Spatial and Temporal Distribution Patterns of Avian Influenza in Live Bird Markets near migratory and non-migratory birds population in Bangladesh

Hasnine I[1],Uddin MH[1],Dhar PK[1], Logno TA[1], Ghosh K[1], Mahmud R[1], Chakraborty P[1], Biswas PK[1], Lorcan C[2], Fournié G[3], Butt S[3], Hoque MA[1]

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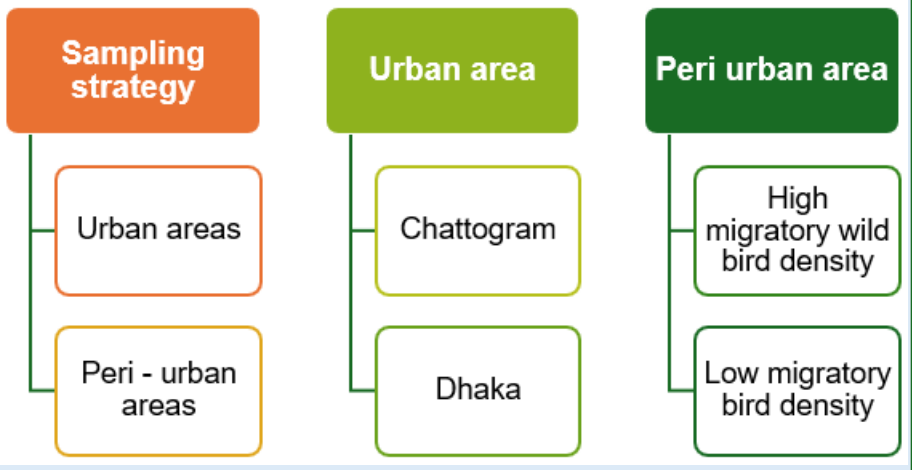
Introduction

- Avian Influenza (AI) is prevalent in Bangladesh in both high pathogenic (HPAI) and low pathogenic (LPAI) forms, with H5N1 and H9N2 being the most common subtypes (Islam et al., 2023)
- Live bird markets (LBMs) are places where live poultry are traded and slaughtered, and they are considered as potential hotspots for AI transmission (Fournié et al., 2012)
- Moreover, Bangladesh hosts many migratory birds that may carry AI viruses from other regions and introduce them to the local poultry population (Rimi et al., 2019).

Objective

- To investigate the spatial and temporal patterns of avian influenza (caused by H5 and H9) in LBMs across different regions of Bangladesh.

Methodology



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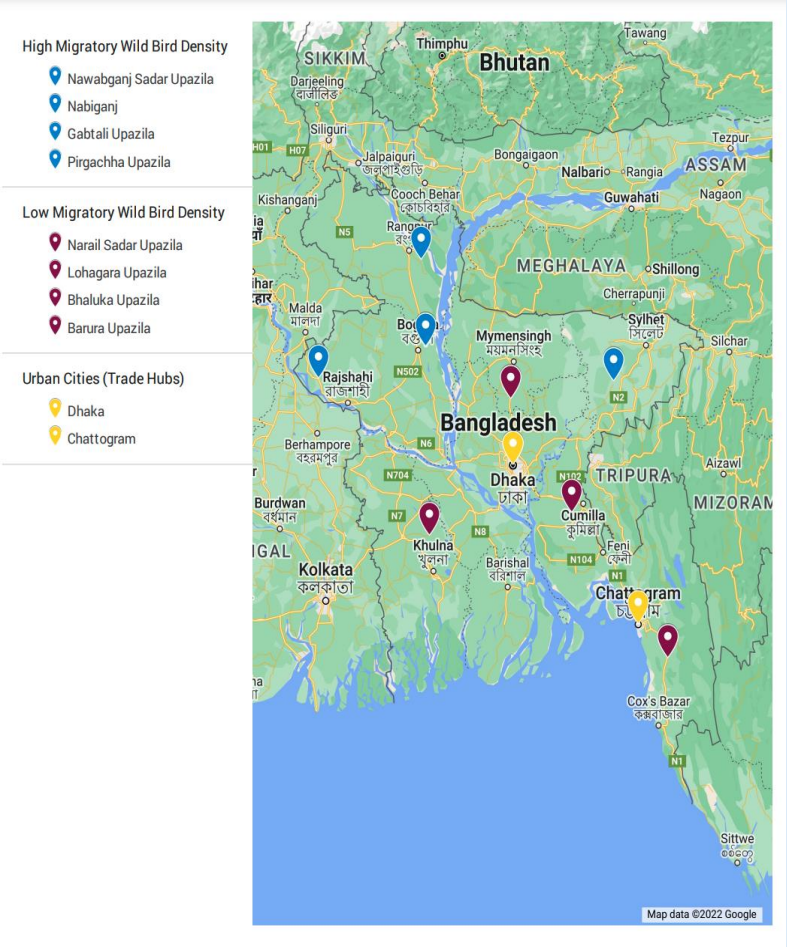
Methodology (Cont.)

Sampling area



Sample collection

Area selection technique

- Data accessed from poultry hub colleagues
- Wet land distribution data
- Past literature

Data collection

- Questionnaire (Market level and stall level)
- Observation sheet

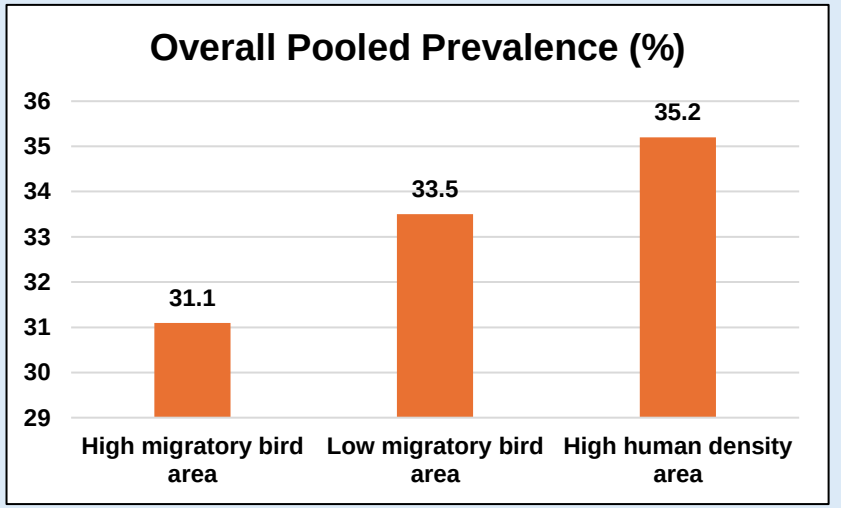
Sample collection

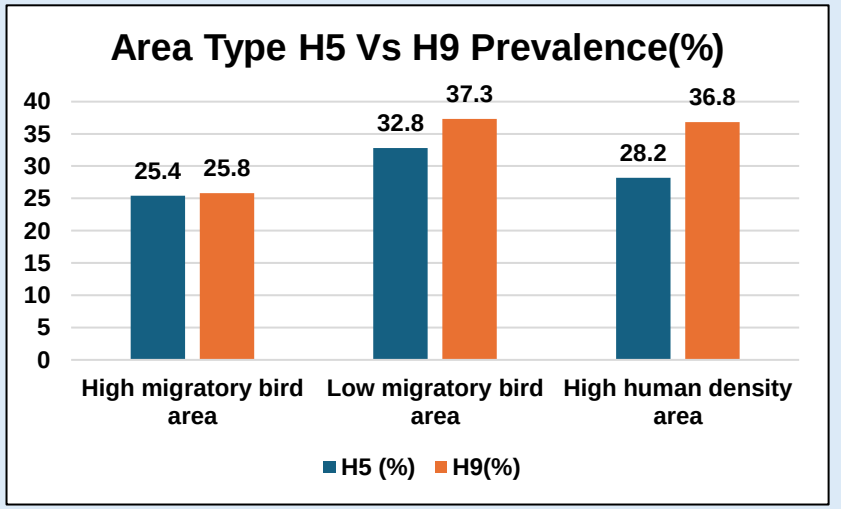
- Five session at 6-weeks interval

Data analysis

- ODK
- MS Excel
- STATA

Results





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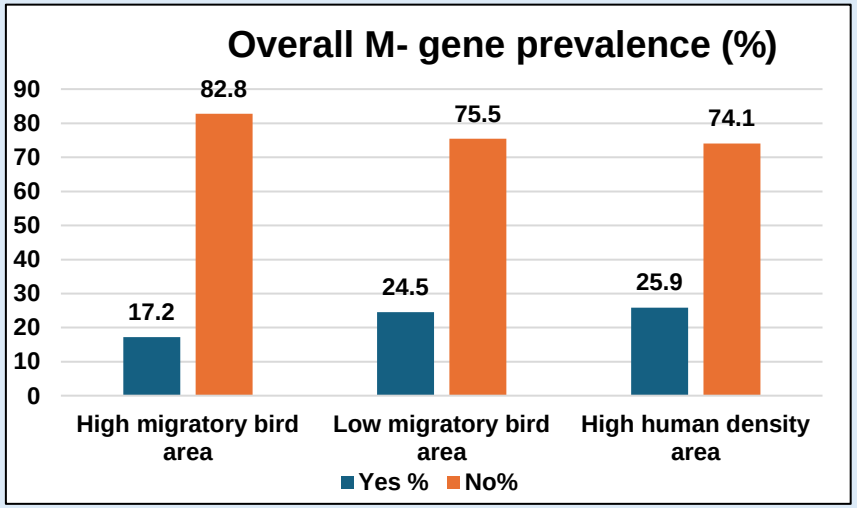

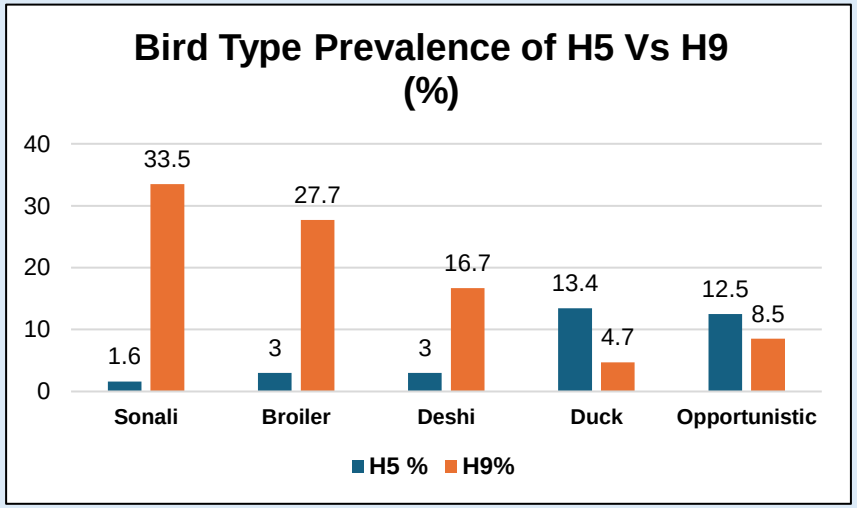

Conclusion

- ✓ High human density area was found as high-risk zone for AI infection
- ✓ Both H5 and H9 subtypes were found to be more prevalent in areas with low migratory bird populations.
- ✓ The H9 subtype is found more frequently in other types of poultry than in ducks.

Recommendations

- ❑ Establish regular testing system for H5 and H9 subtypes
- ❑ Enforce strict protocols in the poultry trading network
- ❑ Upgrade market facilities for hygiene and sanitation

References

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- ❑ Fournié et al., (2012). Identifying live bird markets with the potential to act as reservoirs of avian influenza a (H5N1) virus: A survey in Northern Viet Nam and Cambodia. *PLoS ONE*, *7*(6).
- ❑ Rimi et al., (2019). A decade of avian influenza in Bangladesh: Where are we now? In *Tropical Medicine and Infectious Disease* (Vol. 4, Issue 3). MDPI AG.

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