

LEGEND: Evidence Appraisal of a Single Study

Diagnosis, Assessment

Psychometric Study

Reviewer:

Today's Date:

Final Evidence Level:

Project/Topic of your Clinical Question:

Article Title:

Year:

First Author:

Journal:

Do the study aim/purpose/objectives and inclusion/exclusion criteria assist in answering your clinical question?

☐ Yes ☐ No ☐ Unknown

- Study Aim/Purpose/Objectives:

- Inclusion Criteria:

- Exclusion Criteria:

Is a psychometric study congruent with the author's study aim, purpose, or objectives above?

☐ Yes ☐ No ☐ Unknown

When reading the bolded questions, consider the bulleted questions to help answer the main question.

If you are uncertain of your skills in evidence evaluation, please consult a local evidence expert for assistance:

- [CCHMC Evidence Experts](#)

Unfamiliar terms can be found in the [LEGEND Glossary](#).

Validity

Are the results of the Psychometric Study valid or credible?

| | | | | |
|-----|---|------------------------------|-----------------------------|----------------------------------|
| 1. | Was the study purpose focused on examining one or more measurement properties (<i>i.e., validity, reliability</i>)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 2. | Was the instrument clearly described? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 3. | Was the protocol for administration and scoring standardized? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 4. | Were the observers/raters appropriately trained or certified? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 5. | Were the data collected on a representative sample? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 6. | Was the sample size adequate? <ul style="list-style-type: none">Do the authors discuss whether the sample size is adequate? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 7. | Did the instrument make intrinsic sense – face validity (<i>expert opinion, consensus</i>)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 8. | Did the instrument sample the content/domain adequately? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 9. | Was there evidence of the test's construct validity (<i>factor analysis</i>)? <ul style="list-style-type: none">Did the test discriminate between two groups (<i>known-groups method</i>)?Did the test values agree with the values of a similar test or gold standard (<i>concurrent/convergent validity</i>) or with a future outcome (<i>predictive validity</i>)?If yes, then: What was the strength of the correlation? What were the confidence limits, if given? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 10. | Was there freedom from conflict of interest? <ul style="list-style-type: none">Sponsors, Funding Agency, Investigators | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |

Comments on Study Validity:

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Reliability

Are these valid study results important?

Are results obtained with these measures replicable? (Tests, Measures, Scales, Instruments, etc.)

- | | | | |
|--|------------------------------|-----------------------------|----------------------------------|
| 11. What was the internal consistency (i.e., Cronbach's alpha)? (Relevant where scales have multiple items that sum up to a total score) | | | |
| 12. Were appropriate statistical measures used to assess agreement between two or more occasions using the same observer (i.e., intra-rater reliability)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 13. Were appropriate statistical measures used to assess agreement between two or more observers (i.e., inter-rater reliability)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 14. Were appropriate statistical measures used to assess test-retest reliability (i.e., stability coefficient)? • Was an appropriate test-retest interval used? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 15. Did the instrument capture important change (e.g., clinical significance)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 16. Was there an absence of floor or ceiling effects? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |

Comments on Study Reliability:

Applicability

Can I apply these valid, important study results to treating my patients?

- | | | | |
|--|------------------------------|-----------------------------|----------------------------------|
| 17. Can the results be applied to my population of interest? • Is use of the instrument feasible in my care setting? • Is the setting of the study applicable to my population of interest? • Are the likely benefits worth the potential harm and costs? • Are the patients in this study similar to my population of interest? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 18. Are my patient's and family's values and preferences satisfied by the use of the diagnostic test? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
| 19. Would you include this study/article in development of a care recommendation? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |

Comments on Study Applicability:

Additional Comments or Conclusions ("Take-Home Points")

Quality Level / Evidence Level

- Consider each "No" answer and the degree to which this limitation is a threat to the validity of the results, then check the appropriate box to assign the level of quality for this study/article.
- Consider an "Unknown" answer to one or more questions as a similar limitation to answering "No," if the information is not available in the article.

The Evidence Level is:

- | | |
|---|------|
| <input type="checkbox"/> Good Quality Psychometric Study | [2a] |
| <input type="checkbox"/> Lesser Quality Psychometric Study | [2b] |
| <input type="checkbox"/> Not Valid, Reliable, or Applicable | |

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| Table of Evidence Levels | | | | | | | | | | | | | | |
|-----------------------------|------------------------------------|----------|--------------------|-------------------------|---------------------------|-----------------|--|---------------------|---|------------|------------------------------|-------------|--------------------------|--|
| DOMAIN OF CLINICAL QUESTION | TYPE OF STUDY / STUDY DESIGN | | | | | | | | | | | | | |
| | Systematic Review Meta-Analysis | CCT + | Psychometric Study | Cohort – Prospective | Cohort – Retrospective | Cross-Sectional | Descriptive Study Epidemiology Case Series | Mixed Methods Study | Decision Analysis Economic Analysis Computer Simulation | Guidelines | Case Reports N-of-1 Study | Bench Study | Published Expert Opinion | Local Consensus Published Abstracts |
| Diagnosis / Assessment | 1a 1b | 2a 2b | 2a 2b | 3a 3b | 4a 4b | 4a 4b | 4a 4b | 2/3/4 a/b | 5a 5b | 5a 5b | 5a 5b | 5a 5b | 5a 5b | 5 |

* CCT = Controlled Clinical Trial

Development for this appraisal form is based on:

1. Guyatt, G.; Rennie, D.; Evidence-Based Medicine Working Group.; and American Medical Association.: Users' guides to the medical literature : a manual for evidence-based clinical practice. *Users' guides to the medical literature : a manual for evidence-based clinical practice*: JAMA & archives journals." Chicago, IL, 2002
2. Melnyk, B. M. and E. Fineout-Overholt (2005). Evidence-based practice in nursing & healthcare : a guide to best practice. Philadelphia, Lippincott Williams & Wilkins.
3. Lohr, K. N. and T. S. Carey (1999). "Assessing "best evidence": issues in grading the quality of studies for systematic reviews." Joint Commission Journal on Quality Improvement 25(9): 470-9.
4. Fineout-Overholt, E. and L. Johnston (2005). "Teaching EBP: asking searchable, answerable clinical questions." Worldviews Evid Based Nurs 2(3): 157-60.
5. Jerosch-Herold, C. (2005). "An evidence-based approach to choosing outcome measures: a checklist for the critical appraisal of validity, reliability and responsiveness studies." British Journal of Occupational Therapy 68(8): 347-53.
6. Phillips, et al: Oxford Centre for Evidence-based Medicine Levels of Evidence, 2001. Last accessed Nov 14, 2007 from <http://www.cebm.net/index.aspx?o=1025>.
7. Fineout-Overholt and Johnston: Teaching EBP: asking searchable, answerable clinical questions. *Worldviews Evid Based Nurs*, 2(3): 157-60, 2005.
8. Clark, E., Burkett, K., & Stanko-Lopp, D. (2009, Dec). Let Evidence Guide Every New Decision (LEGEND): an evidence evaluation system for point-of-care clinicians and guideline development teams [CCHMC LEGEND development]. *J Eval Clin Pract*, 15(6), 1054-1060.