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THE ROLE OF THE VETERINARIAN IN ENSURING FOOD SAFETY IN PUBLIC MARKETS AND STREET MARKETS

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ABSTRACT
Objective: To evaluate the role of veterinarians in promoting food safety in public markets and street markets, with emphasis on sanitary inspection, infrastructure, microbiological contamination, health education and application of the concept of One Health. The sale of animal products in open spaces brings considerable sanitary challenges, intensified by the lack of regular supervision, inadequate structural conditions and a lack of understanding of good practices by sellers. Through a systematic review of the literature, this study analyzed data published between 2007 and 2024, considering clinical and microbiological research and institutional reports. The results indicate that the lack of infrastructure and training of handlers contributes to high rates of contamination by microorganisms such as Escherichia coli, Salmonella spp. and Listeria monocytogenes. It is essential to have a veterinarian in these places to check food, advise traders and implement health education programs. It is concluded that the improvement of veterinary performance, together with intersectoral policies and investments in infrastructure and training, is essential to ensure the hygienic-sanitary quality of food and reduce the dangers to public health.

Keywords: Microbiological contamination. Foodborne diseases. Health inspection. Food handling. Public health.

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INTRODUCTION

Food safety is one of the fundamental foundations for the promotion of public health, defined as the guarantee of constant and continuous access to high-quality food, in adequate quantity, without harming the supply of other vital needs. Safety is not only limited to the availability of food, but also to its harmlessness - the lack of physical, chemical or biological risks that could affect the health of the consumer (Fernandes *et al.*, 2015).

In this context, the performance of the Veterinarian stands out as strategic, particularly in places of direct commercialization, such as public markets and open fairs, where products of animal origin are commonly sold, such as meat, milk, eggs and their derivatives. These products require extreme care in transport, storage, and handling, due to their high perishability and the possible risk of spreading diseases (Silva *et al.*, 2022).

According to Silva *et al.* (2022), the work of the Veterinarian in food safety encompasses inspection, sanitary monitoring, health education and the adoption of good handling practices. These professionals also work on overseeing food quality and preventing foodborne illness (DTA) outbreaks, a significant public health issue in Brazil.

Recent studies indicate that inadequate infrastructure at street markets - characterized by a lack of drinking water, refrigeration, adequate toilets, and adequate stalls - is one of the main risk factors for food contamination (Neto *et al.*, 2022). These elements, together with the lack of technical skill of traders, stimulate the spread of microorganisms such as *Salmonella spp.*, *Listeria monocytogenes,* and *Escherichia coli*, whose outbreaks are linked to the consumption of poorly preserved foods of animal origin (Fernandes *et al.*, 2015; Rodrigues *et al.*, 2022, Silva *et al.*, 2022).

In addition to the precariousness of the infrastructure, there is also a deficit of knowledge among the population about the conservation of products of animal origin, which reinforces the role of the veterinarian as a health educator. Brazilian legislation recognizes this professional as responsible for the inspection of food of animal origin, integrating sanitary and epidemiological surveillance actions (Fernandes *et al.* 2015). According to Neto et al. (2022), their work goes beyond technical functions, also involving social and intersectoral actions aimed at collective health, in line with the concept of One *Health*.

In this context, the relevance of the Veterinarian acting in open fairs and public markets as an agent of sanitary control, health education and consumer protection is clear. The main objective of this article is to discuss the central aspects of the work of this professional, based on several studies and the conditions found in these places of sale, taking into account the obstacles and possibilities of their intervention in the promotion of food security.

METHODOLOGY

A systematic review of the literature was carried out through systematic searches in the SciELO, PubMed, Web of Science and Google Scholar databases, using terms such as "food safety", "public markets", "street markets", "veterinary inspection" and "good manufacturing practices". The selection criteria included original research, systematic reviews, dissertations, theses, and Brazilian legislation (Law 5.517/1968; Decree 9,013/2017) released between 2007 and 2024, in Portuguese or English, that addressed sanitary inspection, infrastructure conditions, microbiological analyses, or education programs in contexts of direct sale of animal products.

Opinion polls, experience reports, conference proceedings without full text, publications that did not focus on public markets or street markets were excluded. The data collected, which included data on infrastructure, frequency of checks, microbiological results and effectiveness of educational interventions, were structured in a descriptive manner and condensed into thematic categories, supporting the discussion based on the legislation in force and the concept of One Health.

RESULTS AND DISCUSSIONS

The lack of adequate conditions in several public markets and street markets contributes significantly to the contamination of animal products. The scarcity of drinking water, cleaning sinks, and washable countertops, together with the absence of continuous refrigeration systems, favors prolonged contact of meat at temperatures above 25 °C, an environment conducive to the proliferation of pathogens (Silva *et al.*, 2022). In addition, the lack of toilets and adequate places for waste disposal increases cross-contamination, putting food safety at risk (Coutinho *et al.*, 2007).

Sanitary surveillance, when present, is sporadic and focused on large establishments or slaughterhouses, neglecting most fairs and small stalls. Therefore,

risky practices, such as handling meat without protection, the simultaneous handling of money and food, and the use of exposed sharp instruments, remain uncorrected (Diniz *et al*., 2013; Brizotti *et al*., 2021).

This regulatory fragility is reflected in the high contamination rates: microbiological research indicates that approximately 42% of meat samples contain total coliforms greater than 103 CFU/g, and about 18% contain thermo-tolerant *Escherichia coli*, signaling a recent fecal contamination (Almeida *et al*., 2011; Alves *et al*., 2022). The presence of *Salmonella spp*. in 8% of samples and *Listeria monocytogenes* in 4% increases the danger of foodborne illness outbreaks (Raspo *et al*., 2022).

At the same time, the knowledge of the stallholders about sanitary standards and Good Manufacturing Practices (GMP) is, in general, insufficient. Most do not know the basic principles of hygiene, temperature regulation and waste management, in addition to the crucial role of the Veterinarian in the inspection and assurance of sanitary quality (Diniz *et al*., 2013; Ribeiro Júnior *et al*., 2020). This deficiency in education hinders the implementation of preventive actions and perpetuates risk behaviors.

In this scenario, health education presents itself as a component of transformation. Extension programs that include practical training, cleaning workshops, and distribution of illustrated materials have shown a considerable increase in GMP adherence and a decrease in microbial load (Lima *et al*., 2022; Pereira *et al*., 2024). The active participation of the stallholders in the identification of risks and in the creation of solutions helps in the sustainability of these changes, fostering a greater understanding of the practices implemented.

Although Brazilian legislation assigns to the Veterinarian the function of inspecting products of animal origin (Law 5.517/1968; Decree 9.013/2017), its implementation in public markets and street markets encounters obstacles such as the scarcity of resources and the lack of priority on the part of local authorities (Leite *et al.,* 2009). The decentralization of health surveillance, established in national regulations, requires the intensification of collaborations between health departments, agriculture, and educational institutions, in addition to the constant training of municipal agents (Brizotti *et al*., 2021).

The preservation of food safety in these places requires structural actions, such as the installation of sinks with clean water and high-quality refrigeration systems, in

addition to the increase and constant monitoring by veterinarians, in addition to the execution of educational programs aimed at the fairgrounds. The implementation of an intersectoral strategy, based on the idea of One Health, highlights the relevance of uniting human, animal and environmental health in the prevention of foodborne diseases, reinforcing the role of the veterinarian as a central figure in the defense of public health.

FINAL CONSIDERATIONS

The performance of the Veterinarian is essential for the promotion of food safety in public markets and open fairs, places often marked by structural precariousness, absence of continuous inspection and lack of knowledge on the part of the stallholders. The presence of this professional contributes not only to the hygienic-sanitary inspection of foods of animal origin, but also to educational actions, disease prevention and strengthening of public health policies. Cooperation between different sectors and the implementation of strategies based on One Health are essential to ensure food security and safeguard the health of the population, highlighting the importance of the veterinarian as a public health agent.

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