

METHODS BRIEFING 6

How can systematic reviews incorporate qualitative research?

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October 2002 - November 2004

A series of methods briefings from projects funded by ESRC as part of the Research Methods Programme.

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Systematic reviews have rapidly become a cornerstone of the evidence-based practice and policy movement. Systematic reviews are conventionally understood to have specific characteristics:

- they have an explicit study protocol, addressing a pre-specified, highly focused question;
- are explicit about the methods used for searching for studies;
- have explicit inclusion criteria to determine studies to be included in the review;
- conduct appraisals to determine the relevance of included studies to the review question and their scientific quality;
- and use explicit methods to combine the findings across a range of studies.

Systematic review methodology still, however, has many limitations, especially in its ability to incorporate all types of evidence that might be relevant to questions of policy and practice.

We proposed to evaluate methods for the incorporation of qualitative research in systematic reviews through extending and updating an existing Cochrane systematic review

on support for breast-feeding mothers. The original review had been based solely on quantitative evidence.

Our project aimed to explore issues in:

- searching for qualitative literature
- appraising qualitative literature
- synthesising qualitative evidence
- synthesising qualitative and quantitative evidence.

Phase 1: Searching the qualitative literature

We aimed to evaluate four strategies for identifying qualitative research papers in the area of support for breast-feeding. These included three “semantic” based strategies: thesaurus terms; free-text terms relevant to qualitative research; and “broad-based” terms such as “interview”. We also evaluated a fourth strategy involving citation searching. We purposively sampled the medical, nursing and social science literature, conducting comprehensive searches using six electronic bibliographic databases.

We found that no single strategy was sufficiently comprehensive to identify all relevant records, and that

the precision of all strategies was poor, with the best, based on using thesaurus terms in databases, having a false-positive rate of over 94%. Citation searching was an inefficient way of searching for qualitative research.

Our findings suggest that a combination of searching strategies is required in order to avoid missing potentially relevant papers and that indexing of qualitative research on electronic databases still has quite a way to go. The emphasis might usefully shift from comprehensive searches of the literature, as specified by models of systematic review based on quantitative research, to systematic and explicit approaches that employ such techniques as purposive sampling from diverse bodies of the literature. This phase of the study also raised important questions about how best to frame review questions where it is intended to include qualitative research; it may not be appropriate to formulate highly-specified and focused questions a priori, as required by conventional models of systematic review.

Phase 2: Appraising qualitative research

We aimed to determine whether qualitative studies are judged differently by three methods of appraisal when used by experienced qualitative reviewers; and to investigate whether the different methods of appraisal are interpreted or used differently by different reviewers.

A sample of 12 research papers on support for breast-feeding was appraised by six qualitative reviewers using three appraisal methods to determine whether papers were suitable for inclusion in a systematic review on grounds of

both quality and relevance. The first appraisal method involved unprompted judgement (UJ) by experienced qualitative researchers. The second method involved using the CASP instrument¹; and the third involved a quality framework (QF) for assessing research evidence.² We used qualitative and quantitative analyses to compare outcomes and experiences of using the three methods.

We found that disagreements among reviewers about whether a paper should be included in a synthesis are common, and arise regardless of method of appraisal. Although checklists and other structured approaches have long been proposed as a potential solution in assessing quality of research reports, our analyses suggest that they may not succeed in producing more agreement within and between reviewers – despite the fact that they appear to sensitise reviewers to aspects of research practice. This phase of the study also raised important questions about the purpose of appraising qualitative research for inclusion in systematic reviews. Attempting to apply techniques such as sensitivity analyses to interpretive syntheses of qualitative research would be challenging, because it would involve adjusting a conceptual synthesis once a paper had made its contribution.

Phase 3: Synthesising the qualitative evidence

We aimed to synthesise, using three different methods, (some of) the qualitative evidence on support for breast-feeding that we had identified in Phase I. We conducted syntheses of the qualitative papers using the following approaches:

¹ Critical Skills Appraisal Programme. Milton Keynes Primary Care Trust. 10 questions to help you make sense of qualitative research. 2004.

² Spencer L, Ritchie J, Lewis J, Dillon L. Quality in qualitative evaluation: A framework for assessing research evidence. A Quality Framework. London: National Centre for Social Research; 2003. Available at: http://www.policyhub.gov.uk/evalpolicy/qual_eval.asp

- Narrative review, using informal, but reflexive and critical approaches.
- Meta-ethnography, based on the techniques described by Noblit and Hare.³
- A quantitative synthesis, generating counts of the data in categories identified by the meta-ethnography.

The narrative review and the meta-ethnography were produced independently, by two teams who did not discuss the work as it was in progress. Reflexive diaries were maintained by the reviewers conducting these syntheses. The syntheses were conducted on a subset of 38 papers reporting research conducted in UK. We identified the impact of sampling decisions on the outcomes of reviews as a key area for future research.

Both the narrative review and the meta-ethnography produced coherent and structured accounts of the research evidence on support for breast-feeding, though neither is likely to be directly reproducible if conducted by a different team. The quantitative summary was of limited value. It became evident also that there are a number of problems in conducting meta-ethnography as it is currently specified. These include its failure to specify how studies should be sampled and appraised, the questionable usefulness of distinguishing between its different strategies for synthesis, and the practicability and value of reciprocal translational analysis as a synthesising strategy. These limitations led us to conclude that it was appropriate to build on the methodological advances of meta-ethnography. The adaptations and extensions that we made created a new and distinct methodology, and we felt that in order to avoid confusion with other interpretations of meta-ethnography it would be appropriate to devise a new term for this: Critical Interpretive Synthesis (CIS).

One of the distinguishing features of a CIS is its acknowledgement of the authorial voice. It does not claim to be a set of techniques that allows a “reproducible” synthesis; instead, it recognises the interpretive work required to produce an account of disparate forms of evidence and is explicit about this. It recognises that alternative accounts of the same evidence might be possible using different authorial voices, but emphasises that all accounts should be grounded in the evidence and plausible.

Phase 4: Synthesising qualitative and quantitative evidence

We aimed to produce two syntheses of the qualitative and quantitative evidence on breast-feeding support, the first using Bayesian meta-analysis, and the second using Critical Interpretive Synthesis (CIS).

A Bayesian approach to meta-analysis views evidence synthesis as a decision-making process that does not occur in isolation.⁴ Pre-existing beliefs, subjective judgements, and access to external sources of evidence can be expressed as a probability distribution, known as the prior, and are updated when combined with current evidence in the likelihood function to form posterior conclusions, known as the posterior. In synthesising data from both qualitative and quantitative primary studies, qualitative evidence can be used as a source of external evidence to inform the development of the prior distribution. The prior distribution is then combined with evidence from quantitative studies to produce an overall synthesis, the results of which are expressed as a “posterior distribution”. We found that the limited nature of the data available in the original Cochrane review meant that this was an example where it was neither sensible or useful to pursue the Bayesian synthesis approach. In coming to this otherwise

³ Noblit GW, Hare RD (1988). *Meta-ethnography: synthesising qualitative studies*. Newbury Park, CA: Sage

⁴ Egger M, Davey Smith G, Phillips AN (1997) Meta-analysis principles and procedures. *BMJ* 315: 1533-1537.

disappointing conclusion we have been able to identify a series of “markers” that will enable future researchers to identify when Bayesian meta-analysis is likely to be of maximum value and practicability.

The CIS, which was our second form of synthesis, suggested a number of useful insights into support for breast-feeding. CIS appears to offer considerable promise as an explicit methodology for conducting interpretive syntheses of both qualitative and quantitative evidence, but will require further development and elaboration in applied contexts.

Conclusions

There is a real need to interrogate the epistemological assumptions underlying the inclusion of qualitative research in systematic reviews. There is an uneasy fit between the frame offered by conventional systematic review methodology and the kinds of epistemological assumptions and research practices associated with qualitative research. Whether the conventional systematic review methodology, directed at establishing how successful a particular intervention is on average, can be consistent with the kinds of syntheses likely to be produced using a highly diverse corpus of qualitative evidence by a diverse range of methods, is a key question. It requires thinking about whether “systematic review” describes a very specific methodology with very well-defined characteristics, or whether it is a broad framework that allows multiple forms of evidence synthesis to be undertaken.

There is a need to establish principles for matching questions to data and to perspective,

to develop methods for formulating questions for reviews, and to establish a distinct set of principles and processes that might inform interpretive syntheses, as distinct from the kinds of aggregative syntheses that systematic review methodology has traditionally produced. This will need to recognise that, as with primary qualitative research, interpretive syntheses of similar bodies of evidence conducted by different groups may reach different conclusions despite using the same techniques. Evaluating methodological developments will therefore continue to be challenging, because it will be difficult to distinguish whether outputs using different methods are different because of the methods, or because of the authors. Nonetheless, progress needs to be made in the development of analogues for quantitative techniques such as sensitivity analysis, sampling, and ways of thinking about how appraisals of quality can best be incorporated in review methodology.

Key Publications

Shaw RL, Booth A, Sutton AJ, Miller T, Smith JA, Young B, Jones DR, Dixon-Woods M. (2004) Finding qualitative research: an evaluation of search strategies. *BMC Medical Research Methodology* 4:5

Dixon-Woods M, Agarwal S, Jones DR, Young B, Sutton AJ. (2005) Synthesising qualitative and quantitative evidence: a review of methods. *Journal of Health Services Research and Policy* 10: 45-53

Dixon-Woods M, Shaw RL, Agarwal S, Smith JA (2004) The problem of appraising qualitative research. *Quality and Safety in Healthcare* 13: 223-5.

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