

# Commentary on “High-frequency Hearing Loss among Smart Mobile Phone Users: A Case-Control Study”

Sir,

We have read with great interest the recently published article titled “High-Frequency Hearing Loss Amongst Smart Mobile Phone Users: A Case-Control Study” by Jha *et al.*<sup>[1]</sup>

The study provides valuable insights into the effects of prolonged smartphone use on hearing capacity, particularly highlighting a reduction in hearing ability at higher frequencies (e.g., 8 kHz) among users with longer mobile phone usage durations.

While the study has accounted for the key factors such as age, weight, height, and body mass index, we believe that additional variables – such as mode of usage (hands-free vs. handheld) and alcohol consumption – should also be considered.

Alcohol consumption, in particular, may have a significant impact on hearing loss. Alcohol is known to act as a central nervous system depressant by modulating gamma-aminobutyric acid (GABA) receptors, but its effects on hearing are still under the investigation. Several studies have linked alcohol use to reduced hearing capacity, especially at higher frequencies. Verma *et al.* found that elevated thresholds at higher frequencies may be the only abnormality observed in alcohol-dependent patients.<sup>[2]</sup> This can be attributed to the presence of GABA receptors on the outer cochlear hair cells, which could be vulnerable to alcohol exposure.<sup>[3]</sup>

Another critical factor to consider is the type of mobile device and its mode of use. Most smartphones offer two primary listening modes: hands-free and handheld. In the hands-free setting, the device projects sound from the earpiece speaker, allowing users to listen from a distance. In contrast, the handheld setting projects sound from the same speaker but requires the phone to be held closer to the ear. In addition, external devices such as earphones bring sound even closer. The differences in sound delivery between these modes may affect the intensity and frequency of sound reaching the ear, potentially impacting hearing in different ways. Moreover, many users tend to favor a dominant ear, particularly in handheld mode. Comparing hearing differences between the dominant and nondominant ears could be a valuable strategy in future research to control for the certain variables.

In conclusion, this study has established an important link between hearing loss and prolonged mobile phone usage. However, we believe that alcohol consumption and the mode

of usage are the significant factors that should be taken into account in future research studies.

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## Conflicts of interest

There are no conflicts of interest.

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