

Abstract

Noise is the commonest hazardous faced by industrial workers and it mainly affect on the auditory system and cause hearing defects, specially the Noise Induced Hearing Loss. Most of the small and medium scales industries do not aware about the environmental laws and mainly contribute to the occupational noise pollution in Sri Lanka. Eventhough, the occupational noise standard is internationally adapted to control the excessive noise exposure; it still not formulated in Sri Lanka. Therefore, the employers not legally bound to take steps to control excessive noise exposure and they do not have safety culture. Therefore, the aim of this study was to determine the hearing loss and other noise related health effects among industrial workers who exposed to excessive occupational noise levels.

A descriptive, comparative and cross sectional study was conducted during a period of three months among factories located in Free Trade Zone at Biyagama. Multistage random samplings have done. 114 of workers (including both sexes), who work for 8 hours or more/day and 5 days/week in age group 18 - 40 years were accounted as study group. Similarly, 114 workers in same age group were involved for the control group. The current environmental noise level was measured using a sound level meter. The hearing level was measured using an audiometer and hearing impairment was determined using a resulted, audiogram. The personal particulars, present and past occupational history and other defects related to hearing assessed by using an interviewer-administered questionnaire.

The resulted mean noise level was 88.4 dB (A) (std = \pm 4.25) for the study group and 66.67 dB (A) (std = \pm 8.09) for the control group, and the significant difference was observed in the mean value of the of two groups ($t = 2.27$, $df = 159$ at 95% $ci = 0.292 - 4.028$). Out of the total study group 89 (78.1%) were exposed to noise level > 85 dB (A). The exposed noise level and ability of hearing was significantly associated ($\chi^2 = 79.23$, $df = 3$, $p < 0.05$). Among the total study population, the workers of poor hearing were 12.3% and their majority (89.3%) exposed to daily noise level of > 85 dB (A). It was nearly 8 times greater than in the control group. Out of the total number of workers who had poor hearing, the characteristic high frequency audiometric notch was resulted for 64.3% of employees at 4 kHz and 6 kHz frequencies. The persistence tinnitus and raised voice were significantly associated ($p < 0.05$) with exposed noise level. The resulted number of workers who had suffered from vertigo was 2.6% and there was no significant association with exposed noise level. The frequencies of hearing impairments have strongly influenced by the proximity to the machinery and poor compliance to the hearing protective devices.

The employees in these three factories studied are at higher risk of developing NIHL, due to exposure to excessive occupational noise, which was exceeded the recommended safe limit of 85 dB (A). NIHL might be one of the commonest symptoms among industrial workers in Free Trade Zone at Biyagama. Furthermore, other related health effects of tinnitus, earache, raised voice and irritability commonly found among these workers. Therefore, priority should give to develop national policies on workplace noise control, and legislation to mitigate excessive noise exposure in workplaces.