Stay Healthy Weekly
Subscribe Today For A Healthier Tomorrow

1 in 3 Americans Exposed to Excessive Noise Levels. How to Protect Your Hearing

New findings from the Apple Hearing Study highlighted the extent of excessive noise exposure.

Some groups of people are at greater risk of experiencing excessive noise, which can damage hearing and increase health risks.

Technology and apps, such as the Apple Watch and Apple AirPods, can help you monitor noise levels and reduce hearing health risks.

Around 48 million Americans face some level of hearing loss, and studies continue to link it to physical and mental health concerns.

But it's not just listening to loud music that damages hearing. Our everyday environment is an overlooked contributor to hearing loss.

The latest findings from the Apple Hearing Study (AHS) revealed that 1 in 3 Americans are regularly exposed to excessive noise levels, classed as sound over 70 decibels (dBA).

"Noise has long been ignored as a pollutant in this country and around the world," stated Rick Neitzel, PhD, professor of environmental health sciences at the University of Michigan School of Public Health and principal investigator of the AHS.

The number of people exposed to excessive noise is on a par with those living in areas where air pollution is higher than the legal limits, he told Healthline. "This suggests that noise pollution is a widespread issue and should be getting more attention."

How the Apple Hearing Study is monitoring noise exposure

Together with the University of Michigan, Apple is conducting an ongoing study to monitor daily sound exposure — from headphones and other environmental sources — and how it impacts our hearing over time.

Individuals with Apple Watches can download the research app, which allows noise-related data to be collected via their device. The AHS team then assesses this information to identify any trends and significant findings.

"The AHS is the first nationwide, longitudinal study to assess personal noise exposure from the environment (the everyday world around you) and your headphones," explained Neitzel.

"We hope to continue to raise awareness about noise in the US with our ongoing research and study updates," he added, and "eventually hope to influence changes that will reduce exposures and their resulting health impacts."

Highlights from the recent AHS findings

The AHS released a findings update at the end of April, comprising data from 130,000 Apple Watch users collected between November 2019 and December 2022.

The results underlined that certain communities, age groups, and races face greater exposure to high levels of environmental noise.

Noise levels by state

When looking at regional noise pollution, 44% of residents in Puerto Rico experienced noise above 70 dBA — the highest proportion in the study.

Individuals in Connecticut and Mississippi were next in line, with 36% of residents in each state facing excessive noise levels.

The lowest number of participants experiencing excessive noise levels lived in Washington, DC (20%), followed by New Mexico and Colorado (21% each).

"Many things could contribute to differences by region," said Neitzel. These include:

Regulation (or lack of regulation) of noise and noise sources

The historical and ongoing placement of roadways, industries, airports, and rail lines

Common jobs in an area

Lifestyle differences (e.g., people who live in warmer climates may leave their windows open more often and thus be exposed to traffic noise indoors)

The use of public or alternative forms of transportation

Hobbies and leisure activity choices could also play a role, added Dr. Adam Kaufman, an otolaryngologist/neurotologist at the University of

Maryland Medical System — such as "firearms, fireworks, motocross vehicles, concerts, and festivals."

Neitzel explained that "future analysis will attempt to identify the strongest contributors."

Exposure among age groups

Further differences were noted by the AHS researchers among age groups. Just 16% of people aged 65 and above faced noise levels over 70 dBH.

Meanwhile, more than double the amount of individuals aged 35-44 (34%) experienced excessive noise. Those aged 18-24 followed closely behind.

This is unsurprising, as younger age groups are likelier to frequent loud spaces, such as restaurants, clubs, and concerts.

High noise exposure during your earlier years serves as a reminder that "hearing loss can occur at any point in your lifespan," said Dr. Jillian Price, chief audiologist at Hearing Life.

"We more commonly see hearing loss in those 65+, so aging is undoubtedly a factor," she told Healthline. However, "it is certainly not exclusive to this population."

Risk varies for people of color

The study found significant differences in the noise levels experienced by people of color.

The highest amount of excessive noise was faced by Black and Hispanic adults, at 37% and 34% of individuals, respectively.

Conversely, excessive noise was the least common among Asian participants (20%).

Studies show that Black and Hispanic people are more likely to work in "noisier" jobs: with Black or African American individuals comprising the largest proportion of the production and transportation workforce.

Meanwhile, more Hispanics work in construction and maintenance compared to other races.

It's also important to note that, for various reasons, marginalized communities more often live near loud industrial facilities, such as power plants.

Causes of excessive noise pollution

A variety of everyday noises exceed recommended levels — including road traffic.

For instance, said Dr. Hamid R. Djalilian, director of otology, neurotology, and skull base surgery at University of California Irvine, an older studyTrusted Source followed people from Easter Island that later moved to a city on the Chilean mainland.

The individuals who moved "had more hearing loss than their relatives who remained on the island [and] didn't have motorized vehicles and many of the modern technologies that can produce a lot of noise."

Djalilian told Healthline that other common sources of excessive noise include:

- concerts
- guns
- power tools
- powered lawn mowers
- music
- loud whistles
- motorcycles
- trucks and lorries
- construction
- movie theaters

Additional health risks associated with hearing loss

There are three main forms of hearing loss: sensorineural, conductive, and mixed.

Sensorineural hearing loss is the most common, said Kaufman. "It happens when there is damage to the delicate structures within the inner ear or to the cochlear nerve which connects the inner ear to the brain."

Various factors contribute to this form of hearing loss, "including aging, repeated exposure to loud noises, significant barometric changes, certain medications, head trauma, genetics, and some diseases like Meniere's disease," he continued.

Conductive hearing loss arises when something — such as excessive ear wax, a perforated eardrum, or fluid — affects the outer ear (between the external ear and the eardrum)

or middle ear (behind the eardrum), Kaufman said.

Mixed hearing loss typically results from a combination of sensorineural and conductive, although Kaufman noted it may also arise with chronic ear infections.

The impacts of hearing loss extend well beyond not being able to hear the TV properly. A recent study highlighted its association with dementia risk, for instance.

Furthermore, repeated exposure to loud environmental noise is linked to concerns such as:

cardiovascular disease

inflammation

depression and anxiety

"Importantly, current research shows these [health] impacts can occur at noise levels much lower than that which is harmful to hearing health," said Neitzel.

Hearing loss progression

We often assume hearing loss or damage occurs over time — and this can be the case, explained licensed audiologist Ruth Buahnik, AuD.

However, she added, it may "also occur suddenly, due to an acoustic trauma or exposure to a very loud sound (like an explosion)."

Whether exposed to excessive noise exposure gradually or in one-off bursts, the effect on the ear is the same, said Winnie Wong, MSc, Audiology. a clinical audiologist at Amplifon.

"In both cases, loud noises can damage the hair cells in the cochlea, which causes the auditory nerve to transmit fewer impulses to the brain," she told Healthline.

Damage to hearing cells in younger individuals

might not be as immediately apparent, said Djalilian. For instance, hearing might seem a bit muffled after going to a club, but within a day or so, normal levels have seemingly "bounced back."

But as they get older, following "more and more noise exposures and the onset of age-related hearing loss, the damage done in the younger days becomes apparent on the hearing test," he explained.

Ways to protect your ears

Protecting your ears as much as possible before damage can occur is vital, as prevention is typically much easier than treatment.

Sensorineural hearing loss is irreversible, said Wong — although it "is treatable and patients should talk to their general practitioner or audiologist if they believe they are experiencing it."

Conductive hearing loss is "often reversible," she added, while mixed hearing loss can depend on the case, but "partial hearing is often restored."

Using apps and technology can help you monitor the noise levels of your surrounding environment and reduce exposure.

For instance, the Apple Watch offers the Noise app, which detects the decibel levels of noises around you. When they reach the point where your hearing could be impacted, you'll be notified by a vibration.

If you don't have an Apple Watch, apps such as NIOSH Sound Level Meter and Sound Meter can help you gauge noise levels.

Meanwhile, the Apple AirPods (Pro or Max) offer active noise cancellation. They can pick up external sounds via an in-built microphone — and, when these reach a certain level, the AirPods work to cancel them out.

Other steps include wearing earmuffs or earplugs if you work in a loud environment or go to a concert.

Furthermore, "if you live near a construction site or hospital, somewhere there are often ambulances and loud alarms, I recommend soundproofing your home as best you can," said Price.

Acoustic foam paneling is one option. Alternatively, suggested Price, "things like wall tapestries, additional blankets and pillows, and thicker curtains are effective noise dimmers."

If you're concerned about hearing loss or damage, it's never too early to get things checked out.

"Having a consultation with an audiologist to review your options can be helpful in identifying the best solution for your needs," said Buahnik.

Written By Chantelle Pattemore

Edited By Jase Peeples Fact Checked By Dana K. Cassell