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Editorial: Interdisciplinary Approaches to Public Health and Sustainable Development

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ABSTRACT

Sustainable development and public health are inherently complex challenges that require interdisciplinary collaboration. This editorial highlights four recent studies that exemplify the critical role of interdisciplinary research. These studies address key issues in malaria control, aquaculture management, veterinary education, and zoonotic diseases. They provide valuable insights into how integrated approaches can advance both economic and public health objectives.

Malaria Control and Aquaculture in Zambia

Zingani et al. (2024) examine the presence of malaria-transmitting Anopheline mosquito larvae in fishponds within Mongu District, Western Province, Zambia. The study underscores the dual challenge of promoting sustainable aquaculture while mitigating public health risks associated with mosquito breeding. The findings reveal that unlined fishponds with stagnant water and surrounding vegetation serve as breeding hotspots for mosquitoes, whereas lined ponds with proper drainage remain free of larvae. The study recommends promoting the use of lined fishponds, training farmers in best aquaculture practices, and encouraging biological mosquito control methods such as larvivorous fish. These integrated strategies not only enhance water retention and fish productivity but also contribute to malaria control efforts, thereby balancing economic and health benefits.

Non-Antibiotic Therapeutic Strategies in Aquaculture

Chilukutu et al. (2024) explore non-antibiotic therapeutic strategies for managing Lactococcosis, a bacterial disease affecting Nile tilapia (Oreochromis niloticus). The study evaluates the efficacy of Aloe vera extract, Vitamin E/Selenium supplementation, and multi-strain probiotics against Lactococcus garvieae infection. Results indicate that probiotics are the most effective treatment, preventing mortalities and clinical signs entirely. Vitamin E/Selenium and Aloe vera also demonstrate protective effects, reducing mortality rates to 5% and 20%, respectively. These findings highlight the potential of non-antibiotic interventions in disease management, aligning with global efforts to mitigate antimicrobial resistance. The study emphasizes the need for sustainable aquaculture practices that enhance fish health while reducing reliance on antibiotics.

Factors Influencing Veterinary Career Choices

Mumba et al. (2024) investigate the factors influencing students' decisions to enroll in the Bachelor of Veterinary Medicine (BVM) program at the University of Zambia. The study reveals that a personal interest in working with animals, coupled with parental and peer influence, are key motivators for choosing veterinary medicine. However, students cite the program's heavy workload as a major challenge. The findings underscore the importance of providing comprehensive career guidance to prospective

students to ensure informed decision-making. The study also calls for universities to improve information dissemination about veterinary programs and address student challenges to create a more supportive learning environment.

Zoonotic Diseases and Tick Infestations in Nigeria

Nimota et al. (2024) assess the distribution of Microsporidia spp. in tick species infesting cattle in Ogun State, Nigeria. The study identifies five tick species, with Rhipicephalus microplus being the most prevalent. Notably, 52.3% of the collected ticks tested positive for Microsporidia spp., underscoring the role of ticks as vectors in pathogen transmission. The study recommends implementing sensitization programs for cattle traders and stakeholders to enhance pest control measures. These findings reinforce the necessity of a One Health approach, integrating human, animal, and environmental health perspectives to manage zoonotic diseases effectively.

CONCLUSION

These studies collectively demonstrate the significance of interdisciplinary approaches in tackling public health and sustainable development challenges. From malaria control in aquaculture to non-antibiotic disease management, veterinary education, and zoonotic disease surveillance, the research highlights the need for integrated strategies that balance economic and health priorities. As global health and development challenges grow increasingly complex, fostering collaboration across disciplines is imperative to generate innovative, evidence-based solutions. The journal recommends that future research should continue exploring these intersections to ensure sustainable and impactful progress.

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qualitative data analysis of the key themes in the contributing papers and to improve the language of this article: OpenAI. (2024). ChatGPT [Large language model]. https://chatgpt.com