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Radiofrequency Radiation and Tinnitus

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To the Editor:

We write concerning the Review article by Jarach et al. about the global prevalence of tinnitus.¹

The authors appear to have engaged in a selective review of the literature on tinnitus, thereby greatly underestimating its current prevalence, especially among children.

The authors complain about their inability to compare the results of surveys employing differing questionnaires, and therefore dismiss results showing much higher prevalence among children than they expected. However, among the 113 studies that they reviewed are five by Swedish researchers, Holgers et al. that clearly showed a dramatic rise in the prevalence of tinnitus over time.

For example, in 1997, Holgers asked 964 seven-year-old schoolchildren in Göteborg if they had ringing in their ears. Twelve percent said they did, the vast majority of whom had perfect hearing. Nine years later, using the same protocol and the same questionnaire, she asked another large group of seven-year-old schoolchildren in the same city the same question. This time 42 percent reported ringing in their ears.²

A lifestyle factor that increased dramatically between 1997 and 2006, and that could have been responsible for the increase in tinnitus, was cell phone use, with its accompanying exposure to radiofrequency radiation. Redmayne et al. found a significant association between tinnitus and the use of both cordless phones and cell phones.³

Unfortunately, Jarach et al. included in their review only one study on the possible role of radiofrequency radiation, which showed no effect.⁴ That study's corresponding author is Martin Rössli, who has been accused of having conflicts of interest and lack of objectivity. The authors stated that "*All models were adjusted for... belief in health effects due to RF-EMF [radiofrequency-electromagnetic field] exposure.*" This makes no sense. It is of course not scientifically correct to adjust for the study variable of interest, if not to obscure an effect. In 2020 a letter,⁵ signed by 23 international experts on electromagnetic fields, was submitted to the Swiss Federal Council, recommending the Council exclude Rössli from a position as an objective expert on health effects of radiofrequency radiation.

REFERENCES

1. Jarach CM, Lugo A, Scala M, et al. “Global prevalence and incidence of tinnitus: A systematic review and meta-analysis, *JAMA Neurol.* 2022 Aug 8;e222189.
2. Juul J, Barrenäs ML, Holgers KM. Tinnitus and hearing in 7-year-old children. *Arch Dis Child.* 2012;97(1):28-30.
3. Redmayne M, Smith E, Abramson MJ. The relationship between adolescents’ well-being and their wireless phone use: a cross-sectional study. *Environ Health.* 2013;12:90, Table 3.
4. Frei P, Mohler E, Braun-Fahrländer C, Fröhlich J, Neubauer G, Rösli M, QUALIFEX-team. Cohort study on the effects of everyday life radio frequency electromagnetic field exposure on non-specific symptoms and tinnitus. *Environ Int.* 38(1):29-36.
5. Hardell L, Adlkofer A, Ahonen M, et al. Letter to the President of the Swiss Confederation and the Swiss Federal Council, January 7, 2020. https://ehtrust.org/wp-content/uploads/letter-hardell-roosli-to-swiss-confederation-mrs.-sommaruga-reevaluation-of-safety-standards-icnirp-5g-berenis_uvek_january-2020.pdf.