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CHARIN YENJAI : THE ADJUSTED CORRECTIVE CONSTANT FACTOR FOR AUDIOMETRIC TEST. THESIS ADVISORS: CHOMPUSAKDI PULKET, Ph.D., WANTANEE PHANPRASIT, Dr.P.H., CHAWEEWAN BOONSHUYAR, M.S.P.H.,70 p.,ISBN 974-664-507-2

One obstacle in performing field audiometric testing is the unavailability of the mobile laboratory or booth. Thus, most of the time audiometric testing is performed in a room with substandard background noise levels. This study aimed to investigate correction factors to adjust for background noise levels in order to have more accurate audiometric measurements.

This study was a comparative experimental study of normal hearing thresholds and hearing thresholds masked by ambient noise at the frequencies of 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz. Sixty one subjects were selected from college students whose ages were 17-23 years old and had audiometric thresholds less than 25 dB at all frequencies. Various maskings of broadband noise at the levels of 40, 50, 60, 70, and 80 dB were generated into the test booth in order to see the impact on the pattern of hearing threshold.

Results of the study revealed that the hearing threshold shift depended upon the level of ambient noise present. At all frequencies, the hearing threshold shift showed significant difference from normal hearing threshold at 60 dB ambient noise level except that at the test of 1000 Hz frequency with 50 dB level. Prediction equations of a change in the hearing threshold shift were as follows: at the frequencies of 500, 1000, 2000 and 3000 Hz, $\hat{Y} = 17.9986-.9883x+0.0131x^2$ with .939 coefficient of determination (R^2); at the frequencies of 4000 and 6000 Hz, $\hat{Y} = 22.4775-1.0576x-0.0124x^2$ with $R^2 = .983$; at the frequency of 8000 Hz, $\hat{Y} = 18.5546-.8285x+0.0095x^2$ with $R^2 = .980$ ($\hat{Y}$ = hearing threshold shift and X = ambient noise levels [dB(A)]). The adjusted corrective constant factors were demonstrated as both a graphic form and a table form for field practice. Field investigation to determine the actual hearing threshold shift by using the quadratic equation or correction factor in the workplace should also be undertaken.