Sampling in Qualitative Evidence Synthesis & Using the CERQual Tool
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Overview of presentation

• rationale for sampling

• example from NIHR:RfPB project on Older People and Physical Activity

• Overview of CERQual tool

• discussion
To sample or not to sample?

- idea of exhaustive sampling
  - ‘risk of bias discourse’ (Benoot et al, 2016)

- ‘overly formalistic’, ‘too time consuming’, ‘unnecessarily expensive within the available resources and deadlines’ (Suri, 2011: 66)

- How to maximise the quality of the synthesis within the available resources versus How to do the most rigorous synthesis
To sample or not to sample?

- review methods tend to reflect approaches, assumptions and methodological challenges of primary research (Gough et al, 2012)

- reviews – meaning, experiences, preferences
  - may not require representative samples of studies but requires variation to enable new conceptual understandings to be generated
Sampling strategies

• “Synthesists must carefully identify sampling strategies that are conceptually aligned with the synthesis purpose, that credibly and sufficiently address the synthesis purpose, and that are feasible, ethical and efficient” (Suri, 2011: 65)

• Purposive sampling – cases are chosen because “they have particular features or characteristics which will enable detailed explanation and understanding of the central themes and questions” (Ritchie et al, 2014: 113)
An Example: Sampling in the OPPA Project
OPPA Project

• What are the experiences and preferences of older people (aged 50+) about exercise and physical activity?
  – What factors help older people to be physically active?
  – What factors prevent older people from being physically active?
Sampling after the searches

- Searches – 14,817 references
- 179 obtained in full text – double screened
- 121 met eligibility criteria
- Final number of includes - 123
What to do?

• **aim of evidence synthesis** – not seeking a single ‘correct’ answer, examining the variation and complexity

• **Pragmatics** – resources available
  – time
  – people
Preliminary data extraction

• research aim, population/sample, intervention or programme, data collection and theoretical framework

• highlighted the differences between the studies and facilitated a discussion between reviewers

• relevance to research question, methodological rigour and richness of analysis
Sampling Strategy

• **Maximum variation** strategy – prominent type of purposive sample (Bryman, 2012)
  – identifying key dimensions
  – finding cases that vary from each other as much as possible

• ‘identify **essential features** and **variable features** of a phenomenon experienced by **diverse** stakeholders among **varied contexts**’ (Suri, 2011: 67)
Sampling Strategy

• **Sampling of context** – selected all studies undertaken in the UK as relevant to the UK research funder (NIHR RfPB) than examples from other settings

• **Sampling of setting** – selected studies that focused on older people living in residential/nursing home settings, retirement communities; community settings – rural and urban
Sampling Strategy

• Sampling of interventions/physical activity programmes – selected studies that focused on older people’s experiences and preferences of programmes

• Sampling of population – selected studies of youngest old (50-70 years) and oldest old (70 or 75+ years); gender – similarities and differences between men and women; ethnic minorities
How many studies are enough?

• too few studies – may limit support for synthesis (Booth, 2016)

• too many studies – may impede deep analysis (Bondas & Hall, 2007)
  – data saturation – when further collection of evidence adds little in terms of further themes, insights or information
  – data sufficiency – sufficient to answer the research question, to allow comparisons among dimensions

• How many studies did we include after sampling?
  – 55
Overview of the CERQual tool

Confidence in the evidence from qualitative evidence synthesises

What do we mean by ’confidence in the evidence’ in the context of findings from qualitative evidence synthesises?

Our confidence is an assessment of the extent to which the review finding is a reasonable representation of the phenomenon of interest (i.e. the phenomenon of interest is unlikely to be substantially different* from the research finding)

* substantially different = different enough that it might change how the finding influences a decision
The CERQual approach

Overall aim of the system:
To assess how much confidence we have in the evidence for the review finding

This is based on an assessment of

- METHODOLOGICAL LIMITATIONS of the individual studies contributing to the review finding
- COHERENCE of the review finding
- RELEVANCE to the review question of the individual studies contributing to the review finding
- ADEQUACY OF DATA contributing to the review finding
The CERQual approach: methodological limitations

- The extent to which the review team were able to identify problems in how the primary studies contributing to a review finding were conducted

- Based on an assessment of the methodological quality of each contributing study, using a quality-assessment tool / checklist for qualitative studies
  - core quality domains need to be developed
  - need to consider the distribution of quality across the studies

- Our confidence in a review finding is threatened when the primary studies that contribute to the review finding have important methodological weaknesses

- Users can have more confidence in review findings that are drawn from well-conducted studies
The CERQual approach: relevance

- **the extent to which the primary studies supporting a review finding are applicable to the context (settings, populations) specified in the review question**

- Our confidence in a review finding is strengthened if it is based on studies that reflect the phenomenon of interest

- Our confidence in a review finding may be weakened if the relationship between studies and question is:
  - *Partial* - included studies only represent part of the phenomenon of interest, in terms of population, context etc.
  - *Indirect* - included studies do not directly reflect the phenomenon of interest
  - *Unsure / uncertain* - the extent to which the included studies reflect the phenomenon of interest is not clear
The CERQual approach: coherence

The extent to which the pattern that constitutes a review finding:
• is based on data that is similar across multiple individual studies and / or
• incorporates (compelling) explanations for any variations across individual studies

Coherence among studies may be contextual (patterns are found in studies that are similar to each other in terms of populations or settings) or conceptual (patterns are found that reflect or engage an underlying theory)

• Our confidence in the review finding may be threatened or diminished where:
  ○ variation is found across findings from individual studies (e.g. where there are outlying or ‘deviant’ cases that do not support or that challenge the main finding) and
  ○ there is no compelling explanation for this variation or

• Our confidence in the review finding may be enhanced where:
  ○ there is little variation across findings from individual studies (in relation to a particular issue or phenomenon) – i.e. there is a clear pattern, or
  ○ the variation found can be explained (e.g. through a theory [internal or external]), and the explanation is compelling
The CERQual approach: adequacy of data

- An overall determination of the degree of richness and/or scope of the evidence and quantity of data supporting a review finding.

- Confidence in a review finding may be weakened when it is supported by data that is insufficient in terms of:
  - Richness/ thickness of data
  - Number of studies
  - Range of different settings
  - Types and numbers of participants

- Review authors need to make a judgment on what constitutes ‘few studies’ and (in)sufficient data in the context of a specific review finding.
The CERQual approach: overall assessment of confidence

- After assessing each of the separate components, we make an overall judgement of the confidence in each review finding. Confidence can be judged as high, moderate, low, or very low.
- All review findings start off as ‘high confidence’ and may be rated down after this assessment.
- This assessment must be described and justified in a transparent manner, preferably in a summary of qualitative findings table – this narrative statement is likely to be very important to users.
References


Booth, A. (2016) Searching for qualitative research for inclusion in systematic reviews: a structured methodological review. *Systematic Reviews* 5: 74

