Critical appraisal of qualitative research

Slides by Sarah Lawson
Learning objectives

• Understand the principles of critical appraisal and its role in evidence based practice
• Be aware of the key elements of qualitative research
• Be able to appraise the validity and reliability of qualitative research
• Be able to assess the relevance of published research to your own work
• Know about resources available to help them to critically appraise research
• Be able to critically appraise quantitative research as a group
What is evidence based practice?

Evidence-based practice is the integration of
• individual clinical expertise
with the
• best available external clinical evidence from systematic research
and
• patient’s values and expectations
The evidence-based practice (EBP) process.

- Decision or question arising from a patient’s care.
- Formulate a focused question.
- Search for the best evidence.
- Appraise the evidence.
- Apply the evidence.
Why does evidence from research fail to get into practice?

• 75% cannot understand the statistics
• 70% cannot critically appraise a research paper

Using research for Practice: a UK experience of the barriers scale. Dunn, V. et al.
What is critical appraisal?

• Weighing up evidence to see how useful it is in decision making
• Balanced assessment of benefits and strengths of research against its flaws and weaknesses
• Assess research process and results
• Skill that needs to be practiced by all health professionals as part of their work
Why do we need to critically appraise?

• “It usually comes as a surprise to students to learn that some (the purists would say 99% of) published articles belong in the bin and should not be used to inform practice”

Greenhalgh 2001
How do I appraise?

• Mostly common sense.
• You don’t have to be a statistical expert!
• **Checklists** help you focus on the most important aspects of the article.
• Different checklists for different types of research.
• Will help you decide if research is valid and relevant.
Research methods

Quantitative
• Uses numbers to describe and analyse
• Useful for finding precise answers to defined questions

Qualitative
• Uses words to describe and analyse
• Useful for finding detailed information about people’s perceptions and attitudes
What is qualitative research?

- “The goal of qualitative research is the development of concepts which help us to understand social phenomena in **natural settings**, giving due emphasis to the **meanings, experiences and views** of all the participants”

  - Pope and Mays, BMJ 1995; 311; 42-45
Why use qualitative research?

• “Quantitative methods provided either no answers or the wrong answers to important questions in both clinical care and service delivery”

• “qualitative methods reach the parts of a subject matter that other methods cannot reach”
  • *How to read a paper. BMJ, 2006 (3rd edition)*
How does it complement quantitative research?

- **Before** quantitative - Evaluating research questions in new field
- **Alongside** - Multi-method approach
- **Following** - Better understanding of underlying processes
- Also, as **stand-alone** research.
When to use qualitative

- Contextual - Identify and describe: Experiences, feelings, attitudes, beliefs, perceptions
- Diagnostic - Explanations: reasons for behaviours
- Evaluative – Effectiveness: satisfaction, needs, barriers, improvements
Different methodologies

• **No ‘gold standard’ or hierarchy** –
  – researcher selects most suitable method(s) to research question

• **Grounded theory**- most commonly used
  – themes generated purely from data observation – ‘emergence’
  – ‘inductive’ process
  – data collection and analysis simultaneous
Data collection

• Interviews

• Structured
  – limited response choices, large numbers in short time, ease of analysis

• Semi-structured
  – overall structure - major questions and more open questions, more individualised, detailed and accurate
Data collection

• In-depth/unstructured interviews (‘Gold Standard’):
  • open-ended, respondent-led
  • very detailed, loose structure,
  • emergent issues (‘inductive’)
  • recorded and transcribed for analysis
Data collection

• **Focus groups** –
  – 6-10 people; discuss commonly shared issue;
  – facilitated; non-directive questioning, observation; wide breadth of opinion;
  – BUT issues of group dynamics, depth and validity

• **Observation** –
  – best for behavioural questions;
  – impact of observer; covert methods
Recruitment

- “purposeful sampling”: strategic, active, systematic and deliberate – chosen for potential for providing information to inform research
- “theoretical sampling” guided by emerging theories
- Sampling strategies are revised and modified during research process
Sampling

- **Convenience** – accessible/available
- **Quota** – fulfil quotas for set of criteria
- **Typical case** – possess set of characteristics
- **Maximum variation** – most divergent or dissimilar characteristics - validity
- **Snowball** – contacts obtained via key subjects
Sample size

- Does not need to be representative of population – not statistical
- Practical constraints – time and resources
- Saturation – recruitment of additional cases no longer provides additional information or insights
Data analysis

• Continuous process starting from data collection
• Transcribed in textual format;
• Systematic – identify major recurrent themes; Sorted, coded, organised into categories – ‘thematic framework’;
• Examine and chart themes – record and theorise emergent trends & associations
• Independent analysis
• Respondent validation
Triangulation

• Area under investigation is looked at from different perspectives
• Two or more research methods: data sources, sample groups or investigators
• Ensure understanding is complete as possible or confirm interpretations
• ‘Iterative’ approach – alter methods as study progresses.
Appraising original research

Are the results valid?
• Is the research question focused?
• Was the method appropriate?
• How was it conducted?

What are the results?
• How was data collected and analysed?
• Are they significant?

Will the results help my work with patients?
Research question and design

• Are the aims of the research clear?
  – Important? Modification?

• Is qualitative methodology appropriate?

• Was the research design appropriate?
  – Justification?
Sampling, data collection and analysis

- Are the following justified, systematic and transparent:
  - How were subjects recruited?
  - How was data collected?
  - How was data analysed (including selection for analysis)?
Reflexivity and ethics

• Researcher’s role, potential bias, and influence on research process?
• Theoretical approach? Relationships with participants?
• Ethical standards? Approval? Issues discussed?
Findings

- Clearly stated? Evidence for and against? Original material included?
- Reliability and validity? Triangulation, independent analysis, respondent validation?
- Relation to original research questions?
- Contribution to knowledge, practice and policy? Need for further research?
- Transferability? Applicability?
Summary

• Complements quantitative research
• Natural settings, examining experiences, feelings, attitudes, beliefs, perceptions, behaviours
• Inductive and iterative
• No gold standard research method – grounded theory most common
• Purposive sampling used – not statistical
• Triangulation - varied research methods
• Analysis should be done using explicit, systematic, justified and reproducible methods
Questions?
<table>
<thead>
<tr>
<th>![Happy Face]</th>
<th>![Confused Face]</th>
<th>![Think Face]</th>
<th>![Sad Face]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>