Sex-Based Trends in the Incidence, Prevalence, Burden, and Disability Rate of Neural Tube Defects in Sub-Saharan Africa

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Background

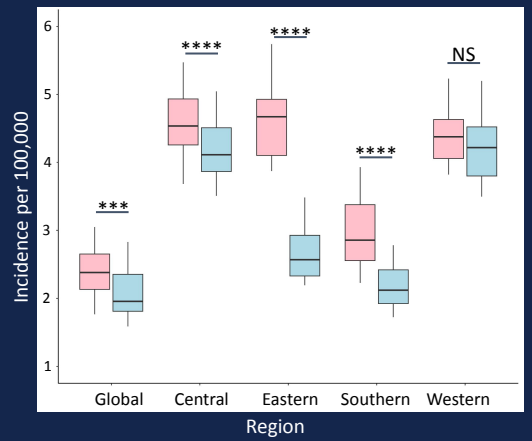
- Neural tube defects (NTDs) continue to be a significant source of mortality and morbidity in Sub-Saharan Africa (SSA).
- NTDs have predominated in female infants and the embryo's gender is linked to variations in the closure of particular regions of the neural tube.
- Factors such as maternal folate deficiency may influence genomic expression within the cerebral hemispheres in a sex-dependent manner.

Methods

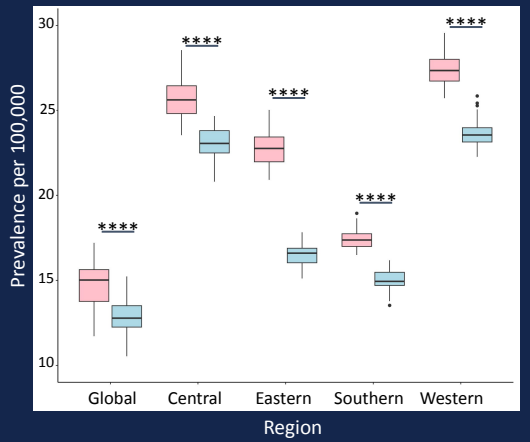
- Data was collected from the Global Burden of Disease (GBD) database from 1990 to 2019. SSA was divided into four regions, Eastern, Central, Western, and Southern, as defined by the GBD.
- Age-standardized variables of interest included incidence, prevalence, mortality, and DALYs (per 100,000).
- All statistical analyses were done using R Studio (4.2.1) with $p < 0.05$ indicating statistical significance.

Results

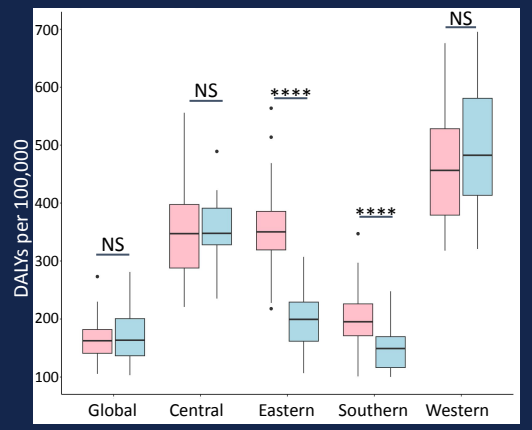
Sex-Based Differences in Incidence for NTD



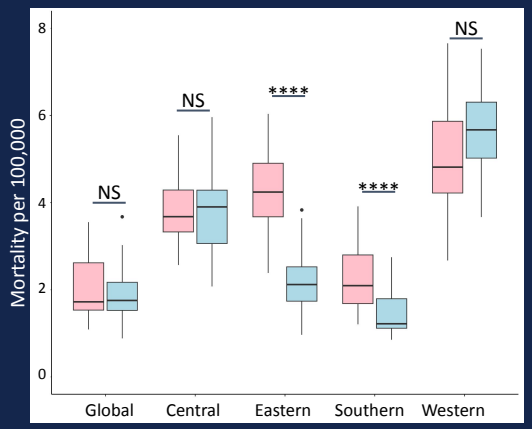
Sex-Based Differences in Prevalence for NTD



Sex-Based Differences in DALYs for NTD



Sex-Based Differences in Mortality for NTD



Conclusion

- Sex-based interregional differences are present in SSA, with females more affected than males by NTDs overall.
- There is a need for heightened awareness among providers both in the prenatal and postnatal period for female newborns.
- Future studies should focus on identifying the factors contributing to interregional and sex-based disparities among the SSA population.

References

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