

Hear today – hearing loss tomorrow: a preliminary survey of the personal audio player user habits and knowledge of South African first-year university students

To the Editor: Different types of personal audio devices (PADs), such as cell phones, Mp3 players and iPods, are increasingly used by young people. Many of these players can generate loudness levels in excess of 115 dB, which can cause severe damage to the ears.¹ Research in other countries has found that between 45 and 53% of university students listen to their devices for more than an hour a day, and that they listen to them tuned to loud or very loud.^{2,3}

To avoid hearing loss, experts have recommended listening times of 60 to 70 minutes per day at 60 to 80% of the maximum volume.^{1,4} Listening to PADs while doing exercise may be even more dangerous, as aerobic exercise diverts blood from the ears to the limbs, rendering the inner ear vulnerable to hearing loss.⁵

In a recent study, more than 40% of people using PADs were found to have daily noise exposures high enough to cause noise-induced hearing loss (NIHL), defined as “permanent metabolic cochlear damage, caused by chronic exposure to sound levels between 90 dB and 140 dB”.⁶

The prevalence of NIHL has recently increased and hearing damage similar to that found in older people is now often diagnosed in children and adolescents.^{7,8} A link has been found between NIHL in young adults and recreational noise.⁶ Half of American high school students reported at least one symptom of hearing loss directly attributed to the use of iPods and other similar devices.³

All the PADs tested by the American Speech-Language and Hearing Association were capable of producing sound levels far above the maximum safety level of 85 dB, often reaching 86 to 102 dB.⁴ Depending on type, earphones can either reduce or increase the potentially dangerous effects of the devices.⁵ Earbud earphones, which rest inside the ear, are most dangerous, while over-the-ear headphones appear less harmful.⁹

The present authors collected preliminary data on the PAD listening habits and knowledge about hearing and hearing loss of South African first-year university students.

Methods

The survey collected data through a 27-item web-based questionnaire. The questionnaire was in English and was designed to collect information on the following topics:

- 1) Duration of sound exposure and loudness levels
- 2) Knowledge of PADs and ear phones
- 3) Knowledge of potential risks of PAD use
- 4) Knowledge of safe sound exposure times and loudness levels
- 5) Consequences of potential noise induced hearing loss

The study was approved by the Research Committee of the Division of Speech-Language and Hearing Therapy, Stellenbosch University. The

subjects consisted of a self selected group of 100 first-year students at Stellenbosch University (27 males and 73 females) attending an Information Skills course. The average age of the respondents was 19 years.

Results

Of the 100 participants, 90 owned a personal audio device. Almost half (49%) listened to them one to four times daily. Fifty-eight per cent appropriately listened to their devices an hour or less per session, while the rest used them for an hour or more per session. Sixty-two per cent of the respondents listened to their devices at very soft to medium loud levels, while 38% listened to their devices at somewhat loud to very loud levels.

Only 8% of the students were aware of the potential maximum loudness of PADs, correctly matching it with jet engine noise. Almost 60% wrongly related the maximum sound levels to speech activities.

Only 12% of the students were using over-the-ear head earphones, claimed to be the best, while 22% used earbud-style earphones, which could place the listeners at risk for hearing damage.⁹

Only 29% of the participants in the present survey were aware of possible hearing loss due to the use of PADs, while 71% knew nothing about the matter. Surprisingly, 65% of the respondents showed little or no concern on how the use of these devices might affect their hearing (Table I).

Table I: Concern about the potential impact of PADs on hearing

	Percentage
Very concerned	6%
Somewhat concerned	22%
Not really concerned	34%
Not at all concerned	31%
Not sure	7%

Thirty-three per cent of the students were not aware of the correlation between increased listening time and loudness and potential hearing damage. Sixty-three per cent believed that relatively short recovery times (30 minutes or less) were needed. Only 37% of the participants indicated that an hour or more, as recommended by experts, was required.^{1,4} Only 7% of the students were aware of the increased danger of listening to loud music while exercising.

Thirty-eight per cent of the students had heard of noise-induced hearing loss and 12% knew of someone with NIHL. Two-thirds (65%) of the students indicated that listening to personal audio devices with earphones could be one of the factors causing NIHL later in life.

As can be seen in Table II, 44% of the participants reported some kind of hearing-related problems. The most common hearing-related problem was ringing in the ears (33%). Only one person reported actual hearing loss.

Table II: Hearing-related problems

Symptoms of hearing loss			
Ringing	Ear pain	Hearing loss	No problem
33%	10%	1%	56%
Cure for hearing loss			
No cure	Hearing aids	Doctor	Medication
51%	42%	4%	3%

About half (51%) of participants felt that NIHL could not be cured. Forty-two per cent suggested hearing aids as a “cure”, while a doctor (4%) or medication (3%) were suggested as other alternatives.

Discussion

This preliminary survey of 100 first-year university students indicates that South African students are similar to their age group in other countries regarding their knowledge of and listening habits using personal audio players. A large percentage of them listened to their devices too long and too loud. It was alarming that many of them were not aware of the actual capabilities of their devices and the potential hazards to their hearing associated with the advanced technology. Even more alarming was the fact that over 40% of them showed some symptoms of potential noise-induced hearing loss and that 65% showed little or no concern about the dangers of exposure to loud music, even when most of them were aware that, at present, hearing loss cannot be cured completely.

From the results it is obvious that a potential problem is in the making in South Africa. More research is clearly needed. It is, however, imperative that healthcare personnel start the immediate dissemination of information on the potential dangers of personal audio devices.

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