

Triangulating Noise Exposure, Aural Hygiene Practices, and Habitat Factors: Determinants of Ear Health among Urban Slum Residents in Bhubaneswar, Odisha: Reg ID: 420

Angana Ray, Sonali Kar, Vivek Verma, Nirmalaya Mohapatra, Gouri Rath, Prem Panda

KIIT University
Assam University

CORRESPONDING AUTHOR

Dr Angana Ray, KIIT University
Email: anganaray96@gmail.com

CITATION

Ray Angana, Kar Sonali, VermaVivek, Mohapatra Nirmalaya, Rath Gouri, Panda Prem. Triangulating Noise Exposure, Aural Hygiene Practices, and Habitat Factors: Determinants of Ear Health among Urban Slum Residents in Bhubaneswar, Odisha: Reg ID: 420. Journal of the Epidemiology Foundation of India. 2025;3(2Suppl):07.

DOI: <https://doi.org/10.56450/JEFI.2025.v3i2Suppl.007>

ARTICLE CYCLE

Received: 10/11/2025; Accepted: 20/12/2026; Published: 31/12/2025

This work is licensed under a Creative Commons Attribution 4.0 International License.

©The Author(s). 2026 Open Access

ABSTRACT

Background: Urban noise is a neglected determinant of aural morbidity, especially in low-income settlements where housing density and poor hygiene amplify exposure risks. Bhubaneswar, a rapidly urbanising city in eastern India, offers a unique setting to examine the interplay between environmental noise, aural hygiene practices, and habitat conditions. **Objectives:** To assess the relationship between noise exposure levels, aural hygiene behaviors, and residential characteristics with ear health status among adolescents and adults residing in urban slums of Bhubaneswar city, Odisha **Methods:** A community-based, observational descriptive study was conducted among 384 participants aged 10–50 years, selected by stratified random sampling from six slums representing low, medium, and high noise zones. Data on socio-demographic variables, environmental factors, and hygiene practices were collected using a pre-tested semi-structured questionnaire. Otoscopic and tuning-fork examinations assessed ear morbidity. Data were analysed in SPSS v25 using Chi-square tests and multivariate logistic regression at a 95 % confidence level. **Results:** Overall prevalence of aural morbidity was 21 %—11 % infections, 3 % hearing loss, and 7 % combined morbidity. The prevalence of deafness increased from 2 % in low-noise, 11 % in medium-noise, to 16 % in high-noise zones ($p = 0.001$). Use of sharp or metallic objects for ear cleaning ($p = 0.017$), poor household ventilation ($p = 0.016$), and shared bathing facilities ($p = 0.002$) were significantly associated with ear disease. Participants in high-noise areas had 8.5 times higher odds of combined infection and hearing loss (95 % CI 2.9–25.1). Lower socio-economic caste category also increased risk (OR 4.1; 95 % CI 1.14–14.9). **Conclusion:** Exposure to sustained urban noise, coupled with unsafe aural hygiene and poor housing, significantly impairs ear health among slum residents. Integrating environmental noise control, community awareness, and periodic aural screening within primary health-care services is crucial to reducing preventable hearing morbidity.

KEYWORDS