Th11-00 Issues and Challenges around Searching the Literature

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Overview

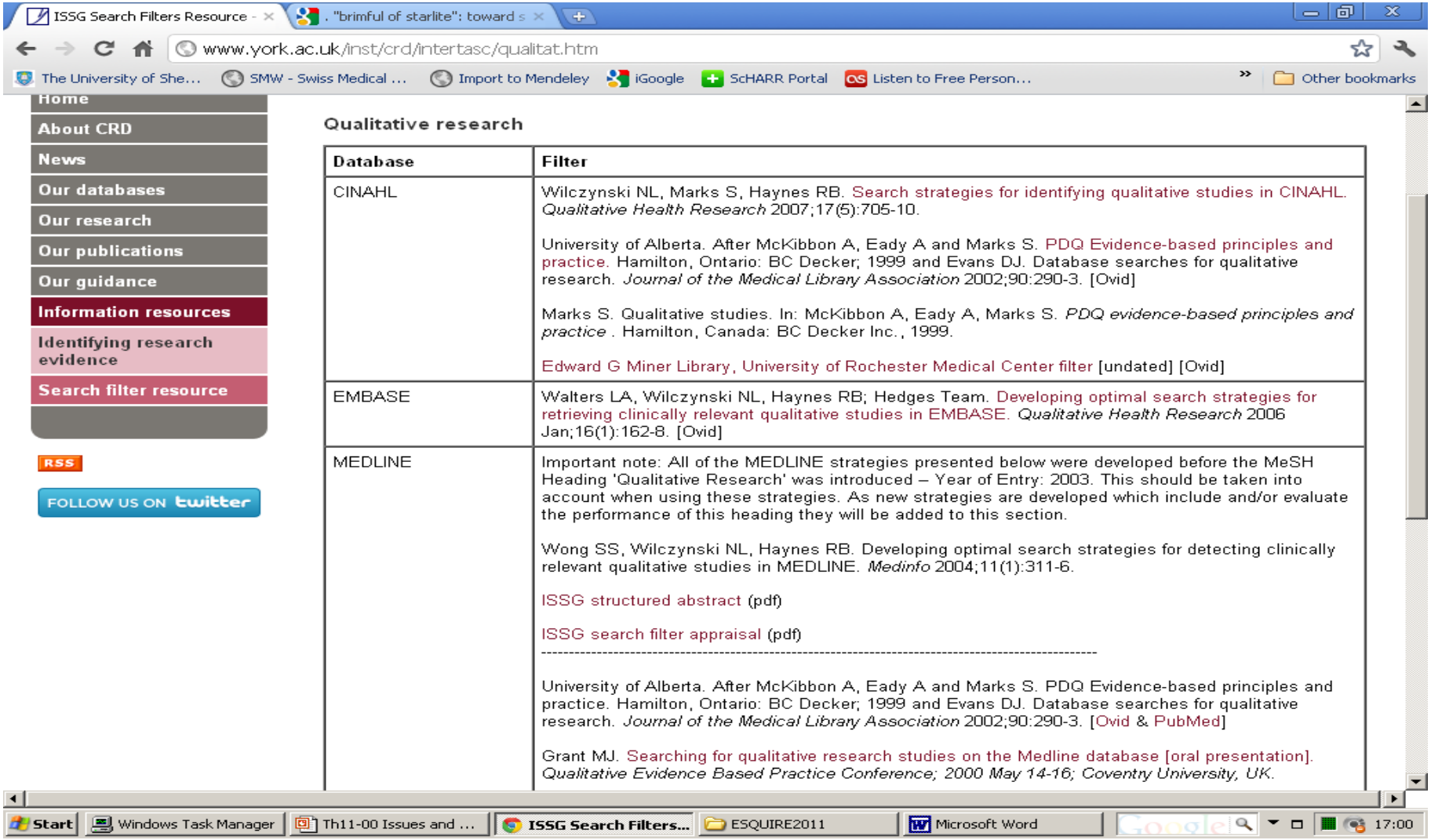
- What is already known (overview of current methods)
  - Bibliographic Databases
  - Supplementary Methods
- What we have learnt recently
- Issues/Challenges to be resolved (methodological questions to be answered)

What is already known

What is Already Known - 1

- Searching for QR particularly challenging
  - Titles/Abstracts
  - Index terms
- Filters exist but scanning is critical
- Need “audit trail” for transparency and “reproducibility”
- Weaknesses in indexing mean that sensitivity of searches may need to be reduced to allow time for other search strategies (Pearson et al, 2011)
- Unpublished studies may contain particularly rich, thick description

http://www.york.ac.uk/inst/crd/intertasc/qualitat.htm



What is Already Known - 2

- Using few key terms (e.g. "qualitative", "findings" and "interview$" and thesaurus term "Interviews") may compare favourably with exhaustive lists of qualitative terms (Grant 2000, Shaw et al, 2004; Flemming & Briggs, 2007)
- Research methodology-based (filter-based) strategies had lower yields (sensitivity 72-83%) but high specificity (79-83%) (Gorecki et al, 2010)
- Subject-specific search strategies identified ALL relevant studies. Research methodology-based strategies did not identify qualitative data reported in mixed method studies (Gorecki et al, 2010)
- *Possible need for mixed method specific search filters?*

What is Already Known - 3

- Within time-limited context, protocol-driven, targeted, and reference-checking search strategies most effective (Pearson et al, 2011)
- Follow up of references/citation searching may yield additional references but possible source of bias
- Obtaining authors' suggestions - resource-intensive process with negligible results (Pearson et al, 2011)
- Conventional search strategy = main strategy but additional search techniques essential to locate further high quality references (Papaioannou et al, 2010)

Warning: A “poor” bibliographic search makes supplementary search approaches appear relatively more effective!

e.g. Greenhalgh T, Peacock R. Effectiveness and efficiency of search methods in systematic reviews of complex evidence: audit of primary sources. BMJ. 2005; **331** (7524): 1064-5.

Only 30% of sources obtained from database and hand searches. 51% by "snowballing" (pursuing references of references), and 24% by personal knowledge or personal contacts.

What we have learnt recently

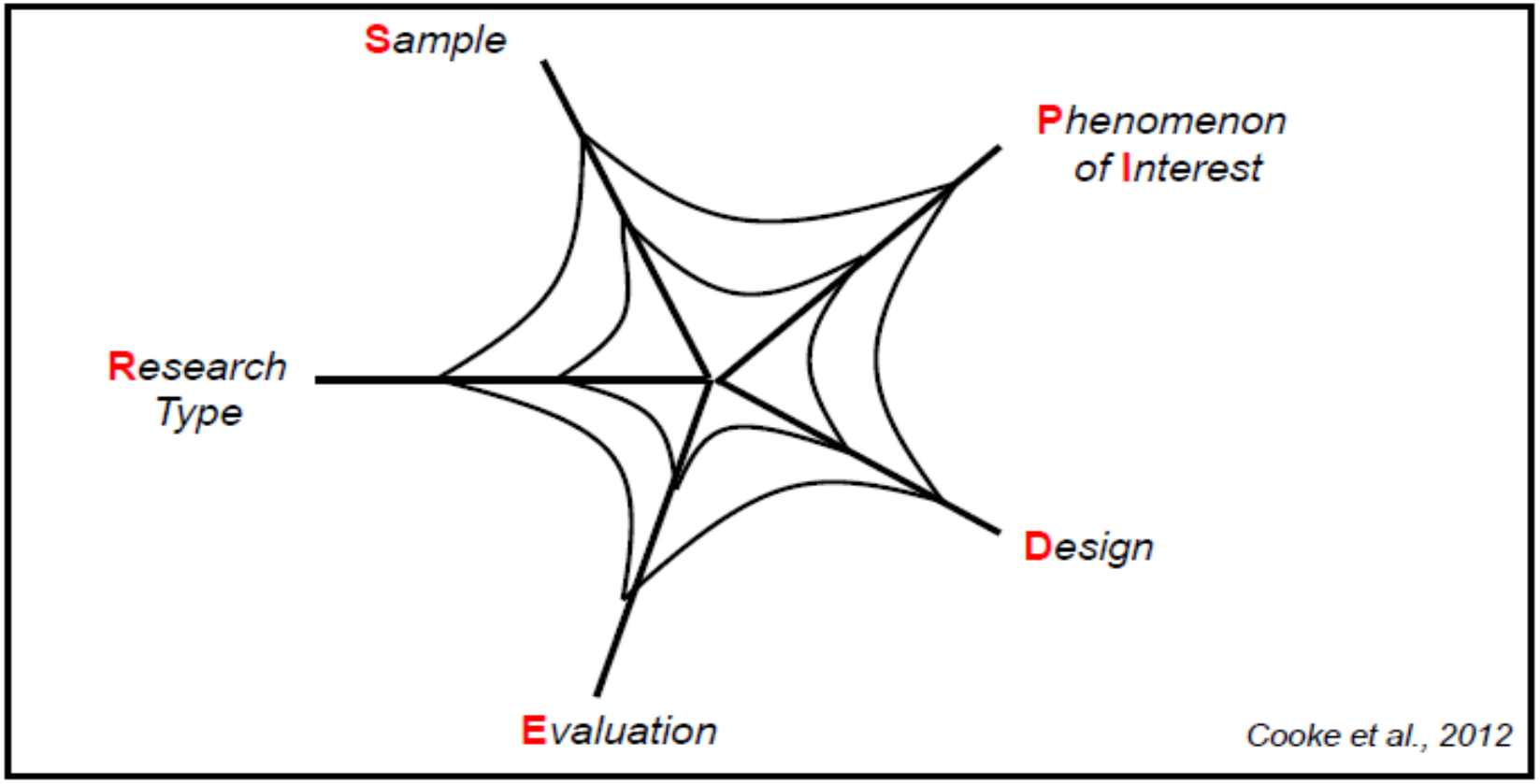
Improvement in Search Reporting

	1988-2004	2005-2008
Clear description of:		
Databases used	64%	93%
Supplementary search strategies	31%	56%
Key words	45%	77%
Comprehensive for/no limits on:		
Languages of included studies	19%	10%
Date range of included studies	17%	30%

(Hannes & Macaitis, 2012)

May need alternative question frameworks

SPIDER: spinning a web for retrieval



S+P$_{of}$I+(DER)

SPIDER

What are young parents' experiences of attending antenatal education?

S (P)	young OR teen* OR parent* OR mother* OR father*
P of I (I)	antenatal OR prenatal OR pregnancy OR birth OR class* OR education OR workshop*
D	**questionnaire* OR survey* OR interview* OR focus group* OR case stud* OR observ***
E (O)	view* OR experience* OR opinion* OR attitude* OR perce* OR belie* OR feel* OR know* OR understand*
R	**qualitative OR mixed method***

Beyond PICO: The SPIDER Tool for Qualitative Evidence Synthesis.
Cooke A, Smith D, Booth A. Qualitative health research, 2012 Jul

Appropriate Sampling ≠ Comprehensive Sampling (Suri, 2011)

- 16 strategies for sampling in QES
- E.g. Snowball sampling - seeking information from key informants about other 'information-rich cases'.
  - 'The chain of recommended informants would typically diverge initially as many possible sources are recommended, then converge as a few key names get mentioned over and over' (Patton, 2002, p. 237).
- Identify most cited primary research reports by 'footnote chasing' (searching citation indices, browsing through bibliographies, previous research syntheses, primary research reports, policy documents, papers written by practitioners and papers written for practitioners).

Footnote chasing (Suri, 2011)

- cp. footnote chasing for exhaustive sampling, footnote chasing for snowball sampling involves locating most cited papers.
- However, may reinforce confirmatory bias (i.e. studies that agree with prevalent wisdom more likely to be published and cited, studies that contest conventional wisdom less likely to be published or cited)

Combination or Mixed Purposeful Sampling (Suri, 2011)

- Employ combination of two or more sampling strategies to select evidence to adequately address purpose.
- Mixed purposeful sampling can facilitate triangulation and flexibility in meeting the needs of multiple stakeholders (e.g. extensive sampling for generalisations at higher level of abstraction. Then, typical case sampling to provide readers with immediacy of typical studies that contributed towards informing more abstract generalisations).
- When selecting combination of sampling strategies, synthesists **must reflect on how those strategies complement each other**.

Intervention Searching vs Condition Searching (Lorenc et al, 2012)

- Tying search terms of SR of qualitative evidence too closely to interventions may compromise consistency of the review.
- **Dilemma:** Performing condition-wide searches (with no other change to strategies) would become highly over-inclusive and volumes of records impracticably large. *(Suggests need for alternative sampling stategies)*

Searching - Meta-Ethnography

- Need ‘belt and braces’ (importance of hand-searching and consultation with experts). NB. Topic area differences. (e.g. more diffuse topic, more beyond electronic searching)
- Searching for books and theses is challenging (not indexed in same way as journal papers).
- Qualitative researchers often chosen to publish in book form (cp. Truncation bias)

(Campbell et al, 2011)

Conclusions (Campbell et al, 2011)

- **Multiple search strategy** more likely to identify relevant QR than relying solely on electronic searching.
- **Purpose of synthesis** will determine most appropriate search strategy. E.g. mapping out key conceptual developments – if aim not aggregative, omission of papers unlikely to have dramatic effect on results.
- Suggests **max. circa 40 papers** - difficult to maintain sufficient familiarity with > 40 papers

Searching – Realist Synthesis

- Literature needs to be scrutinised for studies related to targeted ‘programme theories’.
- Approach to searching must be as rigorous and systematic as for traditional SRs.
- Search is purposive - for each theory area group produces list of relevant and related search terms. Final list of terms, in conjunction with relevant indexing terms, used to guide searches
- Pawson *et al.* (2011) recommend snowballing and consultation with experts for a realist review

(Rycroft-Malone et al, 2012)

Issues and Challenges

- How does sampling strategy translate into search strategy?
- How should sampling frame for studies be constructed?
- How to sample for diversity?
- How many sources are enough?
- How to search for theories?
- How to retrieve rich data?

Searching for Theories

- Theory not typically reported in **Abstracts**
- **Theoretical base** differs by discipline cp. HSR vs Public Health vs Nursing vs Psychology vs Sociology
- **Reporting of Theory** differs by discipline
- **Level of Theory** may vary e.g. Individual versus Society (Psychology vs Sociology)
- **When is a "theory" a Theory?** – labelling (model, framework, concepts) and naming ("Health Belief Model")

BeHEMoTh (Booth et al, in process)

Be - Behaviour of interest: Way population or patient interacts with health context e.g. access for a service, compliance, attitude to policy.

H - Health context: i.e. the service, policy, programme or intervention

E – Exclusions: To exclude non-theoretical /technical models (depends on volume).

MoTh - Models or Theories – operationalized as a generic "model* or theor* or concept* or framework*" strategy together with named models or theories if required.

Four Phase Process

1. “Trawling” using BeHEMoTH structure (dropping concepts as appropriate)
2. “Depth-charging” using **Be**haviour and **H**ealth context with most common theories (see next slide)
3. “Fishing” using named item searches for list of theories generated from Phase One (above) [excluding those already covered in Phase Two].
4. “Using a sprat” – citation searching (combined with topic)

Searching for Contextual Richness

1. Requires identification of related (sibling) reports i.e. cluster searching (cluster becomes unit of analysis, not study) (Booth et al, in process)
2. Requires identification of appropriate contextual studies (source selection) (Stansfield et al, 2012)
3. Multi-context versus context-specific qualitative evidence syntheses (Hannes & Harden, 2012)

Cluster searching for “Siblings”

Element	Procedural Steps
Citations	Backwards reference chaining
Lead Authors	Author searching; Backwards reference chaining
Unpublished materials	Web searches; repositories
Scholar searches	Citations
Theories	Backwards reference chaining
Early Examples	Cited works (Forward reference chaining)
Related Projects	Co-citations

Appropriate contextual studies (Stansfield et al, 2012)

- Found majority of studies irrelevant because of non-UK (i.e. US context)
- Required Supplementary strategies (7 UK-specific sources) to **privilege studies contextually** (i.e. geographically)
- Over sixth (5 out of 28) located **only through supplementary searches** of three sources. Studies were of disproportionally high quality compared with other studies. Retrieval added direction, detail and strength to overall findings of review.

Manuscripts in Progress

- Strategies for identifying the disconfirming case ***Qualitative Health Resear****ch (Accepted – online early September)*
- Strategies for identifying theory *(Submitted to **Implementation Science**, awaiting review)*
- Strategies for cluster searching (i.e. for context-rich data) *(Submitted to **Implementation Science**, awaiting review)*

Key Messages

- Retrieval of QES or primary qualitative research studies can inform definition and refinement of Review Question.
- For some purposes **brief methodological filters** may be sufficient.
- Retrieval of qualitative trial-related evidence should **not rely merely on serendipity or chance**
- Systematic approaches include searching for mixed method/process evaluations; **identification of sibling studies, use of related articles features and citation searching**.
- Data on **theory and context** increasingly important **– requires specialist search strategies**.