

Survey on the recognition, attitudes, and experience of horse owners during episodes of equine colic in Rio Grande do Norte, Brazil

Levantamento sobre o reconhecimento, atitudes e experiência de proprietários de equinos durante episódios de cólica no estado do Rio Grande do Norte, Brasil

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Abstract

Horse owners are crucial in recognizing colic because they are responsible for identifying the signs of colic and deciding whether to seek veterinary intervention. Common reasons for delayed response to clinical issues include lack of understanding or knowledge of the subject and difficulty in recognizing subtle clinical signs of abdominal pain. Examining horse owners' basic knowledge of colic, their motivations, obstacles in seeking veterinary care, and their responses to the various clinical symptoms manifested during colic will identify current knowledge gaps and decision-making barriers. This study aimed to examine the experiences, recognition, and attitudes of horse owners during an episode of equine colic in Rio Grande do Norte, Brazil. A cross-sectional study was conducted using questionnaires in Rio Grande do Norte, Brazil. The sample consisted of horse owners, competitors of any equestrian modality (provided that they were responsible for a horse at the time of the application of the questionnaire), or individuals who had previously owned a horse. There were differences related to the recognition and attitudes adopted towards colic in horses compared to the studies performed in other countries. The overall results of this study highlight the need for educational campaigns for horse owners to fill knowledge gaps about colic and the need for a clearer picture of colic, including what it is, the predisposing factors, and the range of symptoms. Additionally, this knowledge will equip horse owners to appropriately respond to these symptoms.

Keywords: abdominal pain, colic, equine, horse-owner, veterinary assistance.

Resumo

Os proprietários de equinos são essenciais no reconhecimento das cólicas, pois geralmente são os principais responsáveis por identificar os sinais e decidir procurar a intervenção veterinária. Os motivos comuns para a resposta tardia a um problema clínico são a falta de compreensão ou conhecimento do assunto, bem como a dificuldade em reconhecer sinais clínicos sutis de dor abdominal. Investigar o conhecimento básico de cólicas dos proprietários de cavalos, suas motivações, obstáculos para a busca de atendimento veterinário e suas respostas aos diferentes sinais clínicos manifestados durante os episódios de cólica é essencial para identificar lacunas no conhecimento atual e barreiras à tomada de decisão. Este estudo teve como objetivo levantar a experiência, reconhecimento e atitudes de proprietários de equinos durante episódios de cólica equina no estado do Rio Grande do Norte, Brasil. Foi realizado um estudo transversal, por meio de questionário, com proprietários de cavalos do estado do Rio Grande do Norte, Brasil. A amostra foi composta por proprietários de cavalos, competidores de qualquer modalidade equestre (desde que fossem responsáveis por um cavalo no momento da aplicação do questionário) ou que possuíam cavalo. Existem diferenças quanto ao reconhecimento e atitudes adotadas em relação à cólica equina em relação aos países onde esse tipo de pesquisa foi realizado. A constatação abrangente deste estudo foi a necessidade de campanhas educativas para proprietários de cavalos sobre cólicas a partir das lacunas de conhecimento, e são a necessidade de clareza de informações sobre cólicas para os proprietários, incluindo o que é cólica, fatores predisponentes, qual a gama de diferentes sinais que podem ser exibido e como responder a esses sinais.

Palavras-chave: assistência veterinária, cólica, dor abdominal, equino, proprietário de cavalo.




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Introduction

Equine colic is the most common emergency problem in equine medical clinics, and despite recent advances in the general management of horses, it remains the main cause of morbidity and mortality in equine species (Maia et al., 2017; Melo & Ferreira, 2021). In most cases, equine colic is characterized by abdominal pain, and there are diverse reasons for its occurrence such as dietary changes, diets rich in concentrate, restricted water intake, poor parasite control, and management of related factors (Ferreira et al., 2009; Santos et al., 2017). Colic can resolve spontaneously or in response to medication, but sometimes, it can result in serious physiological problems, leading to quick death. In such cases, early recognition of colic followed by timely veterinary care is essential and can increase the chances of survival (Arantes et al., 2020; Di Filippo et al., 2010; Traub-Dargatz et al., 1991).

Horse owners are pivotal in recognizing colic as they play a critical role in decision-making for seeking veterinary intervention. Common reasons for delayed response are the lack of knowledge of colic and difficulty in recognizing subtle signs of abdominal pain. Therefore, investigating horse owners' knowledge of colic, their motivations, obstacles in seeking veterinary care, and their responses to the different clinical signs of colic are essential to identify gaps in current knowledge and barriers in decision-making (Bowden et al., 2020). As timely veterinary care can alleviate pain with prompt condition-specific treatment, owners and handlers should be aware of the different clinical manifestations of colic. There is little information in Brazil on how owners recognize, assess, and manage episodes of colic.

Research exploring the pathophysiology and epidemiology of colic has provided valuable information to assist in the development of preventive strategies and understanding of the clinical course of different diseases (Gonzaga et al., 2020). However, insights into the management of colic conditions are necessary as they can support the design and implementation of strategies that will facilitate owners in making decisions early regarding the need for veterinary medical care (Bowden et al., 2020; Buckley et al., 2004; Ireland et al., 2012; Nardi et al., 2022). This study aimed to survey the experience, recognition, and attitude of horse owners about equine colic in Rio Grande do Norte, Brazil.

Material and methods

A cross-sectional study was conducted by distributing a questionnaire to horse owners in Rio Grande do Norte, Brazil. Samples included horse owners (irrespective of the duration of ownership, experience, or sport practiced), competitors of any equestrian modality (provided that they were responsible for the horse at the time of questionnaire submission), or individuals who had owned a horse. The questionnaire was designed to exclude identifiable information about the respondent (e.g., name, gender, age, and education level).

After oral and/or written consent was obtained, questionnaires were individually administered by the authors within a convenient sampling framework. The owners answered the questionnaire independently i.e., authors did not help the owners except when the owner was illiterate or had some physical disability. In such a situation, one of the authors helped the owner fill the questionnaire without influencing the responses. The questionnaire was sent to the owner, with no minimum or maximum deadline for completion.

The questionnaire consisted of closed multiple-choice questions based on questionnaire prepared by Bowden et al. (2020). The questionnaire was divided into two sections: A) personal experiences with colic i.e., the number of cases observed on their property, method to resolve them, and outcomes and B) identification and recognition of colic signs in the horse, as well as the action taken. Data were collected from March 2022 to May 2022 over a period of 12 weeks. Tabulation and descriptive analysis of the data were performed using Microsoft Excel.

Results

Two hundred owners participated in the study. The participants were owners from Rio Grande do Norte and supporters of the Vaquejada Equestrian modality. Of the interviewed owners, 90.5% had witnessed at least one episode of colic (Figure 1). For the cognitive capacity in various cases of colic (Figure 2), 39.5% (79/200) of participants indicated that they could recognize colic

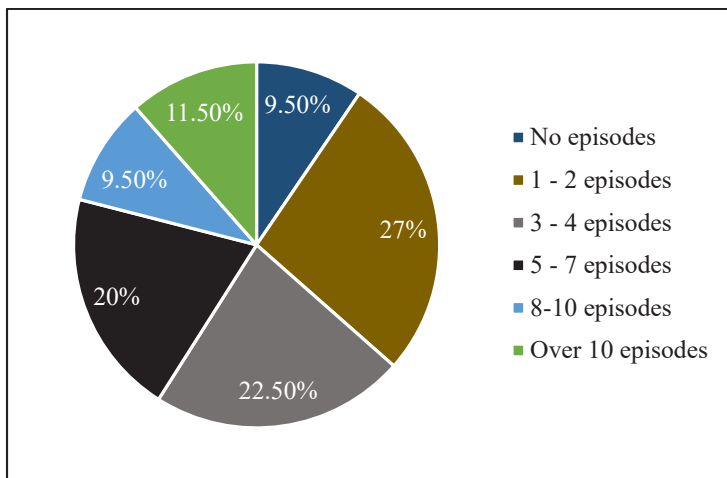


Figure 1. Number of colic episodes encountered by horse owners participating in the survey on recognition, attitudes, and experience of colic episodes in horses in Rio Grande do Norte, Brazil.

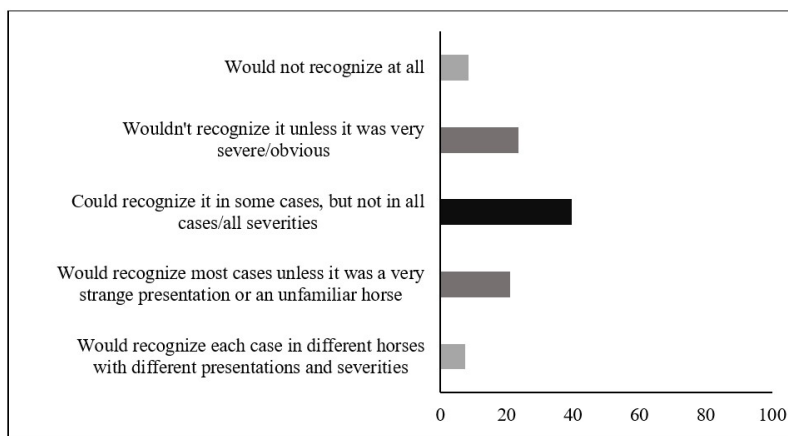


Figure 2. Horse owners' perceptions on the recognition of colic in Rio Grande do Norte, Brazil.

sometimes, but not all cases or the severity of the cases. Further, 23.5% (47/200) of participants stated that they could recognize colic in most cases unless the symptoms were unusual or the horses were unfamiliar, while 21% (42/200) responded that they could not recognize an episode of colic unless it was obvious/serious. Furthermore, 8.5% (17/200) of respondents could not recognize colic, whereas 7.5% (15/200) could recognize any cases of colic.

When asked about the adopted course of action upon recognizing a case of colic (Figure 3), 31% (62/200) of owners responded that they administered analgesic/fluid therapy and kept the horse under observation, 25.5% (51/200) administered analgesics and kept the horse under observation, 22.5% (45/200) administered analgesics and consulted a veterinarian, and 21% (42/200) contacted a veterinarian without any drug intervention.

About observing changes in horse behavior (Figure 4), participants responded that they were not concerned about the horses that were playing in the water (44.5%; 85/200), alternating support (41.5%; 83/200), and watching the flank (14%; 28/200). The monitoring/observation state was adopted when the horse was recumbent (65%; 130/200), observing the flank (63%; 126/200), apathetic or depressed (61.5%; 132/200), or anorexic (60.5%; 121/200).

Most participants consulted a veterinarian when the horse rolled several times in a short period of time (78%; 156/200), was recumbent and rolling (60.5%; 121/200), kicked the abdomen (55%; 110/200), or pawed the ground (47%; 94/200).

Figure 5 summarizes the results related to owners' attitude when observing clinical symptoms in horses. Participants were instructed to provide the best answer for each clinical sign, considering

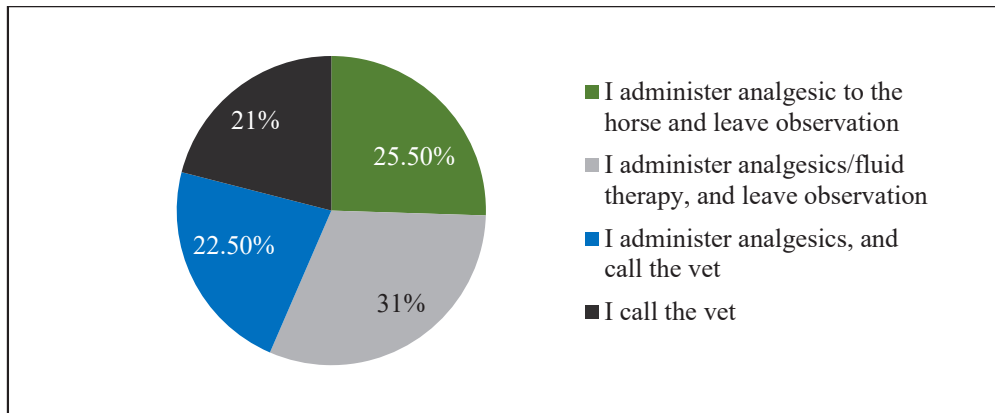


Figure 3. Horse owners' behaviors regarding recognition, attitudes, and experience of episodes of equine colic in Rio Grande do Norte, Brazil.

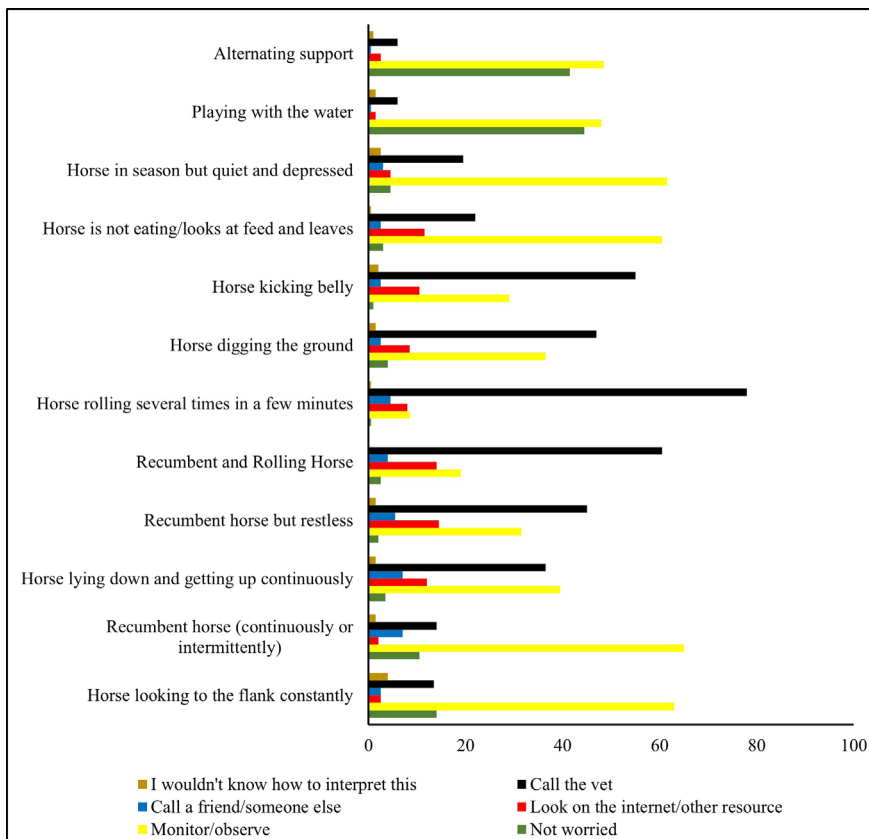


Figure 4. Owners' assessment and understanding of behavioral/postural changes in horses during episodes of equine colic in Rio Grande do Norte, Brazil.

that it was the only clinical sign that was manifested and the other parameters stayed normal. Most participants sought veterinary care only when the horse had abdominal distension (74%; 148/200), diarrhea (74%; 148/200), strain during defecation or urination (69%; 138/200), muscle tremors (63.5%; 127/200), and presence of blood in stool (51%; 102/200). Clinical signs that required lower veterinary intervention when identified were stool color change (11%; 22/200), presence of mucus in stool (9.5%; 19/200), and drier than normal stools (8%; 16/200).

Owners' experience with the various types of colic ranged from cases where horses recovered without any intervention (medication and/or veterinary care) to cases that required surgery or

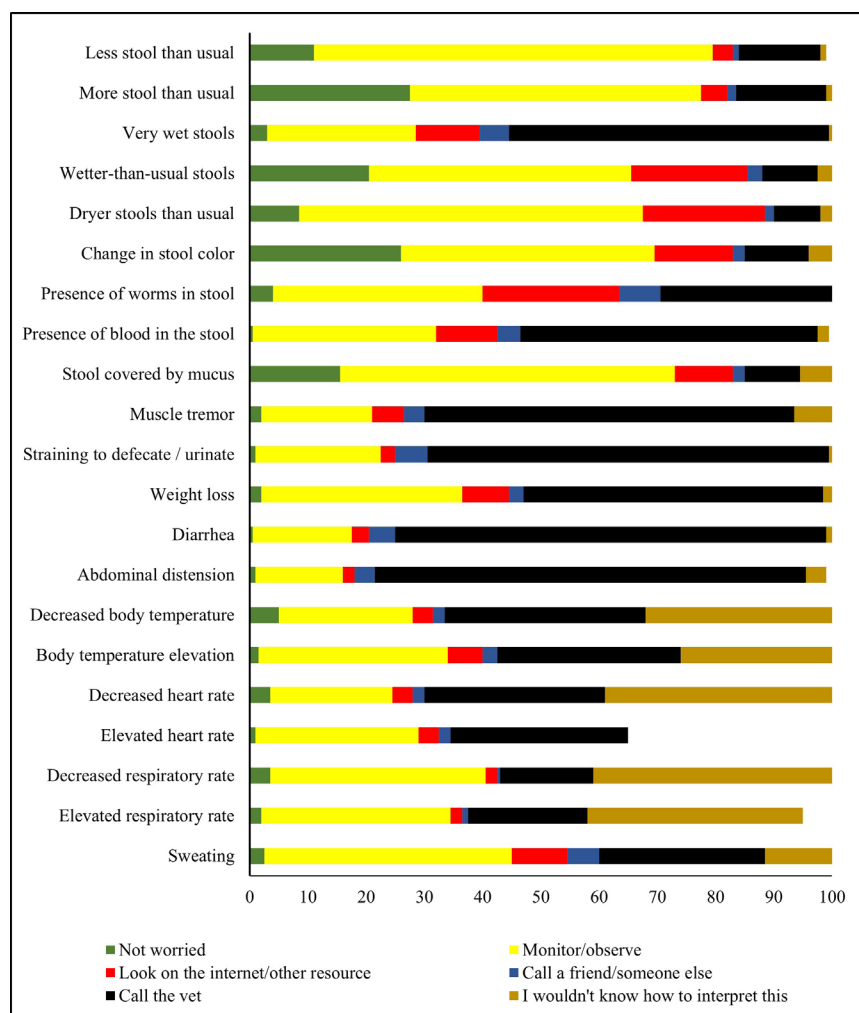


Figure 5. Owners' assessment and understanding of clinical signs during episodes of equine colic in Rio Grande do Norte, Brazil.

euthanasia because of the severity or development of complications. Most participants reported that they had experience of a horse recovering after receiving veterinary care (69.5%; 139/200) regardless of the time period (days or years), a horse recovering without any intervention (49.5%; 99/200), and a horse dying of colic (49.5%; 99/200). Only 32.5% of participants (65/200) had experience of a horse recovering after surgical intervention (Figure 6).

Discussion

The majority of evidence on decision-making in horses with colic are based on hospital referral studies in which veterinarians act as decision-makers. According to Curtis et al. (2015), this type of evidence has two main limitations. First, hospital referrals represent only a small subset of horses with colic that can be subject to bias. Referral cases are predominantly those that are considered critical or need surgical intervention and referral care. Second, data obtained from hospital referral studies were based on the clinical presentation of the horse at the time of arrival at the referral hospital, rather than the identification of the owner or the first assessment performed by the practitioner who performed the primary clinical examination.

The prevalence and importance of colic syndrome in the equine population in vaquejadas and in the national population are unknown (Dias et al., 2013). Similarly, the degree of cognition and attitudes of owners of these animals are unknown. This study describes the responses of horse owners to common and critical clinical conditions. The information obtained will form the basis

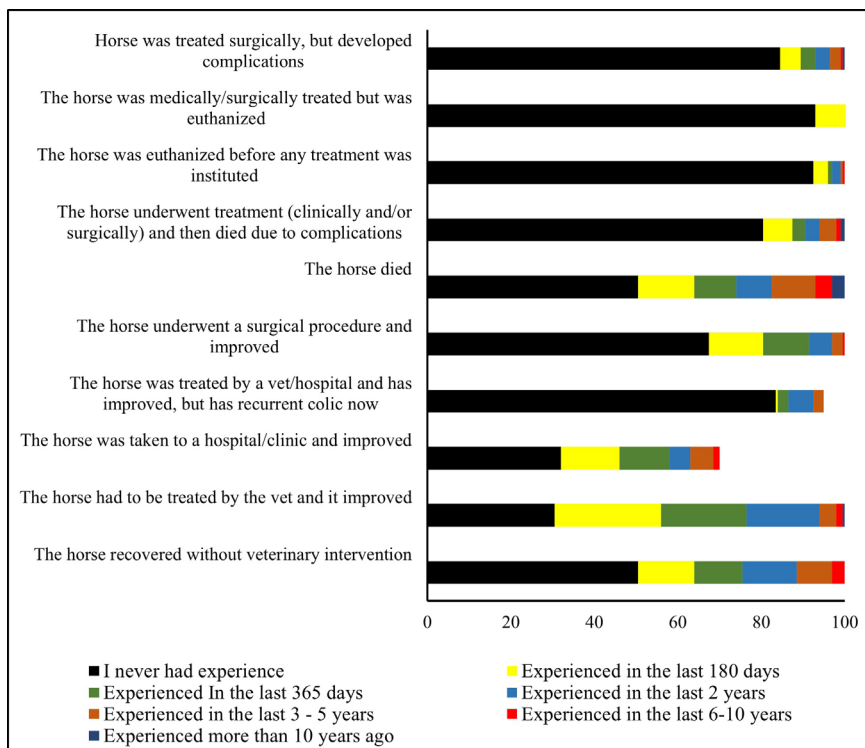


Figure 6. Experience regarding final outcomes of colic by horse owners during episodes of equine colic in Rio Grande do Norte, Brazil.

for development of strategies and educational resources to help owners recognize and adopt appropriate attitudes during emergencies. Equine colic remains a poorly understood clinical disease by horse owners and highlighting knowledge gaps regarding colic includes symptom identification and adoption of appropriate measures in different situations. Interestingly, the scarcity of information about owners' recognition of colic episodes contrasts with the abundance of information on pathophysiological mechanisms of gastrointestinal diseases, diagnostic resources, and modern therapeutics.

Colic is difficult to study using epidemiological methods as many other diseases manifest abdominal pain as a clinical sign, and these signs are highly variable (Filgueiras et al., 2009). The decision to seek veterinary care when various behavioral signs of colic appeared showed wide variability suggesting a lack of consensus on decision making, corroborating the findings of Bowden et al. (2020) in a study conducted in the United Kingdom. Horse owners' decision-making in case of colic was complicated, where the decision regarding referral and potential surgery was influenced by the owners' own experiences, experiences of people they know, and financial and emotional factors (Archer, 2019).

Horses with abdominal pain exhibit a variety of behavioral changes depending on the severity, including pawing, turning their heads toward the flank, kicking their abdomen with their hind legs, attempting to lie down, stretching repeatedly to urinate, backing repeatedly into a corner of the stall, lying in sternal or lateral recumbency for prolonged periods, rolling on the ground, dropping to the ground, assuming a dog sitting position, bruxism, playing with water or dunking the nose into the bucket, drinking excessive amounts of water, and sweating (Desrochers & White, 2017). The decision to seek veterinarian help was made only when the behavioral changes suggested moderate or severe abdominal pain, such as pawing, rolling, and kicking the abdomen. Similar results have been reported by Bowden et al. (2020). Rolling was also the most easily recognized clinical sign by horse owners in a prospective study conducted in Honduras (Wild et al., 2021). Abnormal signs or signs observed only in the prodromal phase of colic and those that were considered mild symptoms of abdominal pain by the owner were not considered important in the decision-making for veterinary intervention.

Playing with water, weight shifting, flank observation, apathy, anorexia, and decubitus are behavioral/postural alterations common to several diseases in equine species and were therefore not considered important in decision-making in this study. In these situations, owners chose to monitor, observe, or not be concerned. Although these are nonspecific mild signs that may occur in normal or other conditions, they are also potential signs of colic. These may be the only signs in less severe types of colic, such as gastric ulcers (Belli et al., 2005) and large intestinal impactions (Ferreira et al., 2009), or early signs of severe conditions, such as enteritis or peritonitis (Dória et al., 2015; Ferreira et al., 2007; Gonzaga et al., 2020). Although anorexia, a partial or total reduction in food intake, is common in several horse conditions, it should be considered during decision-making by owners as it is a clinical sign associated with colic conditions of varying severity and may also act as a predisposing factor for this condition by decreasing gastrointestinal motility (Di Filippo et al., 2021; Melo et al., 2021). Abdominal distension, diarrhea, straining to defecate/urinate, and muscle tremor were the most commonly reported clinical signs associated with decision-making for veterinary intervention. Generally, horses with abdominal distention exhibited intermittent moderate to severe acute abdominal pain, respiratory changes due to pressure on the thoracic cavity, and an abrupt increase in gastrointestinal tract dimensions (Dória et al., 2015), resulting in easy identification of colic by inexperienced owners.

Among the clinical signs that can be used in the decision-making for timely veterinary intervention, owners did not consider fecal characteristics to be an important parameter. However, evaluation of fecal matter is important for estimating the gastrointestinal transit velocity and type of acute abdomen (Dória et al., 2015; Filgueiras et al., 2009; Gonçalves et al., 2005; Maia et al., 2017; Melo & Ferreira, 2021). Gonçalves et al. (2005) reported that stool characteristics differed significantly in obstructive and non-obstructive colic, with small and dried-up stools, discolored and yellow stools, less abundant than normal stools, and grains observed more often in obstructive than in non-obstructive colic. Lack of knowledge about the importance of stool characteristics for recognition and decision-making may have significant clinical implications and cause a delay in seeking veterinary care or referral to a hospital, consequently worsening the prognosis and treatment. These findings indicate gaps in owners' knowledge about various clinical manifestations of colic. This "lack" of knowledge may be a result of the owners' lack of interest in relevant literature or lack of communication between owners and veterinarians during clinical care. In this context, it is important that veterinarians act as a disseminator of knowledge and that owners be informed about different clinical manifestations and helped to make informed decisions that lead to a better prognosis. Dias et al. (2013) conducted a cross-sectional questionnaire-based study with a population similar to that used in this study including 2,061 horses and identified 111 animals (5.4%) with a history of colic in the past 6 months. These values are lower than those found in our study. A study by Wild et al. (2021) found that 71% of horse owners in Honduras had previous experience of horses with colic.

Differences in the mode of questionnaire use may have contributed to the observed differences. Dias et al. (2013) conducted a cross-sectional study and found that responsibility for providing information did not always rest with the owner or person most familiar with the horse. Therefore, in our study, the person familiar with the daily routine of the horse (horse owner or person directly responsible) answered the questionnaire. As discussed previously in the vaquejada tests, trucks with multiple animals owned by different owners, keepers hired for specific tests only, caretakers responsible for several animals, and owners who were unaware of the management practices on the property resulted in response bias.

Conclusions

This study provides an overview of the understanding of colic in the studied population. We found differences regarding the recognition and attitudes adopted towards equine colic when compared to other countries where studies of such nature have been conducted previously. The comprehensive finding of this study was the need for an awareness campaign for horse owners regarding colic to fill knowledge gaps. This study highlights the need for precise information about colic for owners, including predisposing factors, range of different symptoms displayed, and appropriate response to these symptoms. It is worth noting that there are many potential confounding factors that influence owners' decision-making, including the availability of veterinarians, sentimental and financial value associated with the horse, financial constraints, and facilities.

Ethics statement

As this is a non-interventional study (no clinical intervention), there was no change/impact in the routines/treatments of the research participants, and consequently, there were no additional risks or harm to health. Further, the data were aggregated without identification of the participants. All participants provided informed consent to participate and this study did not need to be evaluated by an ethics committee.

Financial support

None.

Conflict of interests

The authors declare no conflict of interest regarding the design, execution, and dissemination of the results of this study.

Authors' contributions

MHSC, PRM, UPM, RFS, GELS, CF, DBA, LPS, and ELBF - Development of methodology; preparation and writing the initial draft. UPM - Writing, Review and Editing manuscript. CF - Review and Editing manuscript.

Availability of complementary results

Non complementary information.

The study was carried out at horse´s stud in Rio Grande do Norte state, Brazil.

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