

The sex-specific association between long-term PM_{2.5} exposure and incident dementia in community-dwelling older adults in Australia

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#1211

BACKGROUND: Evidence linking PM_{2.5} and dementia in low-exposure settings remains limited.

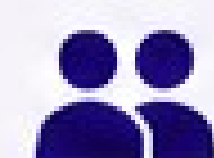
AIM: To investigate sex-specific association between long-term PM_{2.5} exposure and incident dementia in older Australians.

Aspirin in Reducing Events in the Elderly

ASPREE

ASPREE^{XT}

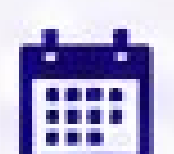
Aspirin in Reducing Events in the Elderly – eXTension



n = 16,145



54.9% Female



Median age = 74 years



Median follow-up = 10.3 years

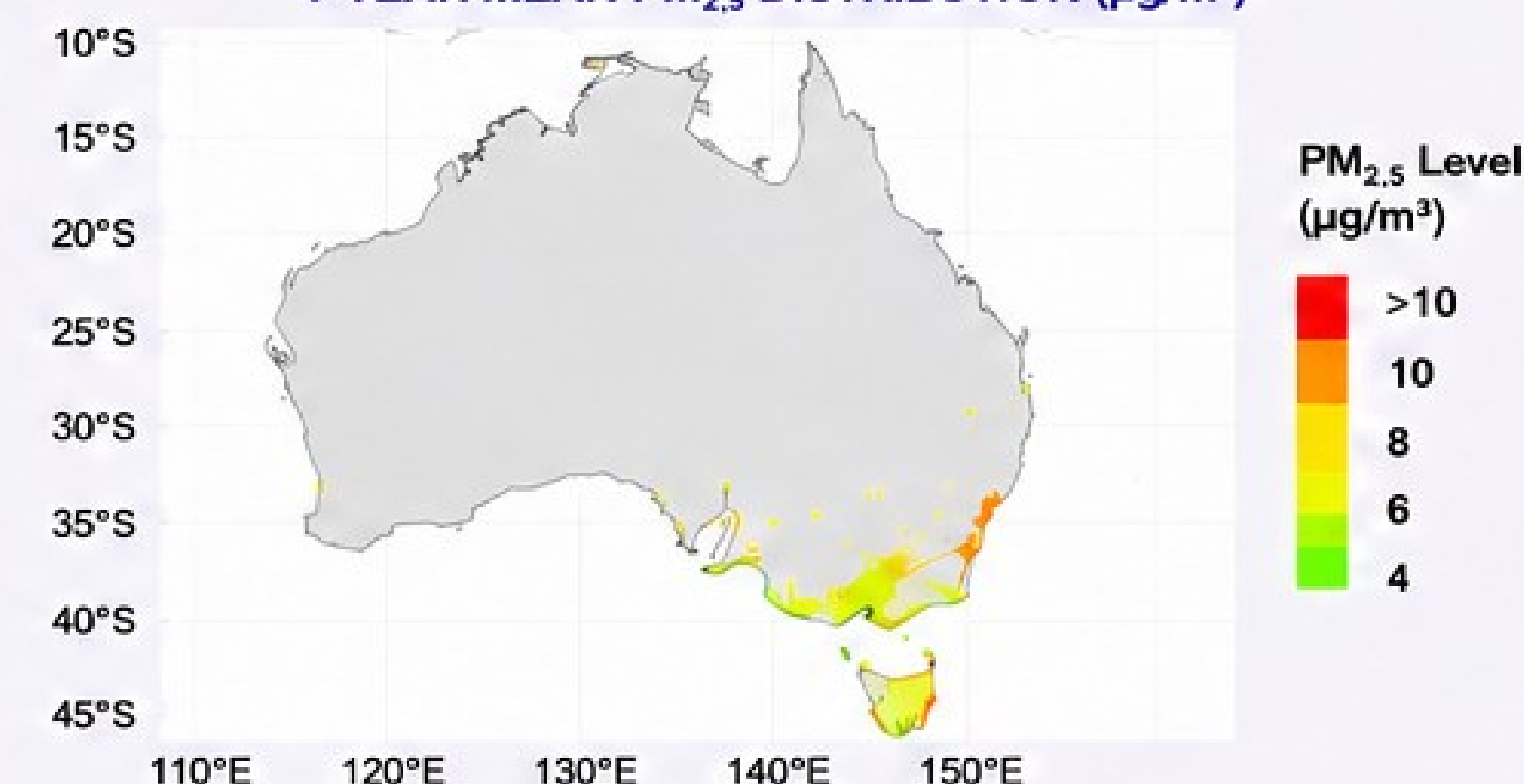


1,439 dementia cases

THE STUDY

- ✓ Community-dwelling older adults
- ✓ No dementia at baseline
- ✓ 1-year mean PM_{2.5} exposure
- ✓ DSM-IV adjudicated dementia
- ✓ Adjusted for demographic, lifestyle, socioeconomic, environmental, and genetic factors

1-YEAR MEAN PM_{2.5} DISTRIBUTION (µg/m³)



MAIN FINDINGS



No overall association

Per 1 µg/m³ increase
HR 1.04 (95% CI 0.99–1.08)



Potential threshold

PM_{2.5} >10 µg/m³ vs ≤5 µg/m³
HR 1.50 (95% CI 0.97–2.31)



Female susceptibility

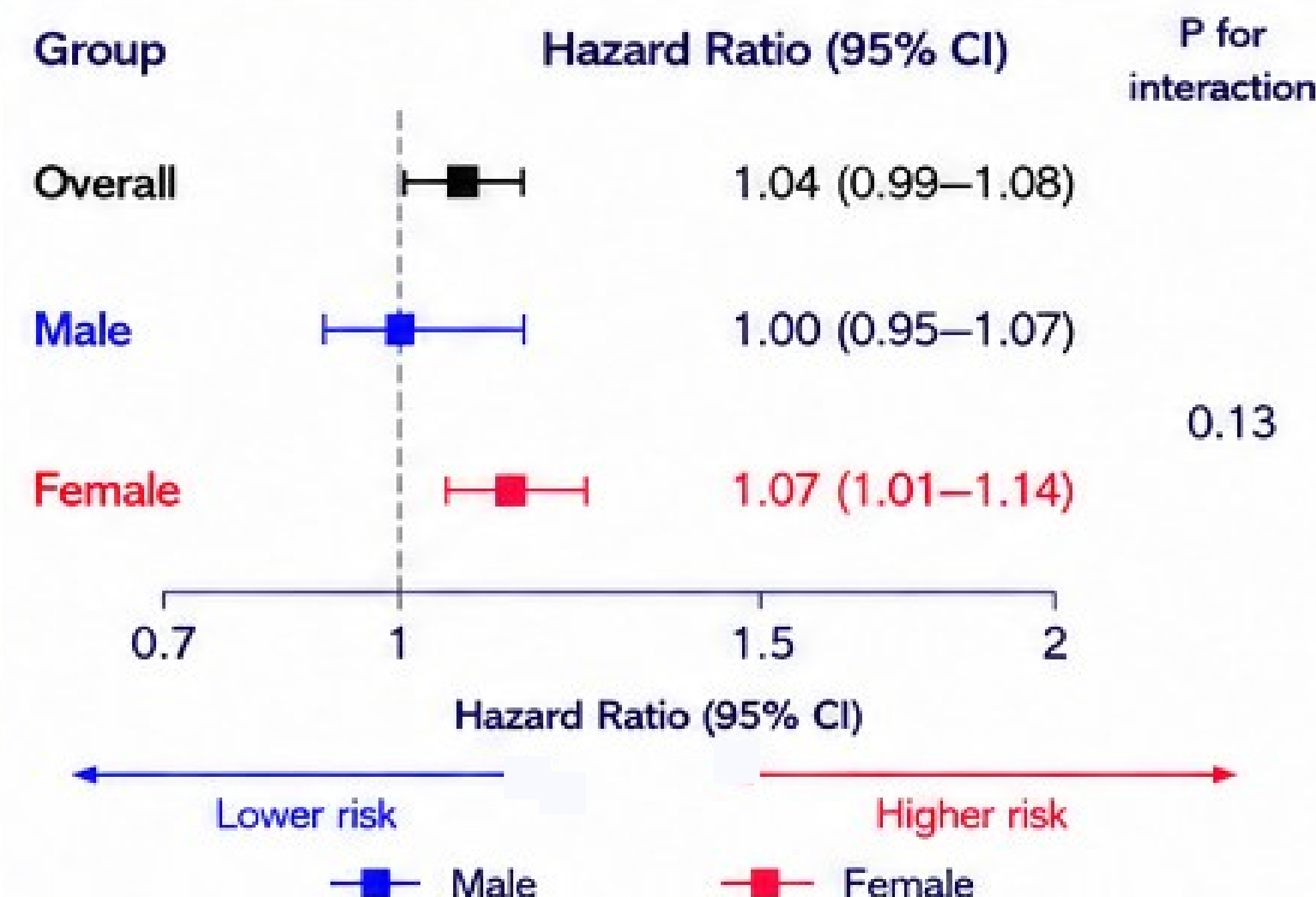
Per 1 µg/m³ increase (female)
HR 1.07 (95% CI 1.01–1.14)



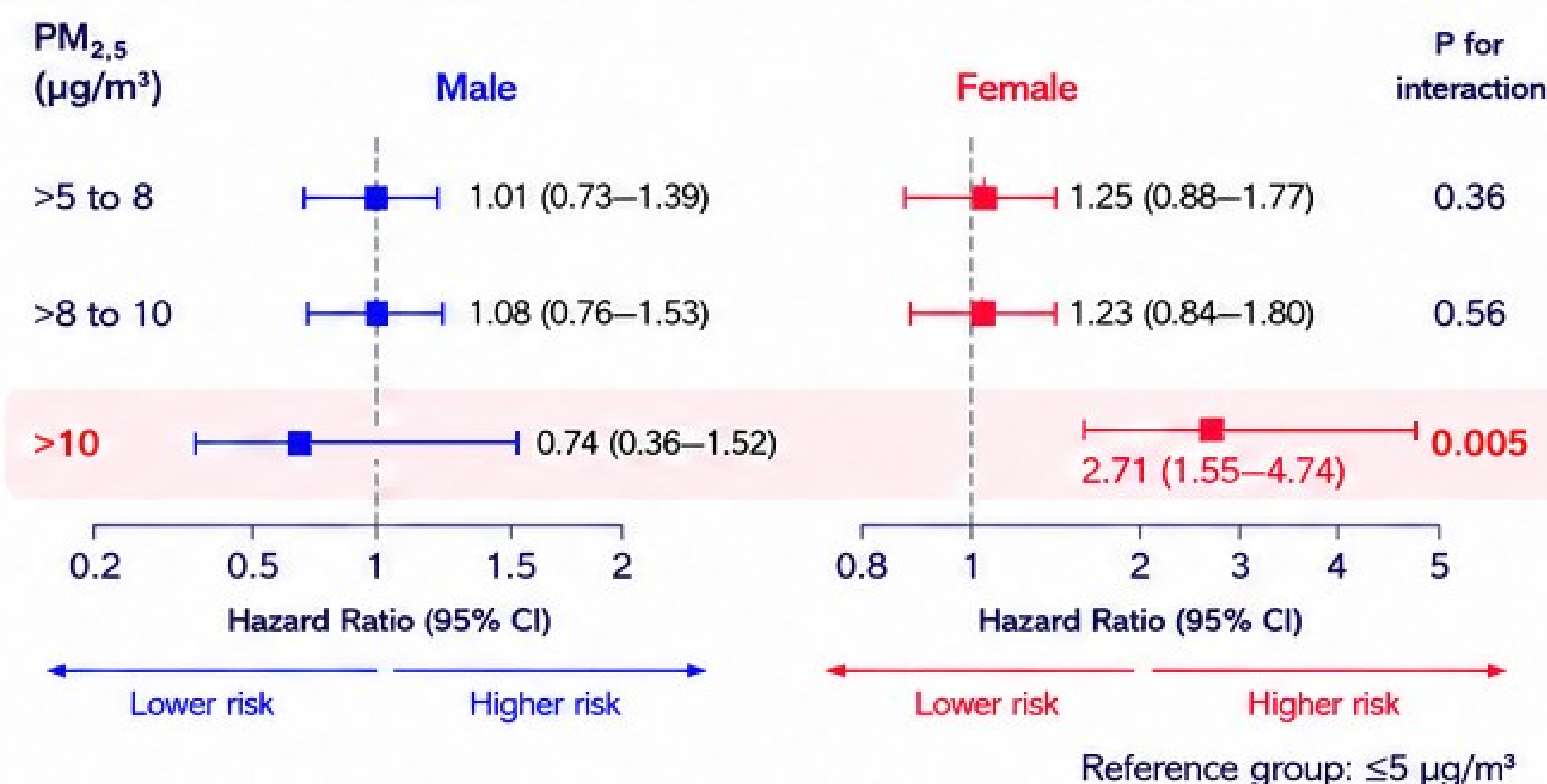
Female vulnerability

PM_{2.5} >10 µg/m³ vs ≤5 µg/m³
HR 2.71 (95% CI 1.55–4.74)

Association per 1 µg/m³ Increase in PM_{2.5} (Continuous Exposure)



Association by PM_{2.5} Exposure Categories



CONCLUSIONS

- ✓ No significant association in the overall population
- ✓ Potential threshold effect above 10 µg/m³
- ✓ Females showed higher risk, especially at PM_{2.5} >10 µg/m³



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