

Noise Induced Hearing Loss Among Music Employees In Dar Es Salaam

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Fifty-two musicians and music employees were studied to find out the effects of noise on their hearing thresholds. Their age range was 20 –59 years with a mean age of 35.7 years. There were 47 males and 5 females. Their average threshold of hearing was 29.9 dBA. There was no significant difference in noise induced hearing loss (NIHL) among musicians playing different instruments.

All the music bands and discotheques studied produced fluctuating music noise, which varied between 95 dBA and 110 dBA. None of the musicians and music employees used any form of hearing protection. The aim of the study was to find out whether music was delivered at higher decibels in Dar es Salaam than those recommended by the United State of America, Environmental Protection Agency which is 85 dBA or The Occupational safety and Health Act 1970 which is 90 dBA ¹. The study was also designed to find the extent of hearing loss in the entertainers. Such finding could then be used to initiate hearing conservation programmes through occupational health evaluation and advice to relevant authorities.

Introduction

Noise is an environmental hazard that causes physiological and Psychological effect that interferes with the well being of an individual. Although not comparable to acid rain or ozone layer depletion, it is never the less of significant social impact at the individual level.

In Western Europe and North America NIHL and presbycusis are leading causes of deafness ². In Tanzania infections, nutritional factors and ototoxicity are main causes of hearing impairment. The incidence of NIHL is steadily increasing in Tanzania due to development of mechanical and music industries. Noise of sufficient loudness and duration will damage

the human ear resulting in temporary or permanent hearing loss ³. Law in the USA and many other countries requires hearing conservation programmes for workers exposed to noise exceeding 85dBA. Noise levels below 80 dBA pose negligible risk to human hearing over a working lifetime ². NIHL is completely preventable.

Reducing noise through engineering or administrative controls is the first line of defense against NIHL. When the above is not sufficient, personal hearing devices should be used. Passive and active noise reduction devices can be used. The most effective device is the one which the worker finds comfortable and will use 100% of time.

Study Design

The study was conducted in Dar es Salaam city. The investigators examined workers of four music bands and two discotheques. Information about sex, age and type of music was noted down. Duration of employment and instruments played were also registered. Music site weather indoor or outdoor was noted.

All workers were examined by a battery otoscope to assess the condition of the external ear and tympanic membrane. Audiometry was performed using a damplex 67 audiometre. Sound levels were measured by Dave-D- 1422C Sound metre. Those workers with previous hearing loss before employment into the music industry and those with otitis media were excluded from the study.

Results

During the period of August to September 1997, 52 music employees from four music bands and two discotheques were investigated. Figure 1 shows the age distribution of the workers. Their mean age was 35.7 years with a range of 20-59 years. When the thresholds of hearing were compared to duration of employment there was slight direct correlation for

those employed for more than ten year (Table 1). Trumpet player had the lowest hearing loss average while technicians had the highest hearing loss average, (Table 2).

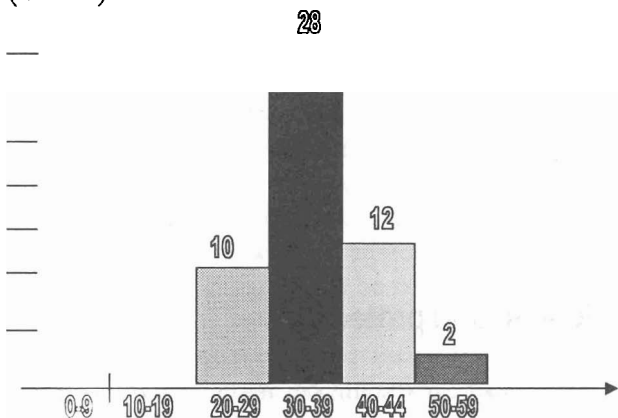


Figure 1 Age Distribution Histogram for the musicians

TABLE 2: DURATION OF EMPLOYMENT

| DURATION EMPLOYMENT YRS. | OF IN | NO. OF EMPLOYEES | AVERAGE HEARING THRESHOLD IN dBA |
|--------------------------|-------|------------------|----------------------------------|
| 0 - 5 | | 22 | 29.5 |
| 6 - 10 | | 10 | 27.5 |
| 1 - 15 | | 6 | 30.4 |
| 16 - 20 | | 6 | 30.6 |
| 20 + | | 8 | 32.5 |

TABLE 2: COMPARISON OF SPECIFIC ACTIVITY TO DEGREE OF HEARING LOSS

| MUSIC INSTRUMENT PLAYER | NO OF EMPLOYEES | AVERAGE HEARING THRESHOLD IN dBA |
|-------------------------|-----------------|----------------------------------|
| DRUM PLAYER | 5 | 30 dBA |
| GUITOR PLAYER | 12 | 30 dBA |
| TRUMPET PLAYER | 8 | 25 dBA |
| (WAITER) | 8 | 30 dBA |
| (TECHNICIANS) | 6 | 35 dBA |

Discussion

In this study all the musicians and music employees studied had NIHL. Most of them had mild NIHL. The mean of 29 dBA falls within the range of mild hearing loss, which is 25 – 40 dBA. A study by sataloff⁵ of musicians and music employees showed the majority to have mild NIHL.

None of the employees in this study used any form of hearing protection. In a study of music employees by Gunderson in New York⁶ only 16% reported regular use of hearing protection.

The average sound level at various music sites in this study was between 95 – 110 dBA. Levels of noise below 80 dBA cause negligible risk to human hearing over a life time but above 80 dBA the risk grows rapidly for the high frequencies and more slowly for the low frequencies.

The average music level at various music clubs studied by Gunderson⁶ was 94.9-106.7 dBA, which is closely similar to ours. It has been shown by the study that almost all of the musicians in Dar es Salaam are not using any form of hearing protection. Since NIHL is completely preventable, occupational health workers could educate musicians and music employees of the benefit of hearing protection. Administrators could also introduce by laws to restrict noisy music clubs and discotheques.

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