The whispered voice test detects hearing impairment in adults and children, but needs to be standardised

Diane L Sabo, PhD, CCC-A (Commentary Author)

SUMMARY

**Question** How accurate is the whispered voice test in detecting hearing impairment in adults and children?

**Study design** Systematic review.

**Main results** Seventeen primary reports were found (eight studies met inclusion criteria: four in 290 adults aged 17–89 years; four in 716 children aged 3–12 years). The quality of reporting in the majority of studies was low. There was heterogeneity in the methods, reliability, and reproducibility of the studies. Only one adult study met all quality criteria. In adults, the sensitivity of the whispered voice test was 90–100% and the specificity ranged from 70% to 87%. In children, sensitivity was 80–96% and specificity ranged from 90% to 99%.

**Authors’ conclusions** The whispered voice test detects hearing impairment and is both simple and accurate. Further investigation should determine why sensitivity is apparently lower when used on children. Standardisation of the technique should be promoted.

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**Commentary**

The identification of hearing loss has gained much attention recently because of the emergence of newborn hearing screening programs in many countries. But newborn hearing screening programs, if in place, do not address the issue of identifying later-onset or progressive hearing loss in children or adults. So the question remains about how best to screen for hearing loss in children and adults in primary care.

In the adult population, this issue of routine screening for hearing loss has been debated for years with no consensus being reached regarding when and how to screen for hearing loss. Recently, the US Preventative Task Force recommendations for adults stated, “There is insufficient evidence to recommend for or against routinely screening older adults for hearing impairment using audiometric testing”.

The recommendation is to query patients and if positive, refer them for audiometric testing. This method has potential shortcomings, including...
patient awareness of hearing difficulties, and willingness to admit the difficulty.

A method of screening for hearing loss, the whispered voice test, is an inexpensive means of screening for hearing loss and offers some objectivity relative to querying. However, it is a highly subjective method as pointed out by the authors, because of the loudness of the whisper, the choice of stimuli (words, letters or numbers) that are used and the distance of the speaker from the patient. These factors have tremendous bearing on the outcome of whispered voice screenings. The distance between the patient and the speaker and the choice of stimuli could be controlled but the loudness of the whisper amongst examiners or practitioners is virtually impossible to control.

The aim of this study was to synthesize data from various studies evaluating the whispered voice test as a screening tool for hearing loss in children and adults. A major drawback of this study results from the literature used. In the cited studies, there was a lack of standardization for defining hearing loss. In the adult population, the range was 30–40 dB and in children it was 20–35 dB. Furthermore, audiometry was not defined as representative of hearing at various frequencies, an average of frequencies or thresholds for speech stimuli. Without carefully controlling the audiometric data, it is hard to draw conclusions from the analysis regarding the efficacy of whispered voice test as a screening tool for hearing loss.

In an adult population, hearing loss tends to occur in the higher frequencies, progressing over time to the lower frequencies. By the time it affects all frequencies it is usually considerably after hearing loss first appears in the higher frequencies. Using a whispered voice test could potentially fail to detect these higher frequency losses since speech stimuli covers a range of frequencies. Therefore, knowing the details of the audiometric reference is paramount and needs to be consistent between studies.

The question remains, since there is relatively inexpensive screening equipment available and since there is variability in the findings of the whispered speech test as to whether the whisper speech test offers a viable means of screening for hearing loss.

Study parameters

Question How accurate is the whispered voice test in detecting hearing impairment in adults and children?

Study design Systematic review.

Search strategy MEDLINE, EMBASE, Science Citation Index searched to June 2002; web search for unpublished theses; hand searches of bibliographies; direct contact with authors for clarification of data.

Inclusion/exclusion criteria Cross-sectional studies comparing the whispered voice test with audiometry (the reference test) on ≥80% of participants, with sensitivity and specificity reported or calculable.

Data analysis Presentation of ROC curve incorporating study size.

Main outcomes Accuracy of the test (sensitivity and specificity).

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References