Speech Transmissibility in a Tertiary Care Hospital in North India: An Unexplored Consequence of Hospital Noise

Aritrik Das[1], Jugal Kishore[2], Yukti Bhandari[1]

[1]Senior Resident, Department of Community Medicine and School of Public Health, Post Graduate Institute of Medical Education and Research, Chandigarh,
[2]Director Professor, Department of Community Medicine, Vardhman Mahavir Medical College and Safdarjung Hospital, Delhi, India

Abstract

Background: Hospital noise causes speech interference between patients and staff, leading to miscommunication, uncertainty, irritation, frustration, and medical errors. Speech transmission index (STI) is a metric ranging from 0 to 1 representing the transmission quality of speech with respect to its comprehension and intelligibility. **Objectives:** The objective of this study was to assess the speech intelligibility in a tertiary care hospital. **Materials and Methods:** A cross-sectional study was conducted in a 1600-bedded tertiary care hospital. STI for public address systems-Pro – an application meeting the existing IEC-60268-16:2011 standards for speech intelligibility, was used to measure STI of 30 sites in the hospital during the day and night, both during the weekdays and the weekends. An STI measure of ≥0.75 was deemed good for speech transmissibility. **Results:** The mean STI measured was 0.62 (standard deviation ± 0.17). Among indoor sites, STI ranged between 0.25 at the outpatient department (OPD) registration and 0.95 at the first floor of the OPD block. During the weekdays, OPD registration recorded the poorest STI (0.25) during the daytime. The poorest STI at night was observed at the emergency registration (0.48) and the emergency room (0.52). Out of the 23 indoor sites, 3 sites reported poor speech intelligibility, while 13 sites reported only fair speech intelligibility. **Conclusion:** Findings from sites, like the OPD registration, medicine wards, and emergency, were of concern. Interventions to reduce background noise and improve the acoustic environment need to be considered.

Key words: Hospital noise, environmental health, occupational noise, speech intelligibility