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A priliminary study on hearing problems of workers due to exposure of high occupational noise for a long period

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Exposure to intense noise may cause adverse health effects, in particular, problems in hearing. This paper presents some hearing problems of workers due to high occupational noise exposure for a long period. A sample of 73 workers who exposed to levels of noise over 85 dB(A) daily was identified, audio-metrically tested and audiograms were investigated. A questionnaire was used to gather relevant background information directly from workers. B&K Type-2250 handheld analyzer was used to measure noise levels at workplace. "Amplaid A321" audiometer was used to obtain audiograms. Out of the selected sample, 74% of workers had exposed to 85 dB(A) or more of $L_{Aeq,8h}$ occupational noise over 40 hours per week for a period of 5 years or more. Depending on the degree of Hearing Loss (HL), the sample was classified into normal hearing (0-25 dB(A)) : 10.5%, mild HL (26-40 dB(A)) : 67.0%, moderate HL (41-55 dB(A)) : 21.75%, moderate-to-severe HL (56-70 dB(A)) : 0.75% and none falls in to Severe HL or Profound HL categories. These categories were mapped with the responses of the questionnaire. Based on the HL and the configuration of audiograms of Air Conduction (AC) and Bone Conduction (BC) measurements, 89.5% of the sample with a HL was classified as, Conductive Hearing Loss (CHL 2.25%), Sensorineural Hearing Loss (SNHL 85.75%) and Mixed Hearing Loss (MHL 1.5%). Some of the SNHL sample was identified as Meniere's disease 19%, Acoustic Trauma 12% and Noise Induced Hearing Loss (NIHL) 6%. NIHL were recorded among the workers who were highly exposed to noise in the frequency range 3000-6000 Hz. A significant fraction (89.5%) of the sample studied was suffering from mild, moderate or moderate-severe HL. The majority of them (85.75%) were identified as suffering from Sensorineural Hearing Loss.

Keywords: Noise exposure, Hearing loss, Audiometric hearing test, Hearing threshold shift

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