Abstract

Certain indoor in Ghana, such as nightclubs and churches are characterized by high levels of noise (Leq), which can be consider as a physical hazard. Here, we demonstrate that noise levels from loudspeaker have potential risk of hearing loss by measurement of daily noise dose percentage and noise level (Leq) during daily working hours using an ER-2000DW8 personal dosimeter and Optimus Green Noise Meter. The methodology involved physical examination of the ear using Interacoustics Model AD226 Audiometer. It was found that Nightclub workers were exposed to (noise level) Leq at 103.36 dBA and above whiles the church workers Leq were measured at 101.43 dBA and above respectively. About 33.9%, 18.2%, 4.5% and 43.9% of workers had mild, moderate, severe and normal hearing loss respectively. Due to the very low knowledge regarding hearing protection, it recommended to use soundproof and hearing protection aids.

Introduction

In Ghana, NIHL has been studied only in the formal and informal occupational sectors (Amedofu, 2002; Kitcher et al., 2012; Kitcher et al., 2014) with no research of NIHL in the leisure/religious sites. The purpose of the study is to assess the level of exposure to occupational noise and potential hearing loss among workers in the churches and nightclubs.

Methods

The sample size for the study was 66. This consisted of 6 instrumentalists, 13 vocalists, 2 soundmen, 3 pastors and 5 ushers and second category consisted of 10 waiters, 5 cleaners, 3 DJs, 3 bar tenders and 12 bouncers. These populations were compared with the control group of 2 librarians and 2 students.

Experimental design

Test Groups: Church (5) and nightclub (5 )
Control Group: Library (2)

Data collection technique

1. Dosimetry measurement
2. Audiological evaluation
3. Questionnaires and interviews

Results

Prevalence of hearing loss at test frequencies

Factors Influencing the Degree of Hearing Loss among the Respondents

This implies that age is does not influence the degree of hearing loss. Daily exposure, exposure to chemical, years of noise exposure was also statistically significant because their p-values (0.001 0.012, 0.000 respectively) were lesser than 0.05. That implies that, degree of hearing loss is being influenced by daily noise exposure, exposure to chemical and years of noise exposure respectively.

Conclusion

The highest prevalence of hearing loss occurred at noise notch 4KHz. It can be concluded that most of the nightclub and church workers had occupational noise induced hearing loss (NIHL).

The noise levels among workers in the church and nightclub exceeded the limit set by the NIOSH and EPA under EPA Act, of 1994 (Act 490) at 85dB and 70 dBA respectively.

The risk factor of daily exposure level of workers in the nightclubs and churches require hearing protection practices.

The prevalence of tinnitus after the noisy events suggested that workers were exposed to hazardous noise levels at work and their use of hearing protection is extremely low.

It would be relevant to repeat this work across the country. Number of participant should be increased in future studies to gather more data for comprehensive analysis.