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Hearing Impairment and Incident Heart Failure

Hearing loss is associated with an increased risk of developing heart failure, with psychological distress playing a significant role in this link, according to a large long-term study published in *Heart*.

Both hearing loss and heart failure are becoming more common globally, particularly with ageing populations. Around 64 million people worldwide are affected by heart failure. While hearing loss has previously been linked to cardiovascular disease — mainly due to resulting social isolation — no study until now has thoroughly explored how objectively measured hearing ability relates to heart failure risk.

To address this gap, researchers analysed data from 164,431 participants in the UK Biobank. None had heart failure at the start of the study, and the average age was 56, with 55% being women. A total of 4,369 participants used hearing aids.

Hearing ability was objectively measured using the Digit Triplets Test (DTT) to assess speech-reception-threshold (SRT). Participants without hearing aids (160,062) were categorised based on their DTT results: normal hearing (88%), insufficient hearing (10.5%) and poor hearing (1.5%).

Researchers also collected extensive data on participants' health, lifestyle, and psychosocial factors. Social isolation, psychological distress (using the PHQ-4 questionnaire), and neuroticism were among the key variables assessed.

Over an average follow-up of 11.5 years, 4,449 participants (nearly 3%) developed heart failure. The risk of heart failure increased with worsening hearing. Compared to those with normal hearing, adjusted risks increased by 15% for insufficient hearing, 28% for poor hearing and 26% for those using hearing aids. These associations were stronger among participants without existing coronary heart disease or stroke.

Poorer SRT levels were also significantly linked to greater social isolation, higher psychological distress, and higher neuroticism scores. These factors contributed to the increased heart failure risk, accounting for 3% from social isolation, 17% from psychological distress and 3% from neuroticism. When combined, the total mediating effect of these factors was just over 9%, suggesting some overlap between them.

The inner ear's rich capillary network and high metabolic demands may make it especially sensitive to vascular problems. As such, hearing impairment could reflect broader vascular health and act as an early indicator of cardiovascular disease, including heart failure. Those using hearing aids still showed elevated heart failure risk similar to those with poor hearing, implying that while hearing aids improve auditory function, they may not address underlying vascular issues.

The authors explain that hearing loss often leads to communication difficulties, reduced social engagement, and greater psychological distress — factors known to activate stress pathways, increase inflammation, and promote heart-related changes.

The findings highlight the importance of incorporating hearing assessments into cardiovascular risk evaluations. Strengthening psychological support for people with hearing impairment, the researchers suggest, may be key to reducing their risk of heart failure.

Source: BMJ Heart

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Published on : Wed, 9 Apr 2025