

Between reason and emotion: a new perspective on treatment adherence for diabetic dogs

Entre razão e emoção: um novo olhar sobre a adesão ao tratamento do diabetes mellitus em cães

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ABSTRACT

Part of the success in the treatment of diabetic animals can be due to the emotional and financial commitment of their owners. However, the identification of the values that determine this compromise, mobilize, and motivate pet owners in decision-making has not yet been explored. Such aspects were analyzed during the clinical care of 15 diabetic canine patients under treatment using a qualitative assessment. The information obtained from each owner during the clinical anamnesis was converted into five codes, which were used to grade the owners' levels of perception and involvement from the moment of diabetes mellitus diagnosis, stance, and expectations regarding the proposed therapy. The frequency of these codes allowed the construction of a square matrix of implication and a hierarchical map of values, and a clarification of the factors that influenced the perception and decision-making by the evaluated owners. The most evident personal values were insecurity and pity related to the daily management of insulin therapy, followed by restricted diet and physical exercise. The feelings of dedication, responsibility, safety, and comfort associated with the partnership between the veterinarian and the client were present. Discouraged owners of diabetic dogs should be frequently followed up on and encouraged without strict demands. Insecure owners require constant training and close treatment follow-up. Dissatisfied owners must be listened to and not have their anxieties and frustrations ignored. Calm, dedicated, and committed owners deserve to be congratulated and recognized for their commitment to the treatment of their animals. Approaching the owner through their strengths and allowing them to feel safe and their weaknesses understood can be helpful in the therapeutic success of diabetes mellitus in dogs.

Keywords: Canine. Diabetes mellitus. Owner. Qualitative survey.

RESUMO

Parte do sucesso no tratamento de animais diabéticos pode ser devido ao comprometimento, disponibilidade emocional e financeira de seus proprietários. No entanto, a identificação dos valores que determinam o compromisso, mobilidade e motivação dos proprietários de animais de estimação na tomada de decisões, ainda não foram explorados. Tais aspectos foram analisados durante o atendimento clínico de 15 caninos diabéticos em tratamento, por meio de avaliação qualitativa. As informações obtidas de cada proprietário durante a anamnese clínica foram convertidas em cinco códigos, a partir dos quais subclassificações puderam graduar os níveis de percepção e envolvimento dos mesmos, desde o momento do diagnóstico do diabetes mellitus, como também sua postura e expectativas em relação à terapêutica proposta. A frequência desses códigos permitiu a construção de uma matriz quadrada de implicação e um mapa hierárquico de valores e um esclarecimento dos fatores que influenciaram a percepção e a tomada de decisão dos proprietários avaliados. Os valores pessoais mais evidentes foram a insegurança e a pena relacionadas ao manejo diário da insulino terapia, seguidos de dieta restrita e prática de exercícios físicos. Os sentimentos de dedicação, responsabilidade, segurança e conforto, associados à parceria entre o veterinário e o cliente, estiveram presentes. Os donos de cães diabéticos desanimados devem ser frequentemente acompanhados e encorajados sem exigências rígidas. Proprietários inseguros exigem treinamento constante e acompanhamento rigoroso do tratamento. Os proprietários que estão insatisfeitos, devem ser ouvidos e não ter as suas ansiedades e frustrações ignoradas. Proprietários calmos, dedicados e comprometidos, merecem ser parabenizados e reconhecidos pelo bom comprometimento com o tratamento de seu animal. Abordar o proprietário através de seus pontos fortes e permitir que ele se sinta seguro e compreendido em seus pontos fracos, pode ser útil no sucesso terapêutico do diabetes mellitus em cães.

Palavras-chave: Canino. Diabetes mellitus. Tutor. Questionário qualitativo.

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Introduction

Much of the assessment of diabetic animals involves the owner's perception and their commitment to treat the disease, which affects the three fundamental pillars of treatment: insulin therapy, dietary management, and regular physical exercise (Herrtage, 2009). Together with patient monitoring, those are the necessary elements of care for the successful treatment of diabetes mellitus (DM) in dogs.

Insulin administration is essential for most affected patients. Therefore, the owner needs to strictly follow several recommendations for handling and administering exogenous insulin, which requires adequate knowledge and attention (Cook, 2012; Herrtage, 2009). The diet aims primarily at reducing postprandial blood glucose fluctuations, in addition to providing for and maintaining the patient in an ideal body score, based on specific nutritional formulations and restricted feeding schedules (Behrend et al., 2018). Likewise, the practice of routine physical exercise can reduce insulin resistance and minimize the occurrence of hypoglycemic crises (Cook, 2012; DeFronzo et al., 1982). All these elements must be monitored in the patient with DM, including clinical manifestations of the disease and routine measurement of blood glucose at home (Bennett, 2002; Casella et al., 2003; Thompson et al., 2002).

The success of the treatment depends on the availability, degree of commitment, and lifestyle of the owner (Aptekmann et al., 2014), highlighting the need for partnership between the veterinarian and the client. The owner's satisfaction turns them into an active agent in the success of the treatment (Behrend et al., 2018).

Although many quantitative surveys have been conducted with owners of diabetic patients (e.g., Aptekmann & Schwartz, 2011; Aptekmann et al., 2014; Niessen et al., 2017; Re et al.,

2023), the reasons behind specific patterns of repetitive attitudes have never been addressed. This is where qualitative research comes into play. Unlike quantitative research, which performs statistical analyses using numerical results from investigations or experiments, qualitative research uses various qualitative analysis methods based on verbal data obtained through participatory observations or in-depth interviews (Im et al., 2023). Qualitative research is advantageous when researching topics that involve research participants' experiences and perceptions is critical, as strictly pre-configured questions cannot fully capture these nuances due to their inherent complexity. For instance, it is invaluable for exploring attitudes, motivations, expectations, and personal values (Creswel, 2007; Im et al., 2023; Richardson, 1999).

Focusing on the fundamental role of owners in the therapeutic success for diabetic patients, this study aimed to identify, in an original way, some of the variables influencing the willingness of owners of diabetic dogs undergoing treatment to follow up, based on their values and the consequences of their decisions. The reasons that led them to adhere to diabetes management were highlighted to contribute relevant and persuasive insights for professionals working with small animal internal medicine.

Material and Methods

This research was developed in the referral Endocrinology Service of the Veterinary Hospital of the Federal University of Uberlândia (HV-UFU). All participants involved signed the Responsibility and Consent Term from HV-UFU, authorizing the use of clinical data for scientific and academic purposes, and the research was approved by the Ethics Committee on the Use of Animals at the University of Uberlândia (Protocol no. 23117.041863/2023-20).

An open qualitative questionnaire (S1) was conducted with owners of dogs with diabetes mellitus undergoing a standardized therapy including insulin administration, a specific diet for diabetics, and a routine of physical exercise for at least 6 months. Those owners were included in the study based on their attendance for consultation or follow-up in the Endocrinology Service of HV-UFU, without any other selection criteria, ensuring a systematic approach through convenience sampling. Six open-ended questions, designed to avoid leading the interviewees' answers, were asked of each dog's owner as part of a routine medical anamnesis by the same researcher (F.G.M.), ensuring consistency in data collection and analysis.

The study followed established procedures for collecting, interpreting, and analyzing data using the laddering technique (Gutman, 1991), a systematic approach commonly employed in qualitative research to explore value systems impacting decision-making processes. Laddering aligns

with the Means-End Chain Theory, which suggests that individuals can identify the attributes, outcomes, and values associated with a service, product, or brand. Through in-depth interviews, respondents articulate the motives behind their choices, revealing the interplay between attributes, consequences, and personal values.

Laddering technique

The laddering process applied involved: a) Iterative questioning was employed to uncover perceived attributes and their significance until personal values emerged regarding the timing of diagnosis, interest in learning about the disease, commitment levels, opinions on the invasive nature of insulin therapy and blood glucose monitoring, and also their feelings after adapting to their pets' treatment routines related to diet and exercise practices. The interviews included three investigative levels for the same questions as "How do you feel about ...?"; "Why do you feel that way?"; and "Why do you feel this specific 'emotion' about it?"; b) Identifying recurring themes (codes) and organizing them into Attributes-Consequences-Values (A-C-V) categories; c) Creating an implication matrix to illustrate connections among codes, leading to the construction of a Hierarchical Value Map (HVM); d) The HVM was used to graphically represent relationships between attributes, consequences, and values, establishing a cut-off point to ensure data consistency. This cut-off point was crucial for eliminating connections below a specified incidence. Following the recommendations of Reynolds and Gutman (1988) to cover approximately 75% to 80% of relationships, a cut-off point of at least two responses with the same purpose for each question was adopted to achieve data saturation, indicating that sufficient information had been gathered to address the research questions adequately. This approach led to a study sample size of 15 respondents.

Open-content analysis

Information gathered was converted into scores based on how often specific responses appeared (e.g., if an owner reported both "good acceptance" and "value animal health," each response was scored separately). These scores helped identify guidelines for owners' perceptions.

The responses were translated into codes that indirectly assessed the owners' levels of involvement with the disease and their pet, as well as the personal values they held. Similar responses were grouped to observe patterns among owners who shared similar opinions. This analysis was based on the frequency of each code. All responses from owners were considered. If an individual expressed different feelings (e.g., "pity" and "sadness"), both codes were included in the evaluation.

Axial analysis

After defining the codes with their respective subclassifications and counting the frequency of each code shown by the owner during clinical care, the next step included data analysis and construction of a square implication matrix. This was developed according to Gutman (1982), in which the information is transcribed to Ladder.ux[®] software in such a way that the codes are arranged in columns and lines with the interior of the matrix filled with the frequencies of one element leading to another, whether these relationships were direct or indirect (for example, the code "pity" leading to "indulgence"). This computer program also allowed the elaboration of HVM, which is thus a graphical representation that depicts the interaction between codes through chains, allowing characterization of the factors that influence the perception and decision of the owners evaluated.

Clinical evaluation of diabetic patients

The clinical evaluation of diabetic dogs was conducted according to the ALIVE Project (European Society of Veterinary Endocrinology, 2021), which recommends the following treatment goals: ensuring a good quality of life for both pet and owner, resolving the classic clinical signs of diabetes mellitus, avoiding hypoglycemia and diabetic ketoacidosis, and normalizing the body condition score. These evaluation results were used to categorize patients individually as well-controlled or poorly-controlled, allowing for subsequent connection to the outcomes of qualitative analyses.

Results

The questionnaire was answered by the owner most familiar with the dog and with managing diabetes mellitus. Of the 15 respondents, 10 were women and five were men, with a range of 21-66 years old. Except for one student of veterinary medicine, no individual reported working in the medical field or a similar profession. According to the ALIVE diabetic clinical score (European Society of Veterinary Endocrinology, 2021), 12 owners (80%) were responsible for well-controlled diabetic dogs. Among the others (n=3; 20%), two did not monitor glycemia and were unwilling to use a continuous blood glucose monitor, while one presented a high diabetic clinical score, suggesting the presence of clinical signs such as polyuria, polydipsia, and weight loss.

Open-content analysis

The codes are identified and subclassified according to their frequency of occurrence. Five codes were identified in the open assessment: Code 1 - Reaction to diagnosis, management and expectations (35 answers); Code 2 - Access

to information (33 answers); Code 3 - Degree of commitment (43 answers); Code 4 - Invasive procedure (17 answers); and Code 5 – Feelings (78 answers). Individuals may express different codes during the interview (Table 1).

The subclassifications referring to reaction to diagnosis, management, and expectations presented a total of 35 points, calculated by summing the frequencies of each code. Among the 15 owners, nine expressed the code “care for health” (60%), concomitant with “collaboration” (60%). Five expressed “good acceptance”, “pessimism”, and “family history” (33.3%), while

only two individuals expressed “conformism” (13.3%). Two of the three owners who have poorly controlled diabetes expressed concerns about their pet; however, they seemed pessimistic about the disease’s impact on their pet’s health and their quality of life.

The second code, related to owners’ access to information, had a total of 33 points. The most frequent subclassifications included “continuous monitoring”, manifested by 11 participants (73.3%) and “veterinary knowledge” with 10 (66.7%) declarations. The next most frequently reported code included “routine adaptation,” described five times (33.3%), then “guidance”

Table 1 – Identification and quantification of the emotional responses of owners of diabetic dogs to the diagnosis, management, expectations, and treatment adherence

SUBCLASSIFICATIONS	DESCRIPTION OF CODES	FREQUENCY
Code 1: Reaction to diagnosis, management, and expectations (35 answers)		
Care for health	Owner cooperation is necessary in order to provide quality of life and longevity	9
Collaboration	Pet cooperation level during insulin application, blood glucose measurements, and diet acceptance, which is positive, negative, or neutral	9
Good acceptance	Manifestation that the dog is healthy, even with DM	5
Conformism	Faced with the diagnosis, the owner accepts the conditions without questioning and performs the prescribed treatment	2
Family history	Known expectations of DM due to family history	5
Pessimism	Characterization of pets as sick or with a lower quality of life	5
Code 2: Access to information (33 answers)		
Continuous monitoring	Owners maintain continuous veterinary follow-up to obtain information on management, evolution, and treatment expectations	11
Veterinary knowledge	Search for information strictly from the knowledge of a veterinarian, without considering prior knowledge	10
Bond of trust	Seek information strictly from the knowledge of a trusted veterinarian	1
Guidance	Need to be informed about DM regardless of the source	3
Routine adaptation	The routine leads to the owner learning and overcoming how to deal with DM	5
Internet	Search for DM on websites, blogs, or informal digital sources	2
Limited	Owners do not express an interest in learning about DM	1
Code 3: Degree of commitment (43 answers)		
Super dedication	Excessive commitment and dedication to the treatment of DM	3
Regular exercise	Perform physical activities exactly as prescribed	13
Proper diet	Carry out food management exactly as prescribed	15
Low availability	Difficulties in adhering to treatment due to restricted time	8
Financial restriction	Difficulties in adhering to treatment due to financial constraints	3
Demotivation	Difficulties in following recommendations and a lack of motivation to continue treatment	1
Code 4: Invasive procedures (17 answers)		
Insulin application	Manifestation of apprehension/fear in applying insulin	11
Glycemic curve	Manifestation of apprehension/fear in collecting blood to measure blood glucose	6
Code 5: Feelings (78 answers)		
Happiness	Satisfaction with clinical improvement after proper management	7
Trust	Trust and autonomy of the owner to carry out the prescribed management	7
Tranquility	Acceptance and confidence to perform the tasks and the proposed management	11
Affection	Manifestation of affection as an impulse to adhere to treatment	10
Responsibility	Concern about the discipline needed to comply with the guidelines for managing diabetic patients	10
Insecurity	Fear of progression, complications, sequelae, and the ability to manage the diabetic patient	10
Inability	Inability to carry out the proposed treatment and management	1
Sadness	Dissatisfaction with the diagnosis, complications (blindness), and obligations related to management	10
Pity	The owner’s pity for the animal in the face of the diagnosis and restricted management	8
Impotence	Frustration with complete adherence to treatment and the emergence of complications, such as diabetic cataract	3
Indulgence	Non-adherence to treatment and proper management	1

three times (20%), “internet” twice (13.3%), and only one individual revealed the “trust bond” and “limited” codes (6.7%).

The third code, represented by the approach that assessed the degree of commitment, scored 43 points. All owners were revealed to follow a “proper diet”. Associated with this, 13 interviewed individuals (86.6%) expressed the code “regular exercise”, followed by eight (53.3%) expressions of “low availability”, three (20%) expressions of “financial restriction”, and three (20%) expressions of “super dedication”. Only a single individual manifested the “demotivation” code (6.7%). The position of owners regarding the invasive nature of insulin application and the need to collect blood samples for glycemic curves totaled 17 points. Eleven (73.3%) individuals evaluated considered the subclassification “insulin application” as an invasive procedure, while only six (40%) cited “glycemic curve” in their report.

The last analysis, referring to the feelings of the owners in the general context of the disease, including the diagnosis, daily management of the patient, and the expectation of the treatment regarding the animal’s life, scored 78 points. The code “tranquility” was reported 11 times (73.3%), followed by 10 manifestations of “sadness”, “responsibility”, “insecurity”, and “affection” (66.7% each). The code “pity” was reported eight times (53.3%), followed by the expression of “trust” and “happiness”, described in seven moments (46.7%). Impotence was cited three (20%) times. The codes “inability” and “indulgence” were scored only once (6.7%).

Axial analysis

The HVM represents visually all existing interconnections among attributes and consequences that lead to the personal value coding (Figure 1). The correlation of these segments identified the profiles of the evaluated owners (Table 2).

Chain 7–30 represents a moderate link between the attribute “glycemic curve” and the value “pity”, as reported by the owner, due to the pain caused by the puncture and

Table 2 – Profiles identified in the assessment of diabetic dog owners

PROFILE	DESCRIPTION
Sorrowful	Owners are resistant to adhering to the management due to sorrow for causing pain or discomfort to the animal.
Insecure	Individuals accept their role in the treatment, in addition to collaborating with the management. However, they transfer to themselves the responsibility for the success or failure of the entire process.
Dissatisfied	Owners understand about DM and its complications and, therefore, adhere to the proper management, but demonstrate dissatisfaction with the diagnosis.
Tranquil	Conscientious owners do not show that they are anxious in managing DM.
Dedicated	Individuals handle DM with commitment and aim for the best for their pet.
Committed	Owners seek to understand as much as possible about DM and its management, while also being concerned and responsible for the entire process.

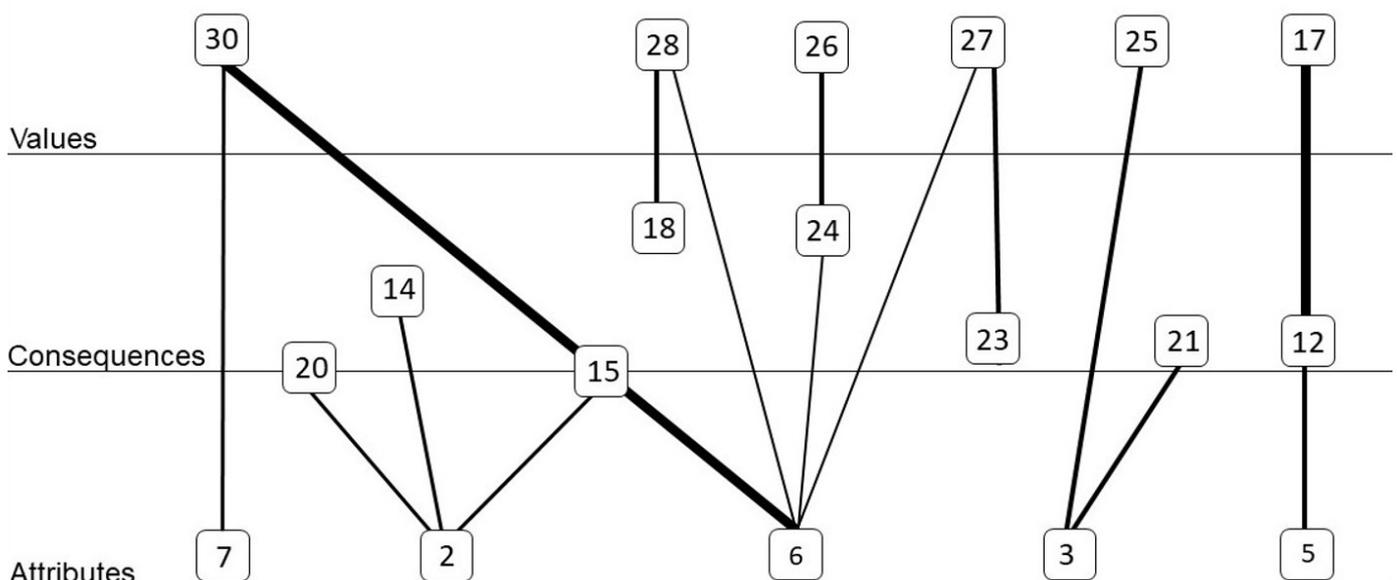


Figure 1 – Hierarchical Value Map (HVM) constructed from the Attributes-Consequences-Values categories obtained through a qualitative questionnaire conducted with owners of dogs with diabetes mellitus. The Attributes Zone includes procedures related to the handling of dogs with DM; the Consequence Zone comprises the attributes that give rise to the values represented at the top of the map. The links between attributes, consequences, and values are represented by lines, with the thickest links being those with the most significant connection. The set of these links form the chains composed of Attributes: (7) glycemic curve; (2) proper diet; (6) insulin application; (3) regular exercise; and (5) continuous monitoring; Consequences: (20) care for health; (14) financial restriction; (15) collaboration; (18) responsibility; (24) affection; (23) good acceptance; (21) low availability; and (12) trust; and Values: (30) pity; (28) insecurity; (26) sadness; (27) tranquility; (25) happiness; and (17) veterinary knowledge.

collection of the blood drop, in addition to the need to repeat this procedure frequently. It was possible to observe that the consequence of “responsibility” was linked to the value of “insecurity” (chain 18–28) within the therapeutic context.

The attribute “proper diet” was linked to the value “care for health”, represented by the 2–20 chain. All owners emphasized that they performed food management as indicated, or very close to ideal, to improve the patient’s general state and quality of life. In the 2–15–30 chain, there was also an interaction of the “pity” value associated with the attribute “proper diet”, originating from the consequence of the “collaboration” behavior of pets with good acceptance of the prescribed diet. The behavior of asking for food or scavenging in the garbage in search of meals was described as a sensitization of the owners, due to the feeling of the animal being unsatiated. The consequence of the “financial restriction” directly impacted the costs of treating DM, especially concerning “proper diet”, a link observed in chain 2–14. Even for those owners who were assiduous in their treatment responsibilities, complaints about the price of adjuvant rations for diabetic patients were observed in four (26.7%) of the owners interviewed.

The 6–15–30 chain showed strong correlations. This represents the attribute “insulin application”, and, when associated with the consequence of a “collaboration” dog, triggered “pity” values in the owners. In chain 6–28, another correlation was also observed, where the attribute “insulin application” triggered the value of “insecurity”. According to the testimonies, this correlation is due to concerns about applying the suitable volume of insulin, as well as the possible systemic consequences of failure of application, such as a predisposition to hypoglycemia.

Despite all values related to insulin therapy triggering some discomfort, it was possible to notice in chain 6–27 that the owners reported less fear and concern after getting used to the procedure, when compared to the moment of diagnosis. Therefore, routine management brought enough confidence for the owners to adapt the life of a diabetic dog to that of a healthy individual.

Chain 6–24 revealed that the attribute “insulin applications” is often seen as a consequence of “affection”. Although there is significant sentimental involvement in favor of the patient, we can see another projection of this chain from 6–24–26, in which there is an important correlation between “affection” and the value “sadness”, related to the fact that the pet is a DM sufferer.

The attribute “regular exercise” allowed the formation of two chains, 3–25 and 3–21, with great significance in both links. In the first case, a particular difficulty was found in reconciling walks and/or games that encouraged physical

activity with the “low availability” of owners, mainly due to high workload or the school regime. On the other hand, when possible, the exercise was attributed to the value “happiness” by the owners, as they see this activity as a chance to enjoy the ride, exercise, and spend time with their pet.

The chain 5–12–17 represented those owners who reported seeking information from a veterinarian based on the attribute “continuous monitoring”, due to the confidence in their technical knowledge about DM.

Discussion

This study is the first to openly uncover the motivations and doubts of owners of diabetic dogs regarding adherence to the treatment of this endocrinopathy, as well as to identify individual profiles and values that influence their compliance with veterinary prescriptions. Attributes, such as specific treatments or services, are linked to experiences (consequences) that affect behavior. These experiences further reveal personal values and levels of involvement in pet care. By examining these connections, the study provides insights into the motivations behind owners’ decisions and the challenges they face in managing their pets’ conditions. The development of the HMV enabled the achievement of these objectives. Although a direct correlation between these emotions and the glycemic or clinical control of the patients was not established, it was possible to identify the feelings that influence the acceptance or rejection of the treatment.

The feeling of “pity” appeared very often, primarily when associated with the application of insulin and the measurement of blood glucose. This was correlated to the animal’s “collaboration” code, in which this behavior influences the owners psychologically, as those animals that are quieter/submissive or aggressive are reasons for owners’ feelings of pity and/or fear when administering insulin. This was also observed in a study with relatives of adolescents with juvenile DM, in which it was believed that the applications were painful and invasive, generating resistance to the beginning of therapy, in addition to difficulties in keeping the family structured to support the affected individual (Brito & Sadala, 2009). However, our results showed that after the owner becomes confident, informed, and aware of the benefit of insulin therapy and restricted diet, this feeling seems to be attenuated. It is emphasized that owners had such gains when they became familiar with managing diabetic patients. In addition, it is clear that the bond of trust between the veterinarian and the owner can improve their perception and agreement to the treatment.

Regarding the owners' perceptions of DM control in dogs in this study, a considerable proportion (40%) related the glycemic curve to something invasive and regretted performing the procedure, despite being aware of the need to measure blood glucose. However, owners report positive changes in their perception when comparing the misgivings and fears acquired at the time of diagnosis to the moment they developed skills and confidence through routine practice and the support of the veterinarian. Similarly, this behavior was also found in other studies where, although many owners showed willingness to collect samples for blood glucose evaluation, half of them required repeated demonstrations to feel confident in performing the glucose curve at home (Aptekmann et al., 2014; Casella et al., 2003). To be successful in this procedure, training in blood collection at the tip of the ear (Wess & Reusch, 2000) and carpal pad interface (Borin et al., 2012), as well as evaluating the affinity of each owner to their respective methods and performing serial demonstrations, are crucial in achieving adherence to the practice, especially for those owners who demonstrated powerlessness, insecurity, or inability of doing this.

A viable option, especially for owners who reported "fear" and/or "insecurity" codes at the time of diagnosis of DM, includes performing simulations on fictitious animals (such as stuffed animals), followed by training on the animal itself, in a supervised environment. This issue was well elucidated in a study that showed that pet owners showed significant improvement in their ability to administer small amounts of insulin after receiving training by a veterinary professional (Borin-Crivellenti et al., 2020).

Given the need to control the amount, frequency, and composition of the diet in the treatment of diabetic animals, there was a high expression of "pity" in all individuals evaluated. To get around such uncomfortable situations and to ensure greater adherence to treatment, we observed that it was essential to provide detailed explanations to everyone, with greater detail to those owners who are sorrowful, insecure, dedicated, and committed. It is even worth emphasizing that only well-controlled diabetic patients present improvement in the clinical signs, such as polyphagia and weight loss (Behrend et al., 2018). On the other hand, those quieter owners could leave the veterinarian with a false sense of insecurity or disengagement, as they did not require complete details about the process as a whole. These owners, however, consistently perform the requested tasks, unlike the careless ones, and deserve to be identified and differentiated from the others.

In our study, many owners were willing and considered capable of following the prescribed recommendations. However, when cost and/or time were involved as limiting factors, there was a manifestation of reluctance toward therapy adherence. Such issues were resolved after an emphatic approach by the veterinarian. The owners were convinced of the importance of implementing such prescriptions and management. Complementing, as highlighted by Cook (2012), these points make evident the need to provide different options, both for supporting diets and for validated glucometers and syringes, so those responsible for the animals feel comfortable in choosing what is most convenient and accessible.

One of the main reasons for failures in glycemic control is the mishandling of syringes or insulin care (Malerba et al., 2021), making it essential to teach and train the owner how to administer the correct insulin dose (Borin-Crivellenti et al., 2020) and how to manage and store it correctly. Associated with the various complications of untreated or decompensated DM (Whitley et al., 1997; Hume et al., 2006), it is understandable that insecurity and responsibility were feelings present in all profiles found in this research. Considering this issue, we suggest a way to reduce discomfort in handling insulin through serial demonstrations, ensuring that the owner watches the procedure and repeats it several times. A complement to this action would include providing an explanatory video with the correct procedure, which can be watched as needed and shared with other family members involved in the treatment.

The administration of insulin proved to be closely linked to an owner's affection for their pet, most likely influenced by a protective feeling, which is a strong reason for treatment adherence, especially for owners with a "dedicated" and "committed" profile. Interestingly, this is also seen in the families of diabetic children, in which the participation of each family member is motivated by the protection of the child (Fritsch et al., 2010). Thus, in these cases, the similarities of these behaviors illustrate the representation of pets in the lives of their owners, who consider them actual members of the family. Therefore, when recognizing people with profiles of insecurity, nonconformity, or excessive grief, it may be interesting to consider a more intimate approach, allowing the owner to realize that the act of administering insulin correctly is also a form of love and care.

The expression of happiness in performing regular exercise led to an improvement in the quality of life of the patients who were followed. Such interaction strengthened affective bonds between the owner, the veterinarian, and the pet.

However, it was evident that the owner's availability affected the outcome. Emphasizing that physical exercise strengthens the bonds between owners and their pets (Murphy, 2016) can be a good argument for greater adherence to these practices. Similarly, it is worth emphasizing the clinical evolution and the good results achieved at each patient assessment, especially for owners who are sorrowful or dissatisfied, or even those who have their animals recruited in a weight loss program.

Another important point is to be aware of what has been proposed (prescribed) but not followed, and, mainly, the reasons why this is happening. Restrictions on exercise or walking practices due to owners' reasons demand the offer of other options by the veterinarian. Known as "work for food", a technique that uses attractive and at the same time laborious toys to obtain the food contained in their interiors, offers a practical and healthy option for additional caloric expenditure (Murphy, 2016). Hydrotherapy, according to cost and local availability, can be a good solution to patients' physical restrictions (German, 2016), such as morbid obesity or arthropathies, among others. However, this approach may also be subject to low adherence by the owners of diabetic animals.

Conclusions

This study emphasized the crucial role of emotional support, active listening, and effective communication between veterinarians and owners of diabetic dogs. Through qualitative analyses, it became evident that owners experiencing grief or distress need frequent support and encouragement; those

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feeling insecure require ongoing training and information to enhance their self-confidence; and owners dissatisfied with the diagnosis or treatment should have their concerns acknowledged. Additionally, calm and dedicated owners should be recognized for their commitment to their pets, which further strengthens trust. Future studies should also explore the personal values of owners who struggle with adherence to therapy, contributing to the development of more effective approaches in veterinary endocrinology.

Conflict of Interest

None.

Ethics Statement

This research was approved by the Ethics Committee on the Use of Animals at the University of Uberlândia (Protocol no. 23117.041863/2023-20). All participants involved signed the Responsibility and Consent Term from HV-UFU, authorizing the use of clinical data for scientific and academic purposes.

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