

iCAHE JC Critical Appraisal Summary

Journal Club Details

Journal Club location	Woman's and Children's Health Network
JC Facilitator	Lisa Callahan
JC Discipline	Paediatric Audiology

Question

“How good is the “Sound Scouts” hearing assessment app at detecting hearing loss in children?”

Review Question/PICO/PACO

P: Children/Adolescents /Paediatric populations

I: “Sound Scouts” hearing assessment app

C: Pure Tone/ Play Audiometry (current gold standard for hearing assessment in children)

O: Diagnosis of hearing loss or Auditory Processing Disorder

Article/Paper

Dillon H, Mee C, Moreno JC, Seymour J, 2017. Hearing tests are just child's play: The Sound Scouts game for children entering school. International Journal of Audiology. In Press.

Please note: due to copyright regulations CAHE is unable to supply a copy of the critically appraised paper/article. If you are an employee of the South Australian government you can obtain a copy of articles from the [DOHSA librarian](#).

Article Methodology: Cohort Study



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CONTACTS

www.unisa.edu.au/cahe
 iCAHE@unisa.edu.au
 Telephone: +61 8 830 22099
 Fax: +61 8 830 22853

University of South Australia
 GPO Box 2471
 Adelaide SA 5001
 Australia

CRICOS Provider Number
 00121B



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Ques No.	Yes	Can't Tell	No	Comments
1	✓			<p>Did the study address a clearly focused issue?</p> <p>This paper describes a low-cost solution to hearing screening, which we have called Sound Scouts. It uses mobile technology, with stimuli presented in the format of a game, to engage and retain the child's attention during the test. Our aim was to devise a solution that could be used at home, in schools, community health centers, or general medical practices, for children as young as 5, or preferably 4 years of age.</p>
2	✓			<p>Did the authors use an appropriate method to answer their question?</p> <p>Experimental work involved creating and equalizing test materials, obtaining normative data, and evaluating the sensitivity with which Sound Scouts detected known hearing problems and identifying their type.</p> <p>Is it worth continuing? YES</p>
3		✓		<p>Was the cohort recruited in an acceptable way?</p> <p>Participants were children from age 5 to 14 with normal hearing and with previously identified hearing loss.</p> <p>Participant recruitment is not discussed; we cannot determine if the cohort was acceptably recruited.</p>
4		✓		<p>Was the exposure accurately measured to minimize bias?</p> <p>Participant recruitment was not discussed, and neither was the known hearing status of children with hearing loss. We are unable to determine if the exposure was accurately measured for the purposes of this article (being comparing Sound Scout to known hearing loss/gold standards)</p>
5		✓		<p>Was the outcome accurately measured to minimize bias?</p> <p>While the outcomes measure for calibration and how they are measured are described in detail (e.g. speech in quiet, speech in noise game, tone in noise game, etc), the final outcome is described as 'pass fail' without a set outcome measure. As the outcome measures that are ingame are unique to the device itself, and are not validated and reliable measures of outcomes, it makes it difficult to comment on the accuracy to minimize bias.</p>
6			✓	<p>Have the authors identified all important confounding factors?</p> <p>Authors have not attempted to identify confounding factors.</p> <p>Have they taken account of the confounding factors in the design and/or analysis?</p> <p>Authors have not attempted to take confounding factors into account during the design and/or analysis.</p>

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7	✓			<p>Was the follow up of subjects complete enough?</p> <p>Considering the nature of the study (being investigating the use of the Sound Scout application) the follow-up of subject is considered to be complete enough.</p>
8				<p>What are the results of this study?</p> <p>With pass-fail criteria set such that 98% of children with normal hearing passed Sound Scouts, 85% of children with hearing loss failed Sound Scouts (after exclusion of children in either group who received an inconclusive result or had incomplete results). No child with four-frequency average hearing thresholds of 30 dB HL or greater in their poorer ear passed Sound Scouts. Identification of the type of hearing loss was much less accurate.</p>
9				<p>How precise are the results?</p> <p>Confidence intervals and p values are not reported.</p>
10	Journal Club to discuss	<p>Do you believe the results?</p>		
11		<p>Can the results be applied to the local population?</p> <p>CONTEXT ASSESSMENT (please refer to attached document)</p> <ul style="list-style-type: none"> - Infrastructure - Available workforce (? Need for substitute workforce?) - Patient characteristics - Training and upskilling, accreditation, recognition - Ready access to information sources - Legislative, financial & systems support - Health service system, referral processes and decision-makers - Communication - Best ways of presenting information to different end-users - Availability of relevant equipment - Cultural acceptability of recommendations - Others 		
12		<p>Were all important outcomes considered?</p>		
13		<p>Are the benefits worth the harms and costs?</p>		
14		<p>What do the study findings mean to practice (i.e. clinical practice, systems or processes)?</p>		
15	<p>What are your next steps?</p> <p>ADOPT, CONTEXTUALISE, ADAPT</p> <p>And then (e.g. evaluate clinical practice against evidence-based recommendations; organise the next four journal club meetings around this topic to build the evidence base; organize training for staff, etc.)</p>			
16	<p>What is required to implement these next steps?</p>			