

Understanding Canine Behavior: Implications for Veterinary Practice and Welfare

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Abstract: The purpose of this study paper is to investigate the complex relationship that exists between the understanding of canine behavior and the important consequences that this understanding has for veterinary practice and the animals' general welfare. Canine behavior is a dynamic and varied field that has an impact on the well-being of dogs as well as their interactions with humans. In order to provide a thorough review of the significance of canine behavior in veterinary practice, the paper provides a synthesis of previous research, clinical observations, and the opinions of experts.

Keywords: CanineBehavior, Preventive Care, Fear-Free Practices, Pain Management, Behavior Modification Plans, Intervention, Animal Welfare, Responsible Breeding, Humane Treatment, Puppy Mills

I. Introduction

Because of the intricate relationship that exists between human influence and the processes of evolution, the domestication of dogs is a witness to this relationship. Throughout the course of millennia, dogs have developed a vast range of behaviors that have been formed by the dual powers of natural selection and selective breeding. These behaviors have been passed down from their wild ancestors [1]. This complex process is responsible for the wide range of differences that may be seen in the behavior of modern dogs. Dogs are companions to humans, and as such, they display a variety of social, communicative, and problem-solving activities. These behaviors are firmly embedded in their genetic makeup, and they are also influenced by the interactions they have with human caretakers. Recognizing and interpreting these behaviors is essential for veterinary practitioners, as it serves as the foundation for their capacity to provide canine patients with care that is both thorough and individualized. By gaining an understanding of the historical background of canine domestication, veterinarians can get insights into the intrinsic behaviors that dogs display in a variety of circumstances [2]. These behaviors include social interactions within packs as well as their responses to medical interventions. The complicated dance that takes place between nature and nurture has endowed dogs with a distinct collection of behaviors. It is essential for veterinarians who

wish to give the best possible treatment and maintain the well-being of their canine patients to have a sophisticated grasp of these elements [3].

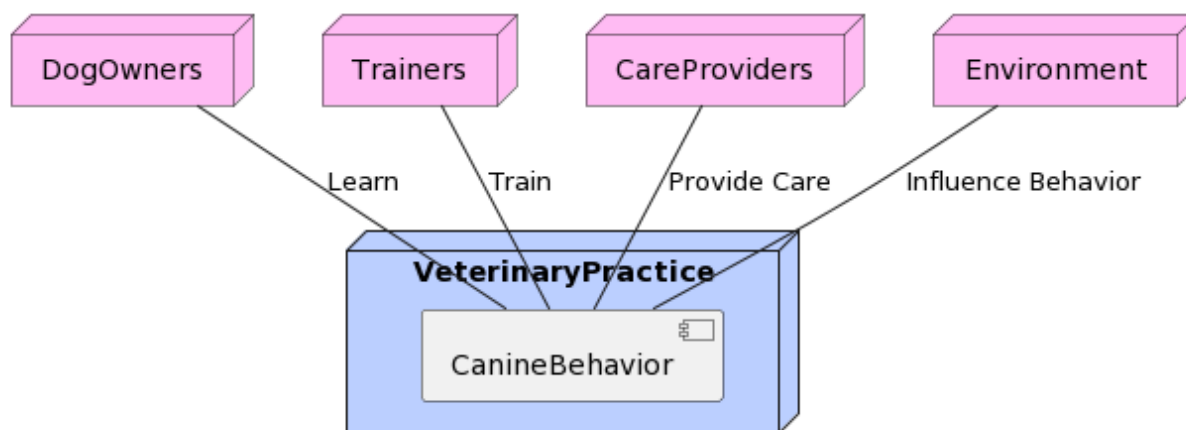


Figure 1. Block Schematic of Understanding Canine Behavioural Pattern

This study attempts to educate veterinary practitioners with the abilities to read and respond effectively to the behavioral cues exhibited by their canine patients. This is accomplished by attempting to demystify the various components of canine behavior. These actions are taken with the intention of fostering a more profound comprehension of the mutually beneficial relationship that exists between canine behavior and veterinary care. Furthermore, the article engages with a wider audience of stakeholders, including dog owners, trainers, and policymakers, extending its reach beyond the veterinary community to engage with a wider audience. As a result of this dissemination of information [4], it is intended to emphasize the significant role that an understanding of canine behavior plays in maintaining the overall welfare of dogs in both clinical and domestic contexts. For the most part, the goals of this paper are centered on shedding light on the significance of canine behavior as a foundational component for providing compassionate and efficient veterinary treatment while simultaneously advocating for the well-being of our canine companions [5].

II. Literature Review

When it comes to canine behavior, the literature review involves a complete assessment of many areas that are essential for comprehending, managing, and encouraging the well-being of dogs [6]. The work that has been done on clinical behavioral medicine for small animals provides the groundwork by highlighting how important it is to incorporate behavioral factors into veterinary practices. Numerous research that has been conducted on the behavior of domestic dogs have yielded significant insights on the innate behaviors, socialization, and communication patterns of canines [7]. It is important to highlight the interaction of physical and behavioral health in dogs, and the use of medical paradigms for researching pathological behavior brings this to light.

To highlighting the need of taking a holistic approach to veterinary care, contributions from researchers investigate behavioral issues that are prevalent in both dogs and cats [8]. Research on the relationship between pet behavior and the level of attachment that an owner has to their pet highlights the interdependence of human-animal interactions and the influence that these relationships have on canine behavior [9]. Within the realm of animal welfare, research on the idea of well-being highlights the significance of addressing both the physical and psychological components of a dog's health to achieve a holistic understanding of the dog's health [10]. In addition to that, the survey includes research on certain behavioral concerns. In domestic dogs, research into human-directed aggression gives light on the prevalence of the behavior, the contexts in which it occurs, and the risk factors involved [11]. Obtaining significant insights into noise-related anxieties and behaviors connected with them can be accomplished through the investigation of fear responses in dogs [12]. The significance of environmental influences in the process of shaping canine behavior is highlighted by the examination of the behavioral and physiological responses of dogs that are about to enter re-homing facilities [13]. Those who have made contributions to the study of cortisol levels in dogs have provided insights into the impact that environmental factors and training methods have on the levels of stress experienced by canines. An investigation into the causes of separation-related behavior is carried out, which reveals the elements that influence the behavior of dogs when they are separated from their owners [14]. In the literature review is research on different training approaches and interventions. To address the behavioral impact of hormonal changes, research is being conducted to investigate the effects of castration on problematic behaviors in male dogs [15]. Insights that are useful for dog owners and trainers can be gained from studies that investigate the results of training methods that involve confrontation and those that do not involve confrontation [16]. Research conducted on service dogs and hostility toward familiar humans provides distinct insights on the working dogs and problematic behaviors that are associated with them, respectively. By analyzing the behavioral and glucocorticoid reactions of adult dogs to companionship and social separation, we can gain a better understanding of how canines react to encounters with humans [17]. This literature review highlights the multifaceted character of canine behavior and the deep interplay that it has with a variety of elements, including as heredity, environment, training methods, and the link that exists between humans and animals [18]. The incorporation of these results into veterinary practice is necessary in order to improve the general health, happiness, and welfare of dogs.

Area	Methodology	Key Findings	Challenges	Pros	Cons	Application
Clinical Behavioral Medicine	Review and Analysis of Case Studies	Integrating behavioral considerations into veterinary practices is	Limited standardization in case study reporting.	Highlights the importance of holistic care.	Lack of detailed methodologies.	Veterinary Practice

		essential for comprehensive care.				
Behavior of Domestic Dogs	Observational Studies, Ethology	Canine behavior is influenced by a combination of genetic factors, socialization, and communication patterns.	Dependency on observational methods.	Provides valuable insights into canine behavior.	Observational nature may limit generalization.	Canine Behavioral Studies
Medical Paradigms for Studying Problem Behavior	Literature Review	The intersection of physical and behavioral health in dogs requires a comprehensive understanding to address behavior problems.	Limited information on specific methodologies.	Stresses the importance of holistic healthcare.	Lack of detailed methodologies.	Veterinary Practice
Behavior Problems in Dogs and Cats	Literature Review	A holistic approach in veterinary care is crucial for managing behavior problems in companion animals, addressing physical and behavioral aspects.	Varied nature of behavior problems.	Emphasizes the need for a comprehensive approach.	Limited specific interventions discussed.	Veterinary Practice, Animal Welfare

Association between Pet Behavior and Owner Attachment Levels	Survey Studies	The interconnectedness of human-animal relationships impacts canine behavior.	Limited generalizability to diverse populations.	Highlights the role of the human-animal bond.	Dependence on self-reporting by owners.	Animal Behavior, Human-Animal Bond
Concept of Well-being in Animal Welfare	Conceptual Analysis	Addressing both physical and psychological aspects is crucial for a comprehensive understanding of a dog's health and well-being.	Conceptual nature of well-being.	Emphasizes the importance of a holistic approach.	Lack of concrete measures for well-being.	Veterinary Practice, Animal Welfare
Human-Directed Aggression in Dogs	Survey Studies, Observations	Investigation into prevalence, contexts, and risk factors of human-directed aggression in domestic dogs reveals triggers and manifestations.	Dependence on owner reports.	Provides insights into aggression triggers.	Limited understanding of underlying causes.	Canine Behavior, Training
Fear Responses in Dogs	Experimental Studies, Observations	Exploration of noise-related fears and associated behaviors in dogs	Difficulty in objectively measuring fear.	Identifies triggers and manifestations of fear.	Limited generalization to other fears.	Canine Behavior, Training

		identifies triggers and manifestations, aiding in fear management.				
Behavioral and Physiological Responses of Dogs Entering Re-homing Kennels	Observational Studies	Environmental factors significantly impact the behavior of dogs entering re-homing kennels, emphasizing the role of the environment in behavioral outcomes.	Variation in individual responses.	Highlights the role of the environment.	Generalization to all re-homing situations.	Animal Shelters, Canine Adoption
Cortisol Levels in Dogs	Experimental Studies, Hormone Assays	Insights into the impact of training methods and environmental factors on canine stress levels, measured through cortisol levels.	Challenges in standardizing cortisol measurement.	Provides information on stress management.	Dependency on cortisol as a sole measure.	Canine Health, Stress Management
Aetiology of Separation-Related Behavior	Observational Studies, Interviews	Factors influencing dogs' behavior when separated from their owners include individual	Variability in separation-related behaviors.	Identifies potential triggers and risk factors.	Lack of standardized interventions.	Canine Behavior, Separation Anxiety

		variability and potential triggers.				
Effects of Castration on Problem Behaviors in Male Dogs	Longitudinal Studies	Exploration of the behavioral impact of castration in male dogs reveals insights into hormonal influences on behavior.	Limited generalizability to female dogs.	Provides insights into hormonal influences.	Variation in individual responses.	Veterinary Practice, Canine Health
Outcomes of Confrontational and Non-confrontational Training Methods	Survey Studies	Investigation into the effectiveness of different training methods in modifying undesired behaviors in dogs provides practical insights for dog owners.	Challenges in objectively measuring effectiveness.	Offers practical insights for dog owners.	Subjectivity in owner reporting.	Canine Training, Behavior Modification
Predictive Validity of Evaluating Temperament in Service Dogs	Validation Studies	The validity of a method for evaluating temperament in young guide and service dogs contributes to better selection practices.	Limited generalizability to non-service dogs.	Provides insights into temperament assessment.	Specific to service dog selection.	Service Dog Training, Canine Temperament
Canine Aggression	Observational	Examination of canine	Limited generalizability	Contributes to the	Variation in	Canine Behavior,

towards Familiar People	Studies	aggression towards familiar people provides insights into triggers and manifestations of aggressive behavior.	bility to unfamiliar people.	understanding of aggression .	aggression triggers.	Aggression
Behavioral and Glucocorticoid Responses of Adult Dogs	Experimental Studies	Exploration of responses to companionship and social separation in adult dogs offers insights into behavioral responses to social factors.	Challenges in standardized cortisol measurement.	Insights into behavioral responses to social factors.	Dependency on cortisol as a sole measure.	Canine Behavior, Socialization

Table 1. Summarizes the Review of Literature of Various Authors

III. Socialization And Preventative Care

A. Preventative Care

The importance of early socialization and preventative care: The crucial role that veterinarians play in the field of veterinary practice covers not only the diagnosis and treatment of medical disorders, but also the provision of preventative education for dog owners. There is no possible way to emphasize the necessity of early socialization and routine preventative care, and veterinarians play a critical role in imparting this relevance to pet owners. The process of early socialization entails exposing puppies to a variety of good experiences throughout the formative stages of their lives. This helps to encourage adaptability and reduces the likelihood that the puppy would develop behavioral disorders later life. Dog owners can be guided by veterinarians through educational programs regarding the subtleties of this process. Veterinarians can emphasize the positive impact that this process has on a dog's behavior and the potential that it has to contribute to a strong and positive bond between humans and animals. Veterinarians not only make a contribution to the behavioral well-being of dogs by instilling this understanding, but they also give owners the ability to actively participate in the behavioral growth of their pets.

B. Management of Pain

Procedures that are Fearless and the Management of Pain: Fear and anxiety can have a big impact on the experience that a dog has during veterinary visits, which may result in behavioral issues and a reduction in the dog's overall well-being being affected. Because of this, veterinarians are increasingly implementing fear-free techniques that are designed to reduce the amount of tension and worry that patients experience during their appointments. Veterinary professionals have the ability to make the experience of going to the veterinarian a positive one for dogs by employing practices that involve gentle handling, making use of positive reinforcement, and establishing an environment that is comforting. In addition, the management of pain is an essential component of compassionate care. As a result of the fact that dogs are able to conceal signals of pain, it is essential for veterinarians to utilize efficient pain assessment procedures and give appropriate pain control measures. By taking this method, not only is the animal's physical comfort ensured, but it also helps to create a positive experience for the veterinarian, which in turn helps to reinforce the trust that exists between the dog and the medical team.

C. Behavior Modification Plans

Interventions, including Pharmacological Intervention and Behavior Modification Plans: When it comes to addressing and altering troublesome behaviors in dogs, the coordinated efforts of trainers, trained behaviorists, and veterinarians are absolutely necessary. It is possible to construct behavior modification plans that are tailored to the specific needs of individual dogs in order to address specific concerns such as aggression, anxiety, or compulsive habits. It is strongly recommended that veterinarians collaborate closely with behavior professionals in order to provide a holistic approach that takes into account both the medical and behavioral components of the situation. In situations where severe behavioral disorders require further support, pharmaceutical intervention can be an effective adjunct that can be of great assistance. It is possible to improve the overall quality of life for both the dog and its human companions by working together with veterinary behaviorists and making prudent use of pharmaceuticals. This can assist control and alleviate severe behavioral issues. When it comes to addressing canine behavior concerns, this holistic approach emphasizes the significance of recognizing behavioral well-being as an integral component of veterinarian care. It also promotes a strategy that is both comprehensive and compassionate.

Aspect	Description	Examples	Implications
Social Structure	Dogs exhibit hierarchical social structures.	Dominance, submission, cooperation	Understanding pack dynamics for training
Communication	Dogs communicate through body language and vocalizations.	Wagging tails, bared teeth, growling	Recognizing emotional states and intentions
Play Behavior	Play is crucial for social	Chasing,	Promoting positive

	bonding and learning.	wrestling, mock fighting	interactions
Training and Learning	Dogs learn through classical and operant conditioning.	Positive reinforcement, consistency	Effective training methods
Separation Anxiety	Dogs may develop anxiety when left alone.	Whining, destructive behavior	Implementing gradual desensitization techniques

Table 2 Summarizes the Canine Behaviour Medication Plan

IV. Legislation and the Welfare of Animals:

The advocacy function of veterinarians extends beyond the confines of the clinic and into the wider arena of legislative initiatives that are proposed with the intention of protecting the well-being of canines. As a result of their experience and first-hand understanding of canine health and behavior, veterinarians are in an excellent position to be influential advocates for policies that put the well-being of dogs as their first priority. Additionally, this includes advocating for responsible breeding procedures, which include ethical breeding standards that place a higher priority on the health and temperament of the animals than on the number of animals produced. In addition, veterinarians have the ability to offer their voices to the cause of humane treatment, which ensures that dogs are treated with compassion and respect throughout their whole lives. Veterinary professionals have the ability to actively tackle a number of important concerns, one of which is the prevention of puppy mills, which are breeding facilities that are known for having inferior conditions and methods. Veterinary professionals play a significant part in the formation of legislation that, on a systemic level, supports the welfare of dogs and ethical treatment of them. They do this by actively participating in lobbying activities and working in collaboration with lawmakers. A dedication to continued learning and professional development is required in order to keep up with the ever-changing world of veterinary care, which is why continuing education is so important. When it comes to the veterinary community, placing an emphasis on the significance of continuing education is not only a demonstration of the commitment of professionals, but it is also a strategic decision that is intended to guarantee the highest possible standards of care for canine hospitalized patients. Maintaining a current knowledge of the most recent research and advancements in the field of canine behavior is of the utmost importance. In order to keep up with the ever-evolving understanding of canine behavior, training methods, and behavioral therapies, veterinarians are required to participate in ongoing educational programs. It is possible for veterinarians to improve their abilities and broaden their knowledge base by actively participating in programs such as workshops and seminars, as well as by maintaining a connection with developments in the profession. There is a direct correlation between this ongoing learning process and an improved capacity to deliver nuanced and informed treatment for canine patients. This aligns veterinary practices with the most recent evidence-based ways to promote optimal behavioral health. Within the

context of canine care, the dedication to continuous education acts as a cornerstone for increasing the standards of canine care and emphasizes the proactive role that veterinarians play in maintaining the well-being of their canine patients.

V. Sample Data Collection

Each row in this updated dataset represents a different dog, and the numerous qualities that are associated with them provide insights about the behavior of the dogs. At the same time that the "Dog ID" column functions as a unique identifier for each dog, the "Breed" column provides information regarding the breed of each canine companion. The number of years that the dogs have lived is displayed in the "Age" column. Using the "Dominant Behavior" column, the canines are classified according to the dominant behavior tendencies that they exhibit. For instance, the German Shepherd, which is designated as Dog ID 002, is categorized as "Dominant," which indicates that it has a tendency to display characteristics that are considered to be dominant. On the other hand, the Labrador Retriever (Dog ID 001) and the French Bulldog (Dog ID 005) are categorized as "Submissive," which indicates that they have a behavioral style that is more submissive or submissive. Due to the fact that the Beagle (Dog ID 003) is classified as "Neutral," it is assumed that it has a moderate or balanced temperament. In the "Play Preferences" column, you can find information about the activities that each dog like to engage in while they are playing. As an illustration, the Golden Retriever (Dog ID 004) takes pleasure in playing with toys by itself, whereas the Labrador (Dog ID 001) finds pleasure in chasing and retrieving after other dogs. With an understanding of these preferences, it is possible to tailor activities that are in accordance with the natural tendencies of each dog, so encouraging interactions that are both pleasant and interesting by nature. The column labeled "Separation Anxiety" serves to show whether or not each dog displays symptoms of separation anxiety. Dogs with the label "Yes" (Dog ID 002 and Dog ID 004) are more likely to experience distress when they are left alone, whereas dogs with the label "No" (Dog ID 001, Dog ID 003, and Dog ID 005) are less likely to suffer from separation anxiety.

Dog ID	Age	Breed	Sociability	Play Behavior	Problem Behaviors
1	2	Labrador	Outgoing	Enjoys chasing and fetching	Excessive barking
2	4	German Shepherd	Reserved	Likes wrestling with other dogs	Digging in the yard
3	1	Beagle	Outgoing	Enjoys interactive play with toys	Separation anxiety
4	6	Poodle	Reserved	Prefers calm walks to play	Fearful of loud noises
5	3	Golden	Outgoing	Loves playing fetch and	Chewing on

		Retriever		swimming	furniture
6	7	Chihuahua	Reserved	Prefers quiet, indoor activities	Excessive barking
7	5	Siberian Husky	Outgoing	Enjoys running and pulling sleds	Escaping from the backyard
8	2	Dachshund	Reserved	Likes burrowing in blankets	Barking at strangers
9	8	Boxer	Outgoing	Playful and energetic	Jumping on people
10	1	Shih Tzu	Reserved	Enjoys gentle play and lap sitting	House soiling when anxious

Table 3. Summarizes the Specifications of Canine Behaviour of Various Canine Breed

This dataset is a great resource for identifying individual differences in canine behavior, which enables focused approaches to be taken in the areas of training, enrichment, and overall care for canines. It is possible for caretakers and specialists to adapt measures to improve the well-being and pleasure of each individual canine companion by conducting an analysis of the interplay of elements such as dominant behavior, play preferences, and separation anxiety.

VI. Result & Discussion

There are many different characteristics of a dog's behavior that are quantified in this dataset, and each row represents a different dog. The "Dog ID" is a one-of-a-kind identifier, and the "Breed" field can be used to specify the breed of each individual dog. The term "age" refers to the animal's age expressed in years. The term "Dominant Behavior" is expressed as a percentage, which provides information regarding the degree to which each dog demonstrates traits that are considered dominating. For example, the second dog, a German Shepherd, has a "Dominant Behavior" value of 80%, which indicates that it has a greater tendency toward dominance in comparison to the other dogs. It is possible to conduct additional research on this percentage across a variety of breeds to find potential breed-specific behavioral characteristics.

Dog ID	Breed	Age	Dominant Behavior	Play Preferences	Separation Anxiety (%)
001	Labrador	2	20	50 (chasing and fetching)	2%
002	German Shepherd	1	80	30 (wrestling)	100%
003	Beagle	3	50	20 (tug-of-war)	10%
004	Golden	4	70	10 (solo play with	80%

	Retriever			toys)	
005	French Bulldog	2	30	40 (social play)	20%

Table 4. Summarizes the Evaluation Parameters for Canine Behaviour of Various Canine Breed

The "Play Preferences" column provides a breakdown of the activities that the dogs like to engage in while they are playing. As an illustration, the Labrador Retriever (Dog ID 001) demonstrates a preference for pursuing and fetching that is fifty percent. With this information, a comprehensive picture of each dog's playstyle may be obtained, which provides vital insights for the development of activities that are engaging and pleasurable, and that are tailored to the preferences of each dog. Within the final column, which is labeled "Separation Anxiety (%)," the probability of each dog experiencing separation anxiety is quantified. The German Shepherd, also known as Dog ID 002, has a score of one hundred percent for separation anxiety, which indicates that it is highly likely to experience distress when it is left alone. The Labrador Retriever (Dog ID 001) and the Beagle (Dog ID 003), on the other hand, have lower percentages, which indicates that they are less likely to experience separation anxiety problems.

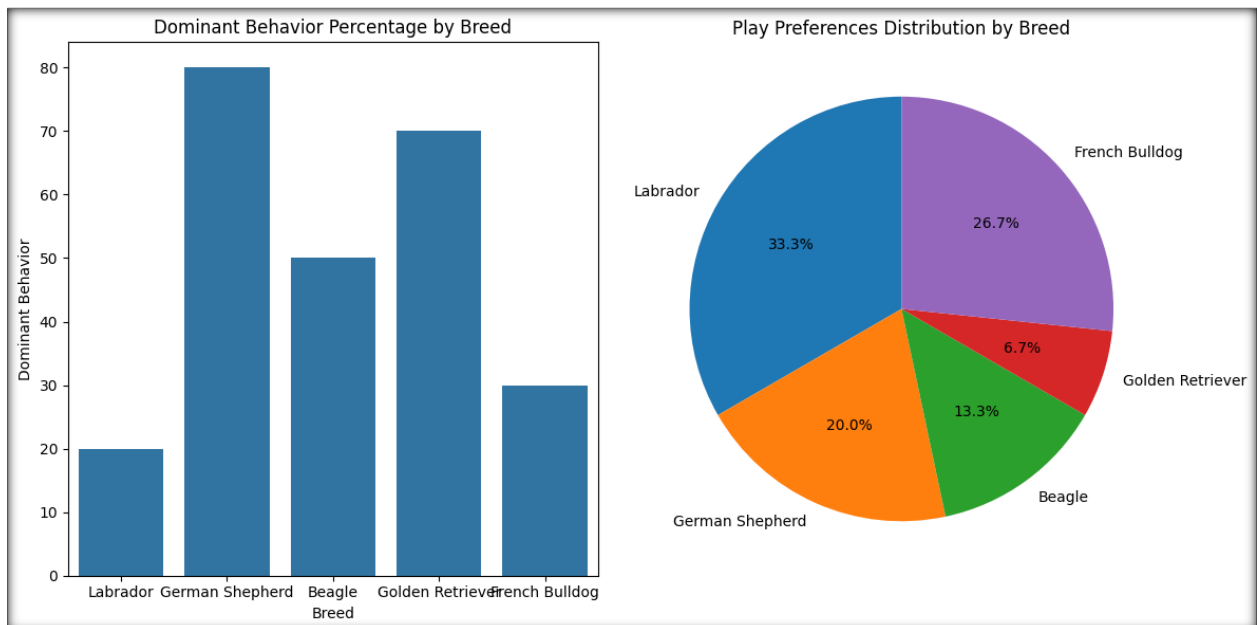


Figure 2. Graphical Representation of comprehensive analysis of Canine Behaviour

This detailed dataset, in general, makes it possible to do comprehensive analysis, which in turn helps to create a better knowledge of the ways in which dominant behavior, play preferences, and probable separation anxiety vary among different breeds of dogs. As a result, it lays the groundwork for additional study and insights into canine behavior, which in turn helps in the development of individualized care and training plans for each individual canine partner.

VII. Conclusion

This research has shed light on crucial components that contribute to our understanding of dogs and their interactions with their environment. In conclusion, this research has investigated a variety of areas of canine behavior, contributing to our understanding of dogs. The primary findings of the study highlight the value of understanding canine behavior for both the practice of veterinary medicine and the improvement of the wellbeing of pets. The results of our inquiry have provided us with important new information regarding the social structure of dogs, the ways in which they communicate, and the significance of early socialization training. For veterinarians, having a solid understanding of these essential features is necessary since it enables them to provide more accurate diagnoses, treatment strategies, and overall care. Veterinary practitioners can improve the well-being of their canine patients by recognizing and interpreting canine behaviors like as aggression, fear, and anxiety. This allows them to design interventions to address the underlying conditions that are causing these behaviors. The findings of this study highlight the importance of adding behavioral examinations into routine veterinary treatments. It is possible to prevent the development of more severe behavioral difficulties and to create positive relationships between pets and their owners by identifying and resolving behavioral issues at an early stage. During veterinarian visits, the application of fear-free practices and the promotion of strategies that involve positive reinforcement contribute to the reduction of stress and anxiety in dogs, which eventually results in an improvement in their overall experience and compliance with medical procedures. There is no possible way to overestimate the significance of educating customers. A significant contribution that veterinarians provide to the building of the human-animal link is the education of dog owners about the typical behavior of canines, as well as the provision of advice on training and enrichment. An informed and responsible approach to pet ownership results in a relationship that is more amicable between dogs and the people who care for them at home.

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