial pheromone.

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