

AXIS

critical Appraisal of cross sectional Studies

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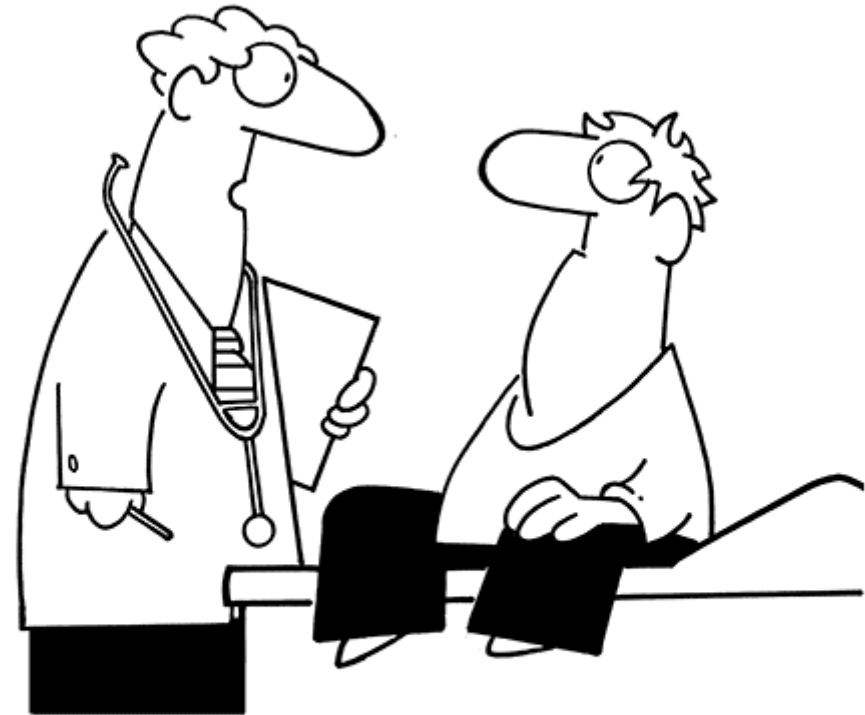
Critical appraisal

Systematic evaluation of clinical research to examine

- Trustworthiness.
 - Valid methods and reporting
 - Clear question addressed
- Value.
 - Are the results important
- Relevance.
 - applicable population, clinical setting, etc.

Critical appraisal

- Central to undertaking evidence based practice which is concerned with
 - Integrating the best external evidence with clinical care.
 - Central role in the interpretation and dissemination of research for evidence based practice.
 - Helps understanding the outcomes of research publication



“Yes, garlic and herbs can improve your cholesterol...but not garlic and herb potato chips.”

Evidence Gap

- A number of well developed appraisal tools assessing the quality of intervention observation studies; including cohort and case control studies,
- Lack of an appraisal tool specifically aimed at cross sectional studies.

Aim

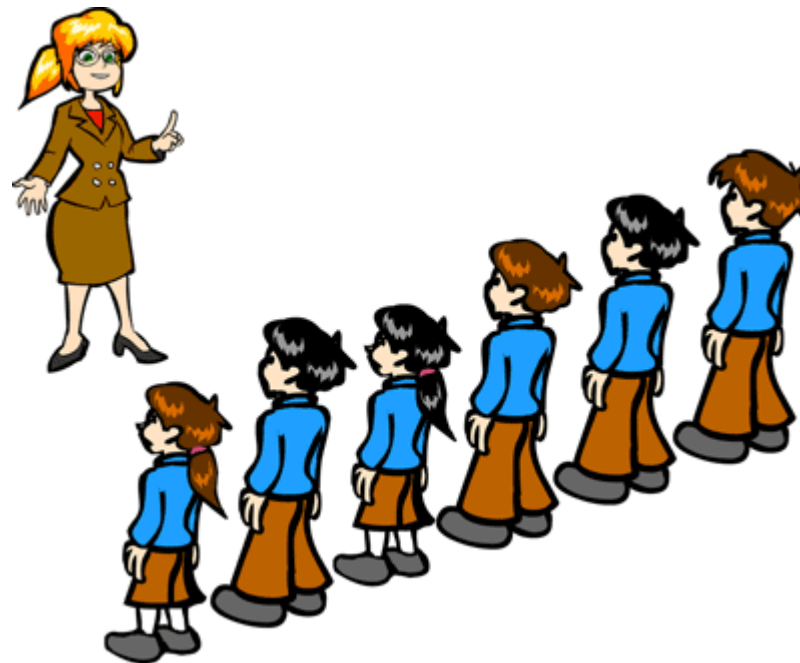
- The aim of this study was to develop a critical appraisal tool that addressed study design quality and risk of bias in cross sectional studies.
- With an accompanying easy to use explanatory document
 - help enhance knowledge and
 - impart skills required to conduct a critical appraisal

Methods

- Broad areas were identified
- Using a scoping review and key epidemiological texts.
- Tested and further developed before Delphi
- Examined and further developed using a Delphi process.

Delphi study

*Rome did not create a great empire by
having meetings, they did it by killing all
those who opposed them*



Methods

- The contents were agreed on based on 80% consensus



Results

- Started with > 30 areas of interest
- 18 recruited for Delphi panel
- 3 rounds of consensus were carried
- Ended with a 20 item questionnaire

Results

- The Appraisal tool for Cross-Sectional Studies (AXIS) was developed
 - 20 point questionnaire that addressed study quality and reporting.
 - Key areas addressed in the AXIS include
 - Study Design, Sample Size Justification, Target Population, Sampling Frame, Sample Selection, Measurement Validity & Reliability, and Overall Methods.

	Question	Yes	No	Com
Introduction				
1	<u>Were the aims/objectives of the study clear?</u>			
Methods				
2	<u>Was the study design appropriate for the stated aim(s)?</u>			
3	<u>Was the sample size justified?</u>			
4	<u>Was the target/reference population clearly defined? (Is it clear who the research was about?)</u>			
5	<u>Was the sample frame taken from an appropriate population base so that it closely represented the target/reference population under investigation?</u>			
6	<u>Was the selection process likely to select subjects/participants that were representative of the target/reference population under investigation?</u>			
7	<u>Were measures undertaken to address and categorise non-responders?</u>			
8	<u>Were the risk factor and outcome variables measured appropriate to the aims of the study?</u>			
9	<u>Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialled, piloted or published previously?</u>			
10	<u>Is it clear what was used to determined statistical significance and/or precision estimates? (e.g. p-values, confidence intervals)</u>			
11	<u>Were the methods (including statistical methods) sufficiently described to enable them to be repeated?</u>			
Results				
12	<u>Were the basic data adequately described?</u>			
13	<u>Does the response rate raise concerns about non-response bias?</u>			
14	<u>If appropriate, was information about non-responders described?</u>			
15	<u>Were the results internally consistent?</u>			
16	<u>Were the results presented for all the analyses described in the methods?</u>			
Discussion				
17	<u>Were the authors' discussions and conclusions justified by the results?</u>			
18	<u>Were the limitations of the study discussed?</u>			
Other				
19	<u>Were there any funding sources or conflicts of interest that may affect the authors' interpretation of the results?</u>			

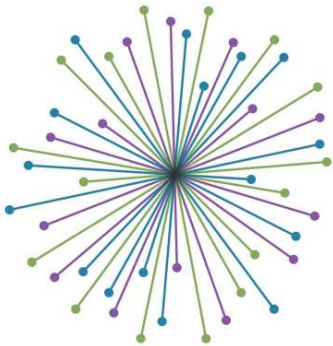
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reporting

- Detailed explanatory document provided with the tool
- Expanded explanation of each question
- The AXIS tool is intended to be an organic item that can change and improve where required, based on user feedback.
- In use by a number of researchers



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