Prof. Dr. Hamid Jalilvand, Ph.D.
Beheshti University of Medical Sciences

Voice Quality Matters: Its Overlooked Impact on Speech Level Preference and Noise Tolerance in Audiological Assessment

Speech tests often overlook voice quality, which affects speech perception and listening effort. In noisy environments, this factor is critical for noise tolerance, the ability to understand speech despite background noise. The Acceptable Noise Level (ANL) test measures this tolerance, but its sensitivity to voice quality remains unexplored. This study investigates how voice quality impacts speech level preference (MCL) and noise tolerance (ANL) in normal-hearing and hearing-impaired adults.

Sixty-seven normal-hearing and thirty-five hearing-impaired adults participated. Speech stimuli were presented in four voice quality conditions. ANL, MCL, and Background Noise Level (BNL) were measured monaurally. Data were analyzed using repeated-measures ANOVA.

Voice quality significantly affected MCL and ANL. Poorer voice quality led to lower MCLs and higher ANL scores, indicating greater listening effort. This effect was stronger in hearing-impaired participants.

Voice quality impacts speech level preference and noise tolerance, suggesting the need for its integration into audiological assessments to enhance hearing aid fitting.