

ILLUMINATING THE TRANSMISSION RISK OF SLEEPING SICKNESS IN SELECTED HAM-LETS OF OYO STATE NIGERIA USING MULTIDISCIPLINARY ONE HEALTH APPROACH

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Objectives: Despite advancement in diagnostic protocols, the actual status of sleeping sickness (SS) in Nigeria is unknown. This study employed epidemiological and entomological investigations to illuminate the prevalence and risk factors of sleeping sickness in the study areas.

Methods: Human and animal blood samples were blotted on Flinders Technology associates (FTA) classic cards. Tsetse were captured using odour-baited traps. Tsetse distribution relative to weather and anthropogenic activities was assessed. Presence of *Trypanosoma brucei gambiense* in wild-caught tsetse, human and animal blood blot; and tsetse bloodmeal sources were detected using colorimetric-LAMP. Spatial representations of inferences were developed using QGIS software.

Results: Captured tsetse were *Glossina palpalis palpalis* with 16.90% *T. b. gambiense* infection rate. Humans were preferred bloodmeal source (41.67%). Alaho has highest tsetse density 10.33 Flies/Trap/Day and human-tsetse contact with transmission risk index 80787.31. Anthropogenic activities elicited significant impacts on tsetse density. Prevalence of *T. b. gambiense* among humans and domestic animals were 40.28% and 40.69% respectively. Oloya had highest SS rate (37.93%). Illiteracy (Cramer's measure of effect size $\phi_c = 0.4110$, $p=0.010$), game hunting (aOR=11.2584, 95% CI=0.6357-199.3841), livestock keeping (aOR=3.832, 95% CI=0.1697-86.5615), open defecation in the forest (aOR=18.3662, 95% CI=3.1133-108.3493) were significant occupational and behavioural determinants of SS occurrence. Forest-related activities (aOR=100.9660, 95% CI >1.0E12) and tethering (aOR=0.2824, 95% CI 0.0943-0.8459) were significant determinants of infection in animals.

Conclusion: The study areas are SS transmission hot spots with impending outbreak. Urgent one health-guided strategic inter-sectoral and multi-disciplinary integrated control approach is imperative to prevent an epidemic.

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