

Effects of Headphones Usage on Hearing of Medical Students of Western Rajasthan

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Abstract

Original Research Article

Background: Hearing loss specially noise induced hearing loss (NIHL) is very common among population and continuously increasing due to exposure to loud noise specially chronic headphones usage. **Objects:** This study was conducted to get the effects of headphones usage on hearing and creates awareness regarding hearing loss due to chronic exposure of loud sound through head phones usage. **Materials and methods:** A total 1200 Students from Jodhpur medical college and S.N Medical college were chosen and divided into 3 groups 400 each. Group A had habits of earphones usage more than 3 hours a day and group B is less than 3hours a day and groups C not using headphones at all. All the groups were subjected to Pure Tone Audiometry (PTA) and got Audiograms. **Results:** This study revealed high frequency loss in 10.5% of students in group A and 5% only in group B. No students affected in group C. Group A and B students were completely refrained from headphones usage then after 6 months repeated PTA obtained, which showed that 4% in group A and only 1% in group B had permanent hearing loss. **Conclusion:** This study showed that prolonged use of earphones especially for music is harmful to the ears and effects may be permanent if prolonged exposure is continuous. This can be prevented by creating awareness and educational programs especially in student's community.

Keywords: Noise induced hearing loss, Earphones, Pure Tone Audiometry, Prolonged exposure.

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INTRODUCTION

Hearing impairment is the most frequent sensory deficit affecting more than 360 million in the world population [1]. Many studies shown that hearing loss is increasing and becoming more common amongst young people and common cause for that is age related hearing loss and noise induced hearing loss (NIHL). NIHL is one of the most important social and public health problem. NIHL is continuously increasing and caused by repetitive exposure of sound or external noise [2]. In daily life, people are exposed to various harmful noises in their environment from music players, traffic sound, TVS, Radio, construction sites to industrial sites. If these sounds are heard at safer level than do not affect hearing but when exposed to loud sound for prolonged duration to intense impulse or burst, can cause NIHL by inner ear hair cells damage [3]. Now a days most adolescents and young adults especially students are in a habit of listen to music earphones by

their MP3 and mobile phones, mostly at maximum volumes for hours [4]. Several studies indicated poorer hearing threshold in adolescent and young adults who uses headphones compare to who do not use head phones [5, 6].

MATERIALS AND METHOD

In this study total 1200 student from S.N Medical College and Jodhpur Medical College 600 each were randomly selected. A questionnaire regarding the earphone music usage, duration of usage per days and circumstance of usage (usage free time, in working hours or during travelling) was prepared and given to all students. Based upon answers from the questions all 1200 students divided in three groups each 400 students. Group A compromising students who used to listen music more than 3 hours a day, group B less than 3hrs a day and group C who are not aware for ear phone music or not using it. Students who had other course of

hearing loss like CSOM, trauma, discharge ear, wax excluded from the study. All groups were subjected to Otoscopy and PTA (Pure Tone Audiogram) at department of ENT, Jodhpur, Medical College and audiograms obtained. All groups were advised to refrain from further use of earphones music after their first Audiometry. Repeat PTA was done to all three groups after a period of 6 month and results noted.

RESULTS

In our study sex and age groups distribution were given in Table-1.

Table-1:

Age group	Total No. students	Male (%)	Female (%)
18-30	1200	720 (60%)	480 (40%)

Table 2 showed PTA results of all three groups

Table-2: PTA in all students

Group	High frequency hearing loss more than 25dB (%)
A (total 400)	42 (10.5)
B (total 400)	20 (5)
C (total 400)	8 (0)

Total 42 students (10.5%) in group A had high frequency hearing loss where in group B only 5% (total 20 students) affected. In group C no students was effected at all from hearing loss.

In table-3, PTA after 6 month showed that only 4% student affected hearing loss and 1% students in group B.

Table-3: PTA after 6 month

Group (Total students)	High frequency loss (725)
A (400)	16 (4%)
B (400)	4(1%)
C(400)	0 (0%)

DISCUSSION

Listening to music through MP-3 player via earphones is very common practice among students in present era because of easy availability [7, 8] and affordability of MP3 devices. In this study we investigated the relationship between earphones usage and hearing loss in students. The research showed that 10.5% students for group A who were using earphone more than 3 hours a day has audiogram having high frequency hearing loss and only 1% student suffered with high frequency hearing loss in group B. The study showed high frequency hearing loss in earphones users than non-users specially for long duration comparable to other study [7-11]. The incorrect use of earphones in students due to lack of awareness about the usage of

listening to loud music [12, 13]. Among adolescents and students there is upward trend to the use of earphones therefore improving awareness is very important [14].

CONCLUSION

In our study we clinically observed the harmful effect of high frequency hearing loss in chronic earphones users. These changes may occur temporary and reversible if intervened at the right time by abstinence from earphones music [5, 15, 16]. It is very important to make aware this population from prolonged earphones music usages harmful effects and implement international and national programs to raise awareness about this issue.

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