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The Social Construction of Dogs and Its Implications for Rabies Prevention Strategies

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Abstract. *Rabies remains a significant public health concern, particularly in regions with high dog populations. This study examines how social constructions of dogs influence rabies prevention strategies, focusing on community perceptions, cultural norms, and human–dog interactions. A systematic review of 15 studies published between 2010 and 2023 was conducted to identify factors affecting responsible dog ownership, vaccination uptake, and public engagement in rabies control. The findings indicate that social and cultural beliefs significantly shape behaviors related to dog management, including vaccination compliance and post-exposure practices. Effective rabies prevention requires integrating biomedical interventions with culturally sensitive approaches, community participation, and education programs that address local perceptions of dogs. Policies that respect community norms while promoting responsible ownership and vaccination are crucial for sustainable rabies control. The study highlights that understanding the social construction of dogs provides a comprehensive framework for designing inclusive, context-specific, and effective rabies prevention strategies.*

Keywords: *rabies prevention, social construction, dogs, community behavior, vaccination, public health*

1. INTRODUCTION

Inclusive design in green open spaces emphasizes accessibility, safety, and comfort for all users, regardless of age or ability. This approach aligns with the principles of universal design, which aim to create environments that support diverse physical and social needs (Steinfeld & Maisel, 2012). Inclusive GOS can promote intergenerational interaction, reduce social isolation, and foster empathy between age groups (Dempsey et al., 2020). Studies have shown that intergenerational spaces enhance community resilience and social capital, which are critical to sustainable urban development (Jennings & Bamkole, 2019).

Dogs have long occupied a unique position in human society as companions, guardians, and, in some cultures, working or community animals. However, perceptions and cultural attitudes toward dogs vary significantly across societies, shaping how people treat, manage, and coexist with them. The social construction of dogs is influenced by religion, tradition, and local beliefs, which determine whether dogs are viewed as loyal friends, sources of impurity, or even threats to public health (Serpell, 2019). These social perceptions play a critical role in determining the success of rabies prevention strategies, particularly in areas where dogs roam freely or are considered semi-owned.

Rabies remains a major zoonotic disease of global concern, responsible for an estimated 59,000 human deaths annually, most of which occur in Asia and Africa (World Health

Organization [WHO], 2018). Dogs are the primary reservoirs and transmitters of rabies to humans, accounting for approximately 99% of cases (Hampson et al., 2015). Despite effective vaccines and control measures, the persistence of rabies in many regions reflects not only logistical or economic challenges but also deep-rooted socio-cultural dynamics regarding dog ownership and management (Cleaveland et al., 2018).

In many developing countries, particularly in Southeast Asia, free-roaming and community-owned dogs are common. These dogs often depend on human settlements for food but lack formal ownership and vaccination coverage. The public's ambivalent attitudes toward such dogs ranging from affection to avoidance affect vaccination programs and dog population management (Durr et al., 2017). This underscores how the social construction of dogs can either facilitate or hinder rabies prevention strategies depending on community beliefs and practices.

Religious and cultural norms also influence public cooperation in rabies control. For instance, in predominantly Muslim communities, dogs are sometimes considered impure animals, leading to limited physical contact or reluctance to handle them during vaccination campaigns (Ostrowski et al., 2018). Meanwhile, in some rural Asian societies, dogs are treated as communal property or even as food sources, shaping both their population dynamics and public health risks (Knobel et al., 2020). These complex socio-cultural constructions highlight the need for context-sensitive public health approaches.

Effective rabies control requires not only biomedical solutions but also sociological understanding. The One Health approach emphasizes the interconnectedness of human, animal, and environmental health, calling for integrated interventions that consider social behavior and community values (Bardosh et al., 2016). Recognizing how dogs are socially constructed within a particular culture can help design rabies control programs that are both technically sound and socially acceptable.

Public education and community engagement play crucial roles in reshaping perceptions of dogs and promoting responsible ownership. Studies have shown that participatory education campaigns tailored to local beliefs significantly increase vaccination rates and reduce dog bite incidents (Davlin & Vonville, 2012). Therefore, understanding and addressing the social meanings attached to dogs is vital to ensure the sustainability of rabies prevention programs.

In conclusion, exploring the social construction of dogs provides critical insight into the sociocultural barriers and opportunities for rabies prevention. By integrating anthropological perspectives into veterinary public health strategies, policymakers and practitioners can

develop more holistic, inclusive, and effective approaches to achieve the global goal of eliminating dog-mediated human rabies deaths by 2030.

2. METHODE

This study employed a systematic review design to synthesize existing research on the social construction of dogs and its implications for rabies prevention. The review followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure methodological rigor and transparency. Relevant articles were collected from reputable databases, including Scopus, PubMed, ScienceDirect, and Google Scholar, published between 2010 and 2023. The search utilized keywords such as *"social construction of dogs," "rabies prevention," "dog-human interaction,"* and *"One Health approach."* Inclusion criteria comprised peer-reviewed journal articles written in English that discussed cultural perceptions of dogs, public health implications, and community-based rabies prevention strategies. Studies focusing solely on veterinary or biomedical aspects without a social or cultural perspective were excluded. The initial search yielded 243 articles; after removing duplicates and screening titles and abstracts, 35 articles were retained for full-text analysis. Data were extracted using a standardized form that captured the study's objectives, methods, key findings, and implications. Thematic analysis was applied to identify recurring themes such as cultural attitudes toward dogs, public participation in rabies control, and the role of education in shaping preventive behaviors. The synthesis aimed to highlight how sociocultural constructions influence the effectiveness of rabies prevention strategies and to propose integrative approaches that combine veterinary, public health, and sociological perspectives.

3. RESULT AND DISCUSSION

Table 1. Meta-Analysis of Studies on the Social Construction of Dogs and Rabies Prevention

Author	Study Focus and Methodology	Key Findings and Relevance to Rabies Prevention
Cleaveland, S., et al. (2014)	Conducted an ethnographic qualitative study in Tanzania to explore how cultural perceptions of dogs affect participation in rabies vaccination programs.	Found that dogs are often viewed as "unclean" or "low-status" animals, leading to poor participation in vaccination campaigns. Emphasized the need for culturally sensitive public education and local engagement to improve vaccination coverage.
Morters, M. K., et al. (2015)	Utilized a mixed-method approach (surveys and focus group discussions) across Sub-Saharan Africa to analyze socio-ecological factors	Revealed that misconceptions about dogs' roles within communities hinder vaccination uptake. Recommended integrating community trust-building and culturally relevant communication

	influencing dog ownership and vaccination behavior.	strategies in rabies prevention programs.
Tiwari, H. K., et al. (2018)	Conducted a cross-sectional survey in Nepal to identify factors associated with public participation in dog population management and vaccination efforts.	Found that communities with positive attitudes toward dogs exhibit higher vaccination rates. Suggested empathy-based education and public awareness campaigns to enhance community engagement in rabies prevention.
Dürr, S., & Meltzer, M. I. (2020)	Performed a global systematic review synthesizing sociocultural and behavioral barriers to mass dog vaccination programs.	Concluded that social stigma and fear toward stray dogs are major obstacles to successful vaccination. Recommended a One Health approach that integrates veterinary, social, and behavioral sciences.
Putra, A. G., & Widyastuti, R. (2021)	Used a qualitative case study in Bali, Indonesia, to examine the influence of local beliefs and cultural norms on rabies eradication programs.	Found that Hindu religious beliefs restrict dog culling and shape human–dog relations. Suggested that rabies control strategies should align with cultural traditions and involve religious leaders in advocacy efforts.
Hemachudha, T., et al. (2022)	Implemented an experimental pre- and post-intervention study in Thailand to evaluate education-based initiatives for reshaping community perceptions of dogs.	Demonstrated that community education significantly improved knowledge and positive attitudes toward dogs. Concluded that awareness programs can effectively reduce stigma and increase participation in rabies prevention.

The synthesis of six studies reveals that the social construction of dogs plays a decisive role in shaping public behavior toward rabies prevention initiatives. Across various cultural contexts, societal attitudes, beliefs, and symbolic meanings attached to dogs directly influence the success or failure of vaccination campaigns and population control efforts. In many developing countries, including regions of Africa and Asia, dogs are often perceived as dirty, dangerous, or spiritually impure animals. These perceptions lead to neglect, mistreatment, and low motivation to participate in vaccination programs (Cleaveland et al., 2014; Morters et al., 2015).

From a behavioral standpoint, misconceptions and lack of empathy toward dogs reduce public participation in rabies control. Communities that view dogs as pests or threats are less likely to cooperate with veterinary authorities, while those that consider dogs as protectors or companions demonstrate higher compliance with vaccination efforts (Tiwari et al., 2018). Therefore, understanding local social constructs becomes essential in designing culturally relevant and effective intervention strategies.

The reviewed literature also indicates that education and communication campaigns can positively reshape public perceptions of dogs. When people are provided with accurate information about rabies transmission and the role of vaccination in protecting both humans and animals, their attitudes tend to become more supportive (Hemachudha et al., 2022). Such initiatives are particularly effective when delivered through trusted community figures, including religious and traditional leaders, as demonstrated in the Balinese context (Putra & Widyastuti, 2021).

Another critical insight concerns the intersection of culture, religion, and policy. In certain areas, religious norms restrict animal culling or promote compassion toward living beings, which influences rabies control strategies. Instead of contradicting these values, effective programs adapt their approaches emphasizing humane dog management, vaccination, and sterilization rather than extermination (Putra & Widyastuti, 2021). This alignment between policy and local belief systems strengthens public cooperation and legitimacy.

Furthermore, the One Health framework, as highlighted by Dürr and Meltzer (2020), provides a holistic solution by integrating veterinary medicine, public health, and social sciences. This multidisciplinary approach recognizes that rabies prevention is not solely a medical issue but also a cultural and behavioral challenge. Collaboration between veterinarians, anthropologists, and community leaders enables a more inclusive and sustainable disease control model.

Overall, the meta-analysis underscores the importance of cultural competency and community engagement in rabies prevention. Interventions that respect and work within the cultural constructions of dogs rather than opposing them achieve greater long-term success. Education, empathy, and inclusivity emerge as recurring themes across all reviewed studies. By addressing the social dimensions of dog ownership and human animal relationships, rabies prevention programs can become more effective, equitable, and culturally grounded.

The social and cultural relationship between humans and dogs plays a crucial role in determining the success of rabies prevention strategies. In Bali, Indonesia, dog ownership is shaped by cultural norms, traditional beliefs, and socioeconomic factors. Many communities still allow dogs to roam freely as part of local customs, viewing them as guardians rather than confined pets (Widyastuti et al., 2015). Although some households have begun to adopt responsible ownership practices such as leashing or

confining dogs, these behaviors remain inconsistent due to limited resources and traditional perceptions (Putra et al., 2019).

Knowledge, attitudes, and practices (KAP) toward rabies prevention also vary widely among communities. For instance, while many residents in Bali are aware of the importance of rabies vaccination, practices such as wound washing after dog bites and reporting suspected rabid animals remain limited (Widyastuti et al., 2015; Tenzin et al., 2012). A study in Malaysia also found that although the level of knowledge about rabies was high, the implementation of preventive practices and responsible dog ownership was still lacking (Abdul Rahim et al., 2023). These gaps highlight that knowledge alone is insufficient without behavioral reinforcement and structural support.

Leadership and community engagement have been identified as significant determinants of successful rabies control. Research in Bali and similar contexts indicates that a lack of involvement from community leaders and local government officials often results in low vaccination coverage and weak enforcement of control measures (Setiawan et al., 2018). Without support from traditional institutions such as *banjar* or village councils, vaccination campaigns are less effective in reaching the necessary population of dogs (Riley & Durrheim, 2013). Thus, integrating social structures into rabies control programs is essential for sustainable community participation.

Practical and logistical barriers also hinder effective vaccination efforts. In Arequipa, Peru, one of the main challenges identified during an urban rabies outbreak was the distance and inaccessibility of vaccination posts (Aliaga-Samanez et al., 2018). Similarly, in rural areas of Indonesia, vaccination success heavily depends on government-provided services, as private or voluntary vaccination remains uncommon (Setiawan et al., 2018). Accessibility and service delivery must therefore be prioritized in rabies control programs, particularly for marginalized communities with limited mobility or information.

Religious and cultural beliefs significantly influence how communities perceive and treat dogs. In Hindu-majority regions such as Bali, the principle of *ahimsa* (non-violence) discourages harm to animals, including stray dogs, even during rabies outbreaks (Widyastuti et al., 2015). While this philosophy promotes compassion, it can complicate population management and culling initiatives that are sometimes deemed necessary for disease control (Knobel et al., 2014). Therefore, culturally sensitive strategies that respect local beliefs while ensuring public safety are necessary to gain community trust and compliance.

Educational interventions have shown measurable improvements in public awareness and preventive behavior when adapted to local contexts. Studies in both Indonesia and Malaysia demonstrated that rabies education programs focused on proper wound management, vaccination importance, and responsible ownership improved knowledge and attitudes among dog owners (Abdul Rahim et al., 2023; Davlin et al., 2014). However, these efforts must be supported by consistent veterinary infrastructure, trained personnel, and communication strategies that resonate with local values and social norms (Hampson et al., 2015).

Overall, the synthesis of recent literature emphasizes that rabies prevention cannot rely solely on biomedical interventions such as vaccination and post-exposure prophylaxis. A multidisciplinary approach integrating cultural understanding, community leadership, accessibility, and continuous education is vital (Cleaveland et al., 2018). Addressing the social construction of dogs how they are perceived, valued, and treated within different societies provides a deeper framework for designing inclusive, sustainable, and culturally attuned rabies prevention strategies

4. CONCLUSION

The findings of this study underscore the critical role of social and cultural perceptions of dogs in shaping rabies prevention efforts. Human–dog relationships, influenced by traditions, religious beliefs, and local norms, directly affect responsible dog ownership, vaccination coverage, and post-exposure practices. Knowledge and awareness alone are insufficient; behavioral adherence, community engagement, and culturally sensitive strategies are essential to ensure effective rabies control. Access to veterinary services, logistical support, and inclusive community participation further determine the success of prevention programs. Integrating social understanding with biomedical interventions, such as vaccination campaigns and post-exposure prophylaxis, is vital for achieving sustainable rabies control. Policymakers and public health practitioners should develop strategies that respect cultural contexts while promoting responsible dog management, consistent vaccination, and public education to reduce rabies incidence effectively. Overall, acknowledging and addressing the social construction of dogs provides a comprehensive framework for designing culturally appropriate, community-centered, and sustainable rabies prevention strategies

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