

Title: Brucellosis Control in the One Health Era: A Systematic Review of Global Evidence with Implications for India

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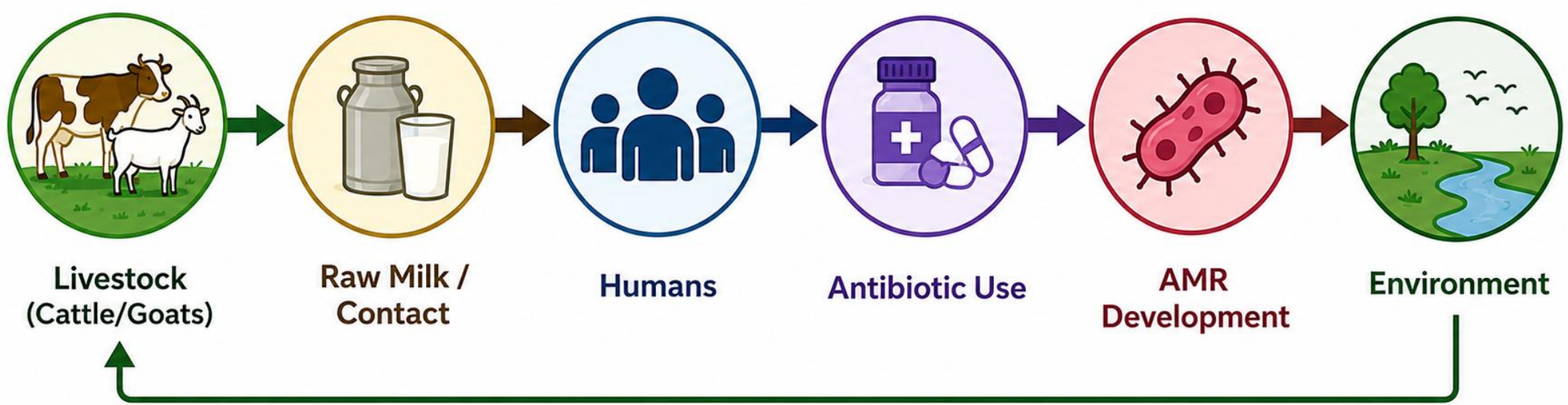
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INTRODUCTION & AIM

Brucellosis is a significant public health concern in Lower- and middle-income countries(LMICs), predominantly in India, due to close contact with the animal population owing to their occupation. Additionally, families of these groups face a high risk of possible domestic exposure due to the proximity of animals in residential spaces. On account of its complex dynamics spanning across human, animal, and environmental sectors and emerging AMR, Brucellosis is a critical One-Health challenge.¹

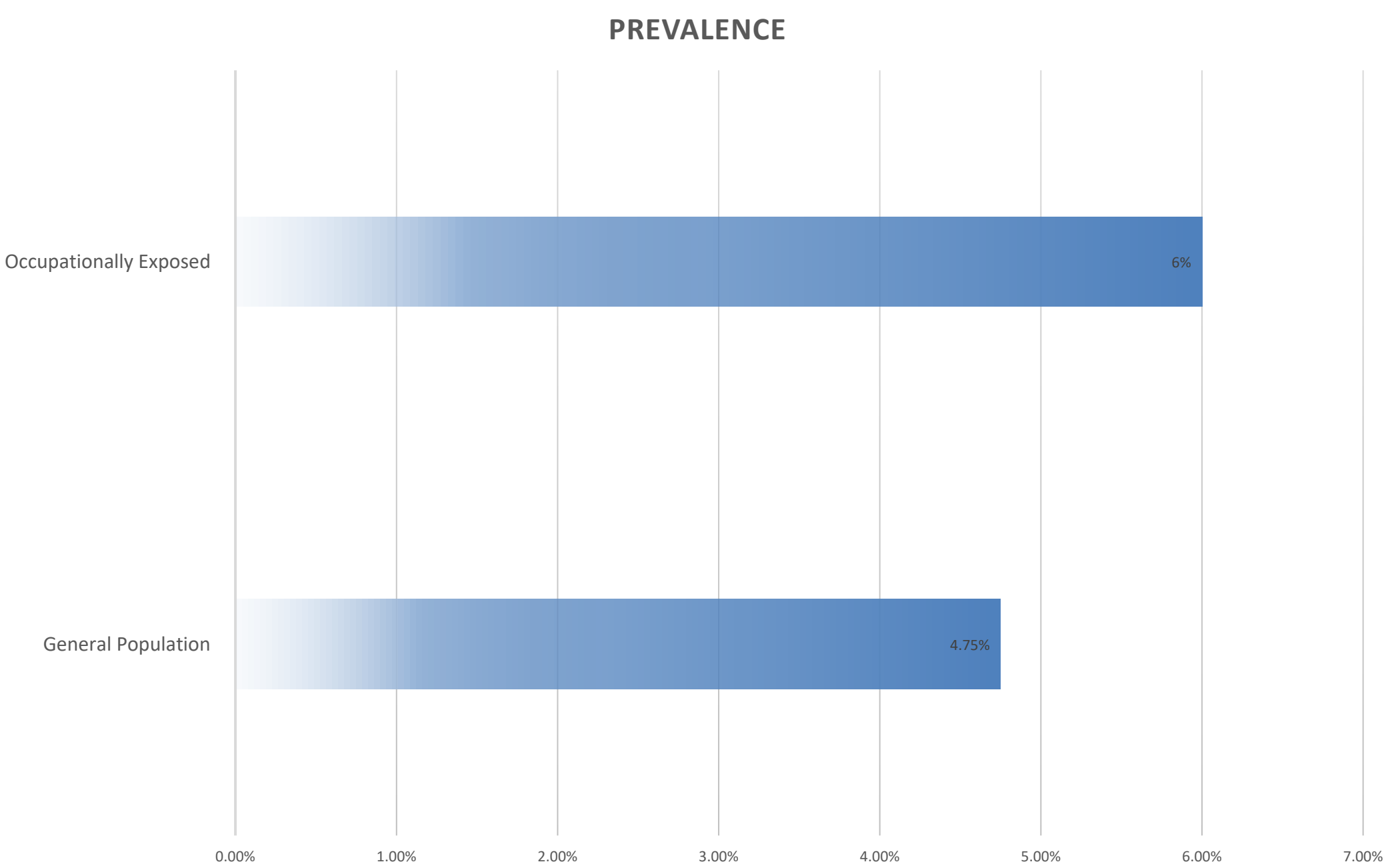
AIM: To systematically review global evidence on brucellosis control and the epidemiological trends under a One Health framework, and assess implications for India.



METHOD

A systematic review was conducted following PRISMA guidelines. Databases searched included Web of Science, PubMed, Scopus, Cochrane Library, and Embase (from inception to Jan 2025). Studies addressing human brucellosis, antimicrobial resistance, and One Health interventions were included. Two independent reviewers extracted data.

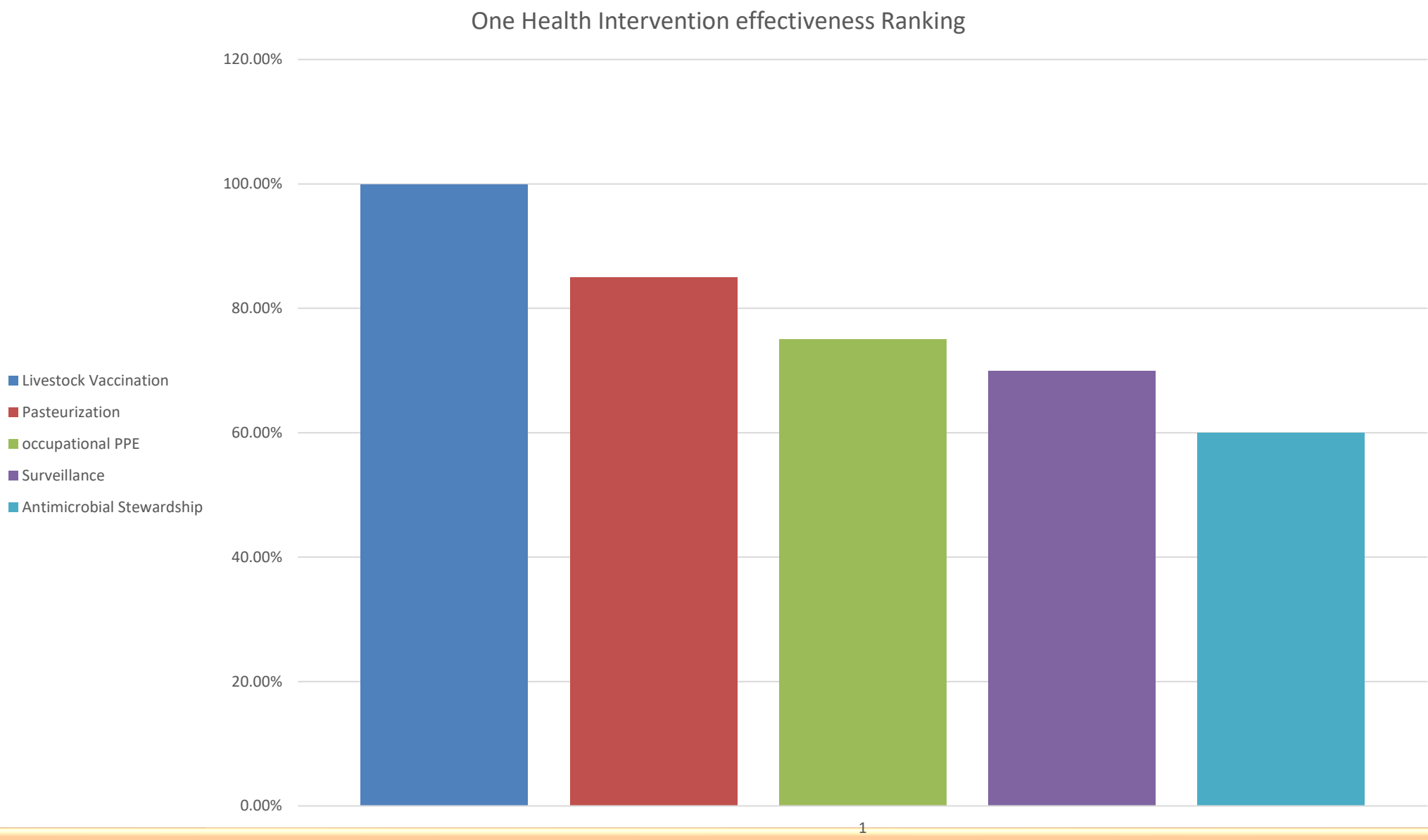
Almost 20 studies were included for qualitative synthesis. A simplified random-effects meta-analysis was performed using Indian prevalence data to estimate pooled seroprevalence and subgroup variation. ^{2,3}



RESULTS & DISCUSSION

The included studies spanned diverse geographical regions in India. Collectively, the findings indicate that brucellosis continues to be a major global public health concern with a pooled prevalence of 4.75% among the general population and 6% among occupationally exposed groups.

Environmental and livestock-associated reservoirs, irrational antibiotic use contribute to the persistence and transmission of AMR. Key risk factors include direct animal contact and consumption of unpasteurized animal products. From the studies, Livestock vaccination consistently emerged as the most effective preventive measure. Conclusively, integrated One Health interventions were shown to improve disease management outcomes and reduce healthcare costs.



CONCLUSION

Brucellosis persists as a significant zoonosis in India, particularly among high-risk populations. The analysis demonstrates that while overall prevalence in the general population is moderate, high-risk groups bear a substantially higher burden, emphasizing the importance of targeted interventions. Multidisciplinary One Health interventions, including livestock vaccination, occupational safety measures, and antimicrobial stewardship in veterinary and human sectors, are crucial steps towards effective disease mitigation.⁴

FUTURE WORK / REFERENCES

Future Work

1. Genomic surveillance of Brucella
2. Regular AMR Monitoring
3. Expanding Livestock vaccination programmes

References

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