Review: the whispered voice test is accurate for detecting hearing impairment in children and adults


Q Is the whispered voice test accurate for detecting hearing impairment in children and adults?

**METHODS**

Data sources: Medline, EMBASE/Excerpta Medica, and Science Citation Index (to June 2002); the web (for unpublished theses); reference lists; and authors.

Study selection and assessment: 2 reviewers independently selected cross sectional studies in any language if they evaluated the whispered voice test; the reference test, audiometry, was given to $\geq$80% of participants; and sensitivity and specificity were reported (or calculable).

Outcomes: sensitivity and specificity.

**MAIN RESULTS**

8 English language studies were included. 4 studies included 256 adults (age range 17–96 y). The prevalence of hearing impairment ranged from 26–61%. 3 studies used similar techniques for the whispered voice test and a 30 dB positivity threshold for hearing impairment by audiometry (sensitivity 90% or 100%, specificity 80–87%). 1 study used a different technique for the test and a 40 dB positivity threshold; the results were reported such that overall sensitivity and specificity could not be calculated. At a sensitivity of 90%, the specificity was 70% (table). 4 studies included 716 children (age range 3–12 y). The prevalence of hearing impairment ranged from 9–31%. All studies used slightly different techniques for the test, and positivity thresholds ranged from 20–33 dB (sensitivity 80–96%, specificity 90–98%) (table).

**CONCLUSION**

The whispered voice test is accurate for detecting hearing impairment in children and adults.

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**Diagnostic characteristics of the whispered voice test for detecting hearing impairment**

<table>
<thead>
<tr>
<th>Number of participants</th>
<th>Age [y]†</th>
<th>Sensitivity [95% CI]</th>
<th>Specificity [CI]</th>
<th>+LR</th>
<th>– LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>57</td>
<td>100 (96 to 100)</td>
<td>87 [80 to 92]</td>
<td>7.7</td>
<td>0</td>
</tr>
<tr>
<td>62</td>
<td>81</td>
<td>100 (95 to 100)</td>
<td>84 [71 to 92]</td>
<td>6.4</td>
<td>0</td>
</tr>
<tr>
<td>62</td>
<td>$\geq$55</td>
<td>90 (82 to 95)</td>
<td>80 [68 to 89]</td>
<td>4.6</td>
<td>0.12</td>
</tr>
<tr>
<td>31</td>
<td>76</td>
<td>90‡</td>
<td>70‡</td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>197</td>
<td>5</td>
<td>96 (82 to 99)</td>
<td>92 [87 to 95]</td>
<td>11.6</td>
<td>0.04</td>
</tr>
<tr>
<td>141</td>
<td>7.2</td>
<td>90 (69 to 97)</td>
<td>90 [84 to 94]</td>
<td>9.1</td>
<td>0.12</td>
</tr>
<tr>
<td>177</td>
<td>3–12</td>
<td>80 (68 to 88)</td>
<td>96 [91 to 98]</td>
<td>19.5</td>
<td>0.21</td>
</tr>
<tr>
<td>201</td>
<td>3–7</td>
<td>83 (61 to 94)</td>
<td>98 [95 to 99]</td>
<td>38.1</td>
<td>0.17</td>
</tr>
</tbody>
</table>

*Diagnostic terms defined in glossary.
†Age is reported as mean or range.
‡Specificities were given for 2 sensitivities (80% and 90%); unable to calculate CI or LR.
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