The Lombard speech intelligibility benefit for younger and older adults

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Talkers adapt their speech production in noise (known as ‘Lombard’ speech), which results in an auditory signal that has increased intensity, higher average pitch, and a flatter spectral-tilt, and is delivered with greater face and head movements (i.e. visual speech). Younger adults can take advantage of the acoustic changes and the enhanced visual signal to substantially improve their speech perception in noise. However, it is unclear how effective Lombard speech modifications will be for older adults. Compared to younger adults, older adults’ hearing is often poorer (especially in high frequencies) and they tend to benefit less from audio-visual speech relative to younger adults.

The aim of the current study was to examine the intelligibility benefit of auditory and audio-visual Lombard speech for older adults. To examine this, we tested older and younger adults’ perception of auditory and auditory-visual speech produced in quiet and in noise. Results will be discussed in relation to (1) how to speech signals might be enhanced to mitigate problems in speech perception due to noise and/or hearing difficulties and (2) what skills visual speech processing may require.