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# A move to more systematic and transparent approaches in qualitative evidence synthesis: update on a review of published papers

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## Abstract

In 2007, the journal *Qualitative Research* published a review on qualitative evidence syntheses conducted between 1988 and 2004. It reported on the lack of explicit detail regarding methods for searching, appraisal and synthesis, and a lack of emerging consensus on these issues. We present an update of this review for the period 2005–8. Not only has the amount of published qualitative evidence syntheses doubled, but authors have also become more transparent about their searching and critical appraisal procedures. Nevertheless, for the synthesis component of the qualitative reviews, a black box remains between what people claim to use as a synthesis approach and what is actually done in practice. A detailed evaluation of how well authors master their chosen approach could provide important information for developers of particular methods, who seem to succeed in playing the game according to the rules. Clear methodological instructions need to be developed to assist others in applying these synthesis methods.

## Keywords

qualitative evidence synthesis, systematic review

## Background

In 2007, the journal *Qualitative Research* published a review from Dixon-Woods et al. (2007) on published reports of qualitative evidence syntheses (QES). The authors

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identified 42 studies for the period between 1988 and 2004. Since 2004, methodologists have invested in developing new methods for QES. Several variants of existing methods have been reported. Recently published approaches include textual narrative synthesis, focusing on heterogeneity between included studies (Lucas et al., 2007), critical interpretive synthesis adapted from the frequently used meta-ethnographic approach to synthesis (Dixon-Woods et al., 2006), qualitative meta-summary designed to aggregate (rather than to interpret) findings of original studies (Sandelowski et al., 2007) and thematic analysis formally introduced by Thomas and Harden (2008). The Cochrane Qualitative Research Methods Group develops and supports methodological work on the inclusion in systematic reviews of evidence from research using qualitative methods, and disseminates this work within and beyond the Collaboration's Review Groups. The methods group conveners recently produced a chapter in the *Cochrane Handbook* of systematic reviews of effectiveness (Noyes et al., 2007). Online published subchapters include information on how to use qualitative research to develop robust effectiveness questions for Cochrane Systematic Reviews, how to search for and critically appraise qualitative research, and how to extract and synthesize findings from qualitative research (Cochrane Qualitative Research Methods Group, 2009). QES have gained significant recognition in the field of health care, both as a standalone product or as a scientific contribution able to inform, extend, enhance or supplement systematic reviews of effectiveness. They are now promoted through international organizations such as the Cochrane and Campbell Collaboration (Hannes et al., 2007), the Evidence for Policy and Practice Information and Coordinating Centre (Oliver et al., 2005) and the Joanna Briggs Institute (Pearson et al., 2007). This article presents an update of the review from Dixon-Woods et al. (2007) for the period 2005–8. It aims to identify newly developed methods and also seeks to reveal how authors have conducted the basic steps in their review; search strategies, critical appraisal exercises, and syntheses. Major differences in the practical application of these steps between the range of reviews are discussed. In addition, we aim to evaluate the popularity of QES in the scientific research community by developing a time trend on the number of syntheses published over the last 20 years (1988–2008).

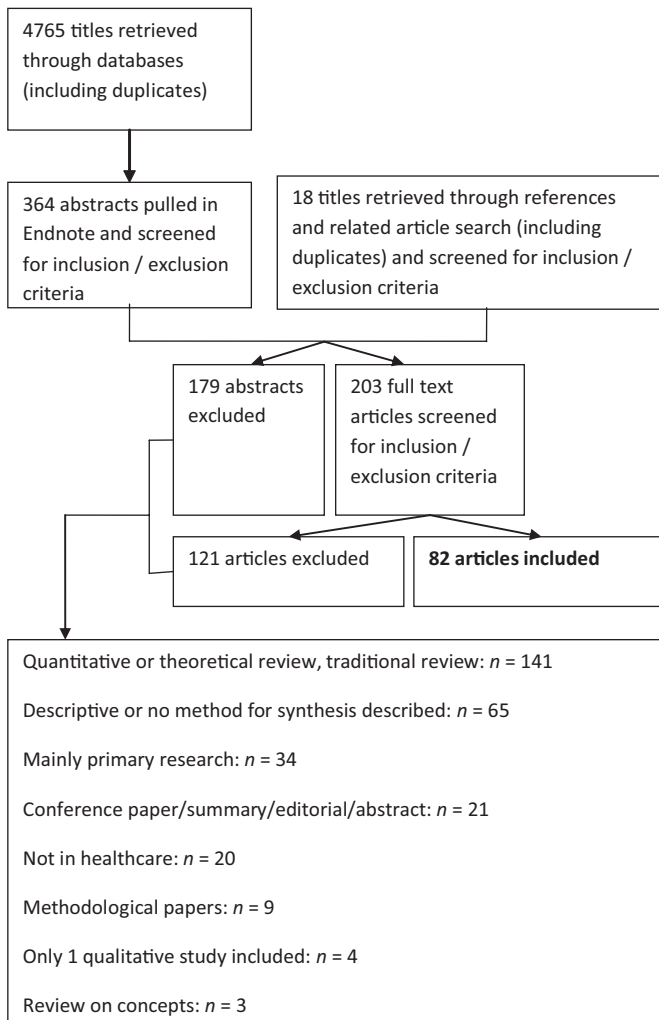
## Method

### *Search strategy and inclusion criteria*

We used the comprehensive search strategy developed by Booth (2006) and utilised by Dixon-Woods et al. (2007), as well as the inclusion criteria presented in their methods section, to be able to make valid statements on the comparison between both reviews. We considered articles published in the English language, in a peer reviewed journal, conducted within the field of health care and reporting a synthesis of qualitative research. We also included papers with a methodological focus; for example, the presentation of a new method, if they reported on the findings of a particular research project. Qualitative, narrative reviews from quantitative studies or summaries that were not explicit about their method for synthesis were excluded. In addition, we excluded reviews with a topical focus on concepts or definitions used in health care or health care research.

## Screening

Our database search revealed a total of 4765 potentially eligible studies (including duplicates between databases) (Figure 1). A total of 364 titles passed an initial title screening from KH (Karin Hannes). With a reference and related article search we identified a further 18 studies. Abstracts from 394 articles were screened for inclusion and exclusion criteria. Articles for which both authors agreed they warranted inclusion were ordered and reviewed. Articles for which there was doubt as to their appropriateness were also ordered for further examination. A full-text version was retrieved for 203 abstracts. A detailed analysis identified 82 articles that satisfied our inclusion criteria. Disagreements were solved by discussion. The majority of the excluded papers ( $n = 121$ ) were quantitative and



**Figure 1.** Search strategy

theoretical reviews, or did not qualify as a review. Twenty-one per cent did not label their method of synthesis or was rather descriptive in the methods section. Other papers were excluded for topical reasons (not in health care) or because they presented primary research. Some were exclusively methodological in focus or included only one qualitative study in the synthesis. The list of studies excluded following a full reading may be obtained from the authors. Both authors agreed upon the final selection of articles.

### *Data extraction*

Findings from the included papers were extracted by KH and then verified, confirmed or disconfirmed by KM (Kirsten Macaitis). Disagreements were solved by discussion. Four characteristics were studied for detailed content and relevance: (1) methods for searching, (2) number of included studies, (3) methods for critical appraisal, and (4) methods for synthesis (Table 1). For the first characteristic we described the databases and additional information resources that the authors used to retrieve their studies, whether or not the keywords used for searching were specified and whether or not the QES were comprehensive in terms of languages and dates. The second column lists the number of papers included in a particular synthesis. The third and fourth columns respectively describe the critical appraisal tool or evaluation framework used and the evidence synthesis approach opted for by the authors. Studies using a mixed method approach were eligible for inclusion provided it was possible to extract findings derived from the original qualitative research reports. Although in many cases the presentation of the synthesis method was fairly descriptive, no major inconsistencies were found between both reviewers in the data extraction phase.

### **Findings**

Between January 2005 and December 2008, 82 qualitative evidence syntheses were identified within the field of health care (Table 1), in addition to the 42 published QES previously identified by Dixon-Woods and colleagues (2007). Within the span of four years the amount of QES has doubled (Figure 2). The first QES was detected in 1994 (Jensen and Allen, 1994). It was not until 1997 that additional QES were found in public health literature. Since then, the number of QES has steadily increased. This indicates a growing interest of researchers to conduct this type of synthesis and it appears that the peak of interest has not yet been reached. There is a small drop in published QES in 2004 and 2008. We doubt that this is related to a decrease in interest for QES. Dixon-Woods and colleagues (2007) performed a search in the year 2005. The papers included in the present study were derived from a search conducted in mid-2009. We expect databases to have a considerable delay in indexing their articles, which will most likely explain the drops in numbers. It is anticipated that the number of QES will continue to rise beyond the year 2008. In what follows, we compare the characteristics of this particular update with those from the original review (Dixon-Woods et al., 2007). The main findings are presented in Table 2.

Table 1. Characteristics of published QES

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Aagaard H and Hall EO (2008)	Databases: PubMed, Cumulative Index to Nursing and Allied Health Literature, Web of Science, and PsychINFO Key words: specified Other search strategies: reference search Comprehensive dates, language: unclear	14	Not described	Meta-ethnography
Attree P (2005a)	Databases: not specified Key words: not specified Other search strategies: contacts with experts, website and citation searching Comprehensive dates, language: unclear	11	Checklist based on earlier models of assessing qualitative research	Meta-ethnography
Attree P (2005b)	Databases: not specified Key words: not specified Other search strategies: contacts with experts, website and citation searching	12	Checklist based on earlier models of assessing qualitative research	Meta-ethnography
Bertero C and Wilmoth MC (2007)	Databases: PubMed, Medline, CINAHL, and PsychInfo Key words: specified Other search strategies: not specified Comprehensive dates, languages: unclear	30	Not described	Meta-data analysis, meta-method, and meta-theory (Paterson et al., 2001)
Bettencourt BA et al. (2007)	Databases: CINAHL, Medline, PsychInfo Key words: specified Other search strategies: reference sections of each identified study report Comprehensive dates: yes, language: no	7 (of which 5 qualitative and 2 mixed methods)	Not described	Summary of all the findings available in each study report and identification of common themes (thematic synthesis)

(Continued)

Table 1. (continued)

Paper**	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Bradley P et al. (2005)	Databases: MEDLINE, EMBASE; PsycLIT, ERIC, LISA, SIGLE, Social Science Citation Index, Science Citation Index Key words: referred to longer version of review Other search strategies: electronic search of 3 journals, contacting experts and centres of expertise, reference lists of identified articles, messages to specialized email discussion lists Comprehensive dates, language: yes	16	Critical appraisal checklist (based on EPPI-centre checklist 2002; CASP; 2003)	Identification of emerging themes by using educational theories. Bridging categories were formed across and within developing themes (thematic synthesis)
Briggs M and Flemming K (2007)	Databases: Ovid MEDLINE, CINAHL, EMBASE, British Nursing Index, ASSIA, Social Science Citation Index, PsycINFO Key words: recognized search terms for leg ulceration used by the Cochrane Wounds Group Other search strategies: not specified Comprehensive in terms of dates: yes, language: no	14	QARI software appraisal instrument completed in order to provide authors with a formal baseline assessment of quality	Methods outlined in the Qualitative Assessment and Review Instrument (QARI) software designed for the synthesis of qualitative research
Carlsen B et al. (2007)	Databases: PubMed, CINAHL, EMBASE, Social Science Citation Index, and Science Citation Index Key words: Broad search terms specified + in collaboration with a librarian Other search strategies: independent identification of studies that fulfilled the selection criteria Comprehensive dates, language: unclear	12	Modified CASP-tool	Comparative case-study approach informed by tools and techniques outlined in the narrative synthesis framework

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Coffey JS (2006)	Databases: CINAHL, ERIC, PsycInfo, Sociological Abstracts, PubMed, Dissertation Abstracts Key words: specified Other search strategies: not specified Comprehensive dates: yes, language: unclear	11	Not described	Meta-ethnography
Dennis CL and Chung-Lee L (2006)	Databases: MEDLINE, EMBASE, and CINAHL Key words: specified Other search strategies: tables of contents Key journals were hand searched for the years 2004 and 2005, reference lists of included studies and relevant reviews were examined Comprehensive dates: yes, language: no	40	Not described	Categorization of results was compared and differences discussed until agreement was obtained
Downe S et al. (2007)	Databases: CINAHL, Allied and Complementary Medicine, British Nursing Index, EMBASE, MEDLINE, Ovid MyJournals, AMED, BIDS, ASSIA, ProQuest, Midwives Information and Resource Service (MIDIRS), National Research Register; Key words: not specified Other search strategies: 5 nursing journals hand searched, content pages of 45 other relevant, scrutinized the contents pages of a further 45 relevant health and social science journals, contacted relevant e-groups and experts for grey literature Comprehensive dates: yes, language: no	7	CASP-tool and Walsh and Downe criteria (2006)	Compare/contrast metaphors, concepts, relations and themes; reciprocal and refutational translations (Noblit and Hare, 1988; Walsh and Downe, 2005)

(Continued)



**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Dundon EE (2006)	Databases: CINAHL, Psyclit, Medline, Sociological Abstracts, and Dissertation Abstracts Key words: specified Comprehensive dates: yes, language: unclear	6	Not described	Meta-synthesis
Fraser KD and Estabrooks C (2008)	Databases: CINAHL, Medline, HealthStar, Psyclinfo, ERIC, Sociological Abstracts Key words: specified Other search strategies: 2 journals were hand searched; reference lists of all studies reviewed were hand searched Comprehensive dates: no, however, motivated, language: unclear	11	Quality assessment guide developed by Giacomini and Cook (2000) and later refined by Russell et al. (2005)	Content-analysis
Garside R et al. (2008)	Databases: 7 electronic databases (not specified) Key words: not specified, however, 'full search details are available from the authors' Other search strategies: not specified Comprehensive dates and language: no	4	Specifically mentioned as questionable in the context of meta-synthesis	Meta-ethnography
Gately C et al. (2008)	Databases: OVID, CINAHL, OVID Medline and CSA Key words: not specified Other search strategies: citation and related records searches of PubMed and Web of Knowledge, papers identified by the authors, electronic contents pages of key journals Comprehensive dates and language: no	4	BSA Medical Sociology Group's criteria for appraising qualitative studies (1996)	Meta-ethnography and critical interpretive approach

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Gravel K et al. (2006)	Databases: PubMed, Embase, CINAHL, PsycINFO, and Dissertation Abstracts Key words: not specified, however, 'specific search strategies were developed by an information specialist' Other search strategies: references of included studies Comprehensive dates, language: no	31	Quality assessment based on existing framework from Kmet et al. (2004)** and Lee et al. (2005)**	Use of pre-existing taxonomy of barriers and facilitators to implementing clinical practice guidelines in actual practice (deductive approach)
Grime J et al. (2007)	Databases: A range of full text and bibliographic databases was searched (13 in total, including CINAHL, Medline and Embase) Key words: not specified Other search strategies: hand searching and citation searching, sensitive rather than specific Comprehensive dates: yes, language: no	29	Not described	Narrative synthesis method
Gruenewald DA and White EJ (2006)	Databases: MEDLINE using Ovid (1966–2005) PubMed (1995–2005) Key words: specified Other search strategies: not specified Comprehensive dates, language: no	40	Not described	Grounded theory approach
Hall Moran V et al. (2007)	Databases: Ovid Medline, CINAHL, The Cochrane Library, AMED, The British Nursing Index and MIDIRS Key words: specified Other search strategies: websites, citations, hand-search of two journals, contacts with experts Comprehensive dates: no, language: unclear	7	The CASP-tool	Narrative and thematically

(Continued)

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Harvey DJ (2007)	Databases: CINAHL, MEDLINE, Proquest, Blackwell Synergy, Infotrac and Indigenous Health Infonet Key words: rural, women, health, wellbeing, qualitative methods and Australia Other search strategies: peer reviewed conference proceedings from the National Rural Health Alliance database Comprehensive dates, language: no, however, motivated	6	Appraisal based on the auditability of the methodology and the rich description of the data	Meta-synthesis
Herber OR et al. (2007)	Databases: MEDLINE via PubMed, and CINAHL Key words: specified Other search strategies: hand search of periodicals from the university library, follow up of reference lists, references were sought from staff colleagues and experts from the German Network for Quality Development in Nursing (DNQP)	24 (of which 11 qualitative and 2 mixed method)	Not described	The findings were combined and categorized into preset domains which either followed Fallowfield (1990)** and Phillips et al. (1994)** or emerged from the data
Hildingh C et al. (2007)	Comprehensiveness dates, languages: no Databases: PubMed, CINAHL, and PsychInfo Key words: specified Other search strategies: not specified	7	Burns standard for qualitative research (1989)**	Meta-ethnography
Holopainen A et al. (2007)	Comprehensive dates: no, language: unclear Databases: Cinahl, Medline, Medic (Finnish Medicine and Health Sciences Database) and Arto (Reference Database of Finnish Articles) Key words: specified	207 (of which 36% qualitative and 19% mixed method)	All Studies were included in the review, regardless of the strength of evidence	Content analysis and thematic analysis

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Howard AF et al. (2007)	<p>Other search strategies: manual</p> <p>Search of 1 Finnish and 1 Nordic nursing science journal from the years 1/1990–4/2004.</p> <p>Examination of all Finnish academic dissertations concerning nurse teachers from universities' abstract books or websites</p> <p>Comprehensive dates, languages: no</p> <p>Databases: CINAHL, PsychLIT, MEDLINE</p> <p>Key words: not specified</p> <p>Other search strategies: not specified</p> <p>Comprehensive dates: unclear, language: no</p>	15	Explicitly mentioned that it has not been considered	Meta-data analysis, Meta-method, and Meta-theory (Paterson et al., 2001)
Howell D and Brazil K (2005)	<p>Databases: CINAHL, Medline, Cancerlit, Embase, Social Sciences Index, Sociological Abstracts, Dissertation Abstracts, ISI Web of Knowledge, Psych-Info, Cochrane Library</p> <p>Key words: specified</p> <p>Other search strategies: reviewing references, speaking to experts, relevant websites</p> <p>Comprehensive dates: no, languages: unclear</p>	7	Explicitly mentioned that it has not been considered.	Descriptive meta-synthesis in order to produce narratives or theoretical orders + Venn Diagram
Humphreys A et al. (2007)	<p>Databases: DIALOG:AMED, British Nursing Index, CINAHL, DH-DATA, EMBASE, King's Fund, MEDLINE, PubMed and PsycINFO</p> <p>Key words: specified</p> <p>Other search strategies: not specified</p> <p>Comprehensive dates, language: no</p>	14 (of which 9 qualitative)	Pope and Mays criteria (1995) and CASP-tool (2002)**	Ritchie and Spencer's Framework (Ritchie and Spencer, 1994) for the analysis of qualitative data Also refers to thematic analysis

(Continued)

**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Jacob L and Poletick EB (2008)	Databases: Ovid and CINAHL Key words: key words previously described, however, no reference given Other search strategies: not specified Comprehensive dates: no, language: unclear	10	Joanna Briggs Institute Qualitative Assessment and Review Instrument (QARI)	Joanna Briggs Institute Qualitative Assessment and Review Instrument (QARI)
Jones ML (2005)	Databases: CINAHL, Embase (Silver Platter version), Medline (Ovid version), HMC, British Nursing Index (Silver Platter version), RCN Journals Database (Silver Platter version), PsycINFO (Silver Platter version) Key words: specified Other search strategies: not specified Comprehensive dates: yes, language: not clear	14	Study appraisal based on Sandelowski et al. (1997)	Ritchie and Spencer's 'Framework' (Ritchie and Spencer, 1994)
Kane GA et al. (2007)	Databases: South West Information for Clinical Effectiveness, AMED, BNIplus, CINAHL, DH-DATA, EMBASE, Martindale, MEDLINE, PsycINFO; Centre for Reviews and Dissemination (DARE; NHS EED; HTA); NelH; PubMed database, eLSC, Social Science Citation Index, National Research Register. Key words: specified Other search strategies: non-published studies were identified by searching reference lists, direct contact with key authors in the field Comprehensive dates, language: unclear	4	CASP-tool	Meta-ethnographic methods

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Karkkainen O et al. (2005)	Databases: CINAHL and MEDLINE Key words: specified Other search strategies: manual search of 1 journal Comprehensiveness dates: no however motivated, language: no	14	Not described	Meta-synthesis based on Gadamer's hermeneutic empirical theory (1979)**
Katsakou C and Priebe S (2007)	Databases: Psychinfo, Medline, Embase, pre-Medline Key words: specified Other search strategies: search of references, personal correspondence Comprehensiveness dates, language: unclear.	4	Self composed list of criteria based on 5 existing frameworks	Thematic analysis
Kay M et al. (2008)	Databases: Medline, Cinahl Key words: yes Other search strategies: citation searches and searches of the grey literature Comprehensive dates: yes, languages: no	26 (of which 3 qualitative)	An assessment tool based on Harden et al. (2004)** was used	Quantitative results were tabulated. Dominant themes were determined, categorized and tabulated
Khan N et al. (2007)	Databases: Medline, EMBASE, CINAHL and Web of Knowledge Key words: not specified, however, 'developed with librarian' Other search strategies: not specified Comprehensiveness dates: no, language: unclear	9	British Sociological Association (BSA) criteria for the evaluation of qualitative research (1996)**	Meta-synthesis (based on meta-ethnography)
Kylma J (2005)	Databases: CINAHL-database Key words: specified Other search strategies: not specified Comprehensiveness dates, language: unclear	5	Not described	Grounded theory approach

(Continued)

**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Lakeman R and FitzGerald M (2008)	Databases: CINAHL Plus, Medline, PsycINFO, Social Services Abstracts and Sociological abstracts Key words: specified Other search strategies: hand search of 5 journals	12	The quality questionnaire developed and trialed by Attrree and Milton (2006)**	Thematic content analysis based on Hsieh and Shannon (2005)**
Larsen JS et al. (2008)	Comprehensive dates: no, language: unclear Databases: CINAHL, PsycINFO and MEDLINE Key words: specified Other search strategies: not specified	7	Not described	Meta-ethnography
Larun L and Malterud K (2007)	Comprehensive dates, language: unclear Databases: MEDLINE, EMBASE, CINAHL, PsycINFO, and AMED Key words: specified Other search strategies: not specified	20	Checklist for qualitative studies covering 10 items	Meta-ethnography
Lee RC et al. (2005)	Comprehensive dates: yes, language: no Databases: 28 electronic databases. Not specified Key words: not specified Other search strategies: 108 government agency and research organization websites, Bibliographies of primary research papers, citation searches using Web of Science Comprehensive dates: no, language: yes	77 (of which 11 qualitative)	Standard quality assessment criteria from a variety of fields	Papers were grouped according to content areas and summarized. All of these content areas related to CaRATs (cancer risk assessment technologies) Ritchie and Spencer's 'Framework' (Ritchie and Spencer, 1994)
Lloyd JM (2005)	Databases: Medline, Cinahl CINAHL (Ovid version), Embase (Silver Platter version), Medline (Ovid version), HMIC, British Nursing Index (Silver Platter version), RCN Journals Database (Silver Platter version), PsycINFO (Silver Platter version)	14	Study appraisal was designed to achieve an understanding of each study on its own terms	

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
MacEachen E et al. (2006)	<p>Key words: specified</p> <p>Other search strategies: Handsearching, citation searching and footnote chasing</p> <p>Comprehensiveness dates: yes, languages</p> <p>Databases: MEDLINE, EMBASE, CINAHL, PsycInfo, Sociological Abstracts, Applied Social Sciences Index and Abstracts, American Business Index</p> <p>Key words: partly specified (filters)</p> <p>Other search strategies: peer-reviewed reports from well-established research centers</p> <p>Comprehensive dates, languages: no</p>	13	<p>(Sandelowski et al. 1997), extra exclusion criterion insufficient in depth or breadth (Paterson et al. 2001)</p> <p>Modified version of a qualitative assessment framework developed by researchers based at the National Centre for Social Research (UK)</p>	Meta-ethnography
Marston C and King E (2006)	<p>Databases: BIDS, IBSS, BIDS: Ingenta, PsychInfo via Ovid, PubMed (NLM), CINAHL via Ovid, Ovid journals, Ovid Medline, Books via Ovid, Web of Science, EMBASE via Ovid, Anthropology plus</p> <p>Key words: specified</p> <p>Other search strategies: catalogues of the M25 consortium of London University libraries and Copac (merged online catalogues of major UK and Irish university research libraries), the British Library, the National Library of Scotland, following up references in review articles and book reviews, consulting experts in the field, hand searching key journals.</p> <p>Comprehensive dates, languages: no</p>	268 (of which 246 journal articles and 22 books, 121 items were primary documents)	Documents were classed as high quality if they contained empirical data	Comparative thematic analysis

(Continued)



**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Martenson, EK and Fagerskiold AM (2008)	Databases: CINAHL, Medline/PubMed and PsycINFO, the Cochrane Library Key words: specified Other search strategies: narrow and more focused manual selection by two reviewers, supplementary searching Comprehensive dates, languages: no	15 (of which 11 qualitative)	Critical appraisal forms (2005)**	Thematic analysis
McInnes, RJ and Chambers JA (2008)	Databases: MEDLINE, British Nursing Index, CINAHL, EMBASE, MWC, PsycINFO, MIDIRS, CDSR, DARE, AMED Key words: specified Other search strategies: Papers identified in previous literature review, Citation lists of journal articles	47	Modification of CASP-tool and the Evaluation Tool for Qualitative Studies (ETQS, 2001)**	Narrative synthesis + secondary thematic analysis to explore concepts within themes
Meadows-Oliver M (2006)	Comprehensive dates, languages: no Databases: CINAHL, MEDLINE, psycINFO, Social Work Abstracts, and Dissertation Abstracts Key words: specified	6	Not described	Metasynthesis (based on meta-ethnography)
Metcalf A et al. (2008)	Other search strategies: not specified Comprehensive dates: yes, languages: unclear Databases: Ovid databases (British Nursing Index, Cinahl, Embase, Medline, Psycinfo and Ovid 'in process'), Web of science, Assia, Sociological Abstracts, Cochrane Library, PubMed, ERIC, Economic & Social Data Service, ZETOC, Wiley Interscience, Swetswise, Science Direct, Childlink and Sigle, Index to Theses (Europe) and Digital Dissertations (USA), National Research Register (UK)	17	Mays and Pope Appraisal criteria (2000)	Meta-synthesis, using a narrative synthesis based on guidelines for meta-ethnography

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Mills E et al. (2005)	<p>Key words: specified</p> <p>Other search strategies: personal contacts and hand searches</p> <p>Comprehensive dates: no, languages: unclear</p> <p>Databases: AMED, Campbell Collaboration, CINAHL, EMBASE, E-Psyche, HTA, ERIC, MEDLINE, NHS EED</p> <p>Key words: specified</p> <p>Other search strategies: unpublished studies using the UK National Research Register; hand-searching key journals and searching bibliographies of key articles, contacting authors about published and unpublished studies</p> <p>Comprehensive dates, languages: yes</p>	15	Modified version of the CASP-tool	Content analysis
Mills E] et al. (2006)	<p>Databases: AMED, Campbell Collaboration, CinAhl, Cochrane Library, Embase, ERIC, MedLine, and NHS EED</p> <p>Key words: specified</p> <p>Other search strategies: clinicaltrials.gov, the UK National Research Register, conference abstracts from international conference websites, bibliographies of key papers</p> <p>Comprehensive dates, languages: yes</p>	84 (of which 37 qualitative)	Appraisal mentioned, tool not specified	Deductive approach based on a coding template
Mitchell GK et al. (2008)	<p>Databases: MEDLINE, EMBASE, CINAHL, the Cochrane Library</p> <p>Key words: specified</p>	18 (of which 7 qualitative)	Quality assessment method devised by Aoun and colleagues (2005) <sup>§§§</sup>	Narrative synthesis

(Continued)

**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Munro SA et al. (2007)	Other search strategies: grey literature from web-based searching of websites, reference lists of identified articles were hand searched for relevant articles Comprehensive dates: yes, languages: no Search, assessment, and retrieval process outlined by Barosso Key words: not specified Other search strategies: referred to Barosso Comprehensive dates: yes, languages: unclear Databases: Medline, CINAHL, PsychINFO, Dissertation Abstracts Key words: specified but basic Other search strategies: not specified Comprehensive dates, languages: no	44	Checklist based on common elements from existing criteria (Dixon-woods et al., 2004; CASP)	Meta-ethnography
Nelson AM (2006)	Databases: multiple databases, not specified Key words: specified Other search strategies: not specified Comprehensive dates: no, however motivated, languages: unclear	15	Not described	Meta-ethnography
Nicholls L and Webb C (2006)	Databases: Medline, CINAHL, HMIC, Embase, British Nursing Index, International Bibliography of the Social Sciences, Sociological Abstracts, SIGLE, ASSIA, Psych Info, Econ lit, Ovid, Pubmed, the London School of Hygiene and Tropical Medicine database of TB studies, Google Scholar Key words: specified	33 (of which 22 mixed method or qualitative)	CASP-tool (but rather to familiarize with papers)	Descriptive, thematic synthesis
Noyes J and Popay J (2007)	Databases: Medline, CINAHL, HMIC, Embase, British Nursing Index, International Bibliography of the Social Sciences, Sociological Abstracts, SIGLE, ASSIA, Psych Info, Econ lit, Ovid, Pubmed, the London School of Hygiene and Tropical Medicine database of TB studies, Google Scholar Key words: specified	58	CASP-tool and Popay et al. (1998) criteria, however no studies were excluded for quality reasons	Thematic, narrative summary

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Nurmatov U et al. (2008)	<p>Other search strategies: principal researchers involved in the six RCTs contacted, relevant qualitative studies that were associated with, or conducted alongside, the RCTs obtained, reference lists within published papers, personal contacts</p> <p>Comprehensive dates: no, however motivated, languages: no</p> <p>Databases: MEDLINE, EMBASE, Science Citation Index, Cochrane Database of Systematic Reviews, ISI Proceedings, TRIP, LILACS, and CINAHL</p> <p>Key words: annex with key-terms published online</p> <p>Other search strategies: unpublished work and research in progress by searching key Internet-based databases that list ongoing studies (clinical trials, ongoing trials, the UK National Research Register, contacting an international panel of experts and 2 pharmaceutical companies</p>	19 (of which 2 qualitative)	CASP-tool	Thematic synthesis
O'Neill T et al. (2007)	<p>Comprehensive dates: no, languages: unclear</p> <p>Databases: Web of Knowledge, EBSCO, Cinahl, Medline, PsycINFO, Embase, Cochrane library, Ageinfo and Ageline</p> <p>Key words: specified</p> <p>Other search strategies: hand search of key journals, table of contents</p> <p>Comprehensive dates: no, languages: unclear</p>	10	Not mentioned	Meta-ethnography

(Continued)

**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Parsons S et al. (2007)	Databases: MEDLINE, CINAHL, AMED, CSP library, MANTIS, PSYCHINFO, PEDro, Science Citation Index, Index to the Chiropractic literature Key words: specified Other search strategies: not specified Comprehensive dates: yes, languages: unclear	15	CASP-tool	Thematic analysis
Pavlin NL et al. (2006)	Databases: MEDLINE, Meditext, PsycINFO and Web of Science Key words: specified Other search strategies: hand-searching reference lists of relevant articles, discussion with Australian researchers in the area Comprehensive dates, languages: no	25 (including surveys)	Assessment of the quality mentioned, tool not specified	Thematic analysis using the Theory of Planned Behaviour
Pearson A et al. (2006)	Databases: CINAHL, Medline, Embase, PsychInfo, Cochrane Library, Database of Abstracts of Reviews of Effectiveness (DARE), PsycINFO, Embase, Sociological Abstracts, Econ lit, ABI/Inform, ERIC, PubMed Key words: specified Other search strategies: search for unpublished studies in Dissertation Abstracts International, search of the reference list of all identified reports and articles Comprehensive dates, languages: unclear	24 (of which 11 descriptive and 4 qualitative)	System for the Unified Management, Assessment and Review of Information (SUMARI)	Meta-aggregation

Table 1. (continued)

Paper**	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Pluye P et al. (2005)	<p>Databases: Library and Information Science Abstracts (LISA) and multiple databases via OVID (Medline, HealthSTAR, CINAHL and All Evidence-based Databases)</p> <p>Keywords: detailed annex of key words for each database included for the search</p> <p>Other search strategies: search of references that cited selected articles using ISI\Web of Science (citation index), Hand search in 17 different paper-based and electronic proceedings and journals on medical informatics, information science and computer sciences (limited to publications available at McGill University):</p> <p>Hand search in textbooks, literature reviews on medical informatics [1] Mitchell and Sullivan, 2001. (132), selected articles and two authors' personal files</p> <p>Comprehensive dates, languages: yes</p> <p>Databases: Medline, Embase, Cinahl, Web of Science, PsycInfo and Zetoc</p> <p>Key words: 3 tables of at least 57 different key words and different search strings for different databases, very detailed</p>	26 (of which 1 qualitative and 5 mixed methods)	Self developed appraisal instrument, seeking relevance and methodological quality	Edited reports and content analysis
Pound P et al. (2005)		38	A modified version of the CASP-tool	Meta-ethnography

(Continued)

**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Protheroe J et al. (2008)	Other search strategies: hand search of relevant journals, search of the departmental databases of references, reference lists of obtained papers and the Medicines Partnership, hand search of the Arts and Humanities Library and the Medical Library of Bristol University, key sociological, anthropological and practice journals Comprehensive dates, languages: no Databases: not specified Key words: not specified	4	Not described	Adapted meta-ethnographic approach
Rhodes L et al. (2006)	Other search strategies: not specified Comprehensive dates, languages: no Databases: Cambridge Scientific Abstracts, CINAHL, Current Contents, Embase, Expanded Academic Index, Medline, Proquest, Health and Medical Complete, Psychinfo, Sociofile and Dissertation Abstracts International Key words: specified	5	JB I Qualitative Assessment and Review Instrument (QARI)	JB I Qualitative Assessment and Review Instrument (QARI)
	Other search strategies: hand search, however journals not specified Comprehensive dates, languages: no			

Table 1. (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Rhodes T and Treloar C (2008)	Databases: MEDLINE, EMBASE, PubMed BIDS, IBSS, PsychINFO, SCI and SSC1 Key words: not specified Other search strategies: hand searching selected journals; exploration of references listed in searched papers; and the use of PubMed to identify related papers to those identified by electronic search	31	Not described	Meta-ethnography
Salter K et al. (2008)	Comprehensive dates, languages: unclear Databases: PubMed, CINAHL, Psychinfo and Web of Science Key words: specified Other search strategies: hand search of reference lists from identified papers	9	Two core selection criteria: credibility and relevance	Meta-synthesis
Schlomann P and Schmitke J (2007)	Comprehensive dates: no, languages: unclear Databases: Medline and CINAHL Key words: not specified Other search strategies: further searching the authors' names, checking reference lists, exploring journals in which articles were located	11	Not described	Meta-interpretation: thematic and context analysis
Sim J and Madden S (2008)	Comprehensive dates, languages: no Databases: MEDLINE, CINAHL, Social Science Citation Index, Science Citation Index, Sociofile, Psychinfo, Sociological Abstracts and AMED Key words: specified Other search strategies: not specified Comprehensive dates: yes, languages: no	23	Criteria from Popay et al. (1998)	Meta-synthesis based on Paterson et al. (2001)

(Continued)



**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Simkhada B et al. (2008)	Databases: Cochrane Collaboration, CINAHL, MEDLINE, Science Direct, EMBASE, ASSIA, Web of Science, Scopus, PubMed and JSTOR Key words: specified Other search strategies: hand-searching of reference lists, key personnel and organizations were contacted for published studies	28 (of which 4 qualitative and 2 mixed methods)	Checklist based on Khan et al. (2001) <sup>§§*</sup>	Content and thematic analyses
Smith LK et al. (2005)	Comprehensive dates, languages: no Databases: MEDLINE, EMBASE, PubMed, BIDS, IBSS, PsycINFO, SCI, SSCI Keywords: not specified Other search strategies: hand searching of key journals; exploration of references listed in papers obtained; and the use of PubMed to identify related articles	32	CASP-tool	Meta-Ethnography
Steeman E et al. (2006)	Comprehensive dates, languages: no Databases: MEDLINE, CINAHL, and PsycINFO Key words: specified Other search strategies: reference lists of all included articles and a recently published book and thesis, Journal compilation Comprehensive in terms of dates, languages: no	33	Criteria based on Sandelowski and Barosso's (2002) guide for qualitative research, the Burns (1989) criteria Popay et al., (1998); Eakin and Mykhalovskiy, (2003)	Meta-synthesis

Table 1. (continued)

Paper**	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Strech D et al. (2008)	Databases: CINAHL, EMBASE, MEDLINE, and PsychInfo Key words: specified Other search strategies: hand searching relevant key journals and searching the bibliographies of key references	10	Modification of the CASP-tool	Thematic analysis
Swartz MK (2005)	Comprehensive dates: yes, languages: yes Databases: CINAHL, Medline, PsychInfo, Silverplatter, Dissertation Abstracts Key words: specified, however limited Other search strategies: not specified Comprehensive dates: no, languages: unclear	10	Not described	Meta-ethnography
Timulak L (2007)	Databases: Psychinfo Keywords: specified Other search strategies: hand search relevant journals, references of significant research papers	7	Not described	Meta-analysis, descriptive-interpretative (process looks like aggregation)
Tong A et al. (2008)	Comprehensive dates, languages: unclear Databases: Medline, Embase, PsycINFO, Cumulative Index to Nursing and Allied Health Literature, and Sociofile/Sociological Abstracts Key words: specified Other search strategies: hand search of key journals, reference lists of relevant studies and reviews Comprehensive dates: yes, languages: unclear	16	Existing tools and checklists were distilled into a composite checklist of items	Meta-ethnography

(Continued)

**Table 1.** (continued)

Paper*	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Vervoort S et al. (2007)	Databases: CINAHL, PUBMED, and Web of Science Key words: specified Other search strategies: not specified Comprehensive dates: yes, languages: no	24 (of which 3 mixed methods)	The appraisal considered 5 quality criteria including thickness of description	Thematic analysis
Walsh RA and Tzelepis F (2007)	Databases: Medline, PsycINFO, Current Contents, Embase.com, AUSTHealth, CINAHL, and ERIC Key words: specified Other search strategies: reference lists, Requests for assistance in locating suitable publications via Globalink and direct researcher contact Comprehensiveness dates: yes, languages: no	78	29 assessment criteria from the Cochrane Qualitative Methods Network (1999)** and the Health Care Practice Research and Development Unit (2002)**	Narrative synthesis of three content areas
Whalley Hammell K (2007a)	Databases: Medline, CINAHL and Sociological Abstracts Key words: specified but limited Other search strategies: hand search through selected journals, and reference lists Comprehensive dates, languages: unclear	8	Criteria were based upon the work of scholars from the qualitative tradition (CASP; Mays and Pope, 1995; Popay et al., 1998)	Meta-synthesis
Whalley Hammell K (2007b)	Databases: Medline, CINAHL and Sociological Abstracts Key words: specified other search strategies: hand search through relevant journals and papers identified through reference lists Comprehensive dates, languages: unclear	7	Criteria were based upon the work of scholars from the qualitative tradition (CASP; Mays and Pope, 1995; Popay et al., 1998)	Meta-synthesis

Table 1. (continued)

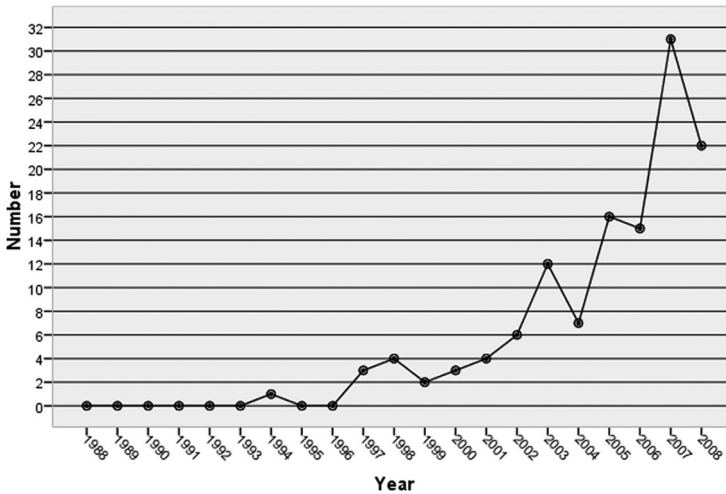
Paper**	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Wiles R et al. (2008)	Databases: International Bibliography of the Social Sciences (IBSS) and The British Nursing Index, CINAHL, EMBASE, MEDLINE and psychINFO via the Ovid database Key words: specified but very limited Other search strategies: hand search of key journals, reference lists of included studies Comprehensive dates: no, languages: unclear	7	CASP-tool	Narrative synthesis with thematic component
Wilkins KL and Woodgate RL (2005)	Databases: CINAHL, PsychINFO, PubMed, Embase, and Social Works Abstracts Key words: specified Other search strategies: reference lists scanned for possible studies to include in the review Comprehensive dates: yes, languages: no	27	Not described	Organizing framework guided by approaches for synthesis and review of qualitative research proposed by other researchers (Pearson, 2004; Speziale and Carpenter, 2003)**
Wilson K and Amir Z (2008)	Databases: CINAHL, EMBASE, MEDLINE, PsycINFO, and Social Work Abstracts Key words: specified Other search strategies: relevant publications in reference lists and grey literature, such as reports Comprehensive dates, languages: no	6	Not described	Thematic analysis

(Continued)

**Table 1.** (continued)

Paper**	Methods for searching	No. of papers included	Methods of appraisal of papers	Methods of synthesis
Xu Y (2007)	Databases: CINAHL, MEDLINE, PsychINFO, Sociological Abstracts, and ERIC, ProQuest Dissertations and Theses Key words: specified Other search strategies: not specified Comprehensive dates: unclear, languages: no	14	Not described	Meta-ethnography
Ypinazar VA et al. (2007)	Databases: AOA-FT and AATIS, Blackwell Synergy, CINAHL and Pre-CINHAL, Health source: nursing/academic edition, Medline, Proquest health and medical complete, PsycInfo, Science Direct, Synergy and HealthInfoNet Keywords: specified Other search strategies: the search engine Google was used and captured multiple reports not published in peer reviewed journals Comprehensive dates: no, however motivated, languages: unclear	5	Inclusion based on whether qualitative methods were used for data collection and analysis and the findings were reported in qualitative style	Meta-synthesis based on Noblit and Hare's meta-ethnography
Yu DS et al. (2008)	Databases: Medline, CINAHL, PsychINFO and Sociological Abstracts Key words: specified Other search strategies: hand search of the bibliographies of sourced studies and relevant nursing journals Comprehensive in terms of dates: no, however motivated, languages: no	14	Popay et al. (1998) criteria	The transactional model of stress was used to guide data synthesis

\*\*The reference of all the articles included is presented in the appendix.\*#\* References to appraisal instruments and methods of synthesis listed in the table can be found in the original research papers.



**Figure 2.** Timetrend number of qualitative evidence syntheses – 20 years

**Table 2.** Comparison of original review and update for main characteristics

Characteristic	Original review	Update
Number of syntheses	42 (year 1988–2004)	82 (year 2005–8)
Published in <i>Nursing Journal</i>	60%	33%
Number of included studies	Range (3–292), median 15	Range (2–113), median 14
Title labels used:		
Systematic Review	11%	39%
Meta-synthesis	29%	35%
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%
Critical appraisal exercise	40%	72%
Against appraisal or other valid reason	14%	6%
Most commonly used synthesis approaches:		
Meta-ethnography	45%	30%
Meta-study	5%	4%
Content analysis	2%	6%
Formal grounded theory	7%	2%

## Characteristics of the papers

The majority of the papers are still published in journals targeted toward nurses. With almost 16 per cent of the QES published, the *Journal of Advanced Nursing* dethrones the journal *Qualitative Health Research*, which scored exceptionally well in the previous review. Other popular journals include those targeted to paediatrics and psychiatrics/psychologists. High impact medical journals such as the *Lancet* have recently started to publish QES and a variety of medical journals have shown an interest for this approach to synthesis. Most authors have only contributed one QES to the field of health care. A minority of four authors published two or more QES. The main reason to conduct a QES seems to be topical and closely related to the core research programmes of the reviewers. There has been a significant increase in authors labelling their article as a systematic review compared to what has been reported in the original review from Dixon-Woods and colleagues (2007). The term meta-synthesis is also very popular, with 35 per cent of the authors using it in the title of their article. Three authors present their final product as a comprehensive or integrative review, using quantitative, qualitative and/or mixed method studies in their summary (one in the original review), a label that will most likely increase in popularity given the number of authors interested in portraying results of different basic research designs. Only one author used meta-analysis in the title (none in the previous review), which is jargon related to the conduct of quantitative reviews. The number of original articles included in a synthesis ranged from two to 113. In the original review the range was three to 292.

## Methods for searching

Of all papers only five did not describe the databases they had searched (15 in the original review). Medline is still the most popular database with 76 hits in 84 papers, followed by CINAHL ( $n = 70$ ) and Psychinfo/Psychlit ( $n = 51$ ). Embase scores significantly lower with 39 hits, which is most likely explained by the fact that it is extremely expensive to have access to this information source. Other popular databases with more than 10 hits include Sociological Abstracts ( $n = 16$ ), Web of Science/(Soc)Science Citation Index ( $n = 18$ ) and ERIC ( $n = 11$ ). More than 40 different databases have been mentioned in the context of QES reviews, some of them giving access to grey literature, such as Digital Dissertations, SIGLE, Proquest and Digital Abstracts. A small proportion of the databases are local or topic specific search engines. Some authors refer to an interface rather than a particular database; for example, OVID or EBSCO, making it difficult to evaluate in which information source they have retrieved their articles. Supplementary search strategies most commonly used were reference or citation searching. More than half of the QES had used this strategy, which is considerably more than the number reported in Dixon-Wood et al.'s review (2007). Other popular search strategies include hand searching journals ( $n = 28$ ), contacting experts or authors ( $n = 16$ ) or searching the web ( $n = 8$ ). Some authors also mentioned personal correspondence, related paper options in existing databases, email discussion lists, footnote chasing, or searching conference abstracts, etc. More authors chose to specify their search terms;

however, the level of detail provided varied between authors. Some authors did not report their key terms and referred to another paper that described the procedure in detail; a standard set of key terms developed by other scholars in the field or stated that details could be retrieved from the authors. Notably, only 10 per cent of the papers were comprehensive for language and 30 per cent reported having searched without limits on the dates of publication of original research articles. Most authors restrict their language to English, in rare cases elaborated to the languages spoken in the home country from the authors. About 18 per cent of the authors provided no details on the date range they had been searching. The amount of authors lacking clarity on the language of the included papers is even higher.

### *Methods of appraisal*

Twenty-three papers did not describe a critical appraisal exercise as part of their evidence synthesis. Only five papers explicitly pleaded against the quality assessment of papers or provided a valid reason for not conducting a quality appraisal. Compared to the review conducted by Dixon-Woods and colleagues (2007) more authors seem to be convinced of the relevance or added value of critically appraising the methodological quality of studies to be included. However, the criteria used varied between detailed descriptions of relevant items in existing or modified checklists to a set of broad criteria evaluating, for example, the rich description of data, the credibility or relevance of the original study. One team used an overall judgement approach to critical appraisal (Smith et al., 2005). Five reviewers have opted for a self-developed assessment instrument and three explicitly stated having used previously developed checklists to create one of their own. Two others mentioned a critical appraisal exercise, but did not specify their tool. Most reviewers used existing instruments or frameworks, among them the popular Critical Appraisal Skills Program (CASP)-instrument ( $n = 18$ ). Other popular checklist or frameworks are the Mays and Pope criteria ( $n = 6$ ), the Popay criteria ( $n = 6$ ) and the criteria developed by the Joanna Briggs Institute ( $n = 4$ ). At least 24 different assessment tools have been identified in the context of this review. A substantial amount of authors provided readers with explicit numbers and reasons for exclusion ( $n = 28$ ). Thirty-nine per cent of the authors claiming to have used an appraisal instrument or framework failed to describe the exact number of excluded papers or reasons for exclusion.

### *Methods of synthesis*

In the majority of the papers meta-ethnography or a technique based on the principles of Noblit and Hare (1988) was used as the method for synthesis. One paper used critical interpretive synthesis and linked this approach to meta-ethnography. Thematic analysis appeared to be a popular approach as well. Twenty papers opted for this approach; a large increase from the previous review, where thematic analysis was not utilised in any papers. Thematic analysis seems to have many shapes and forms and its lack of explicitness about procedures and aims has been identified before (Dixon-Woods et al., 2005).



Recent attempts to describe this synthesis technique in detail and develop software products that can assist reviewers in accurately applying it will most likely have contributed to its growing popularity (Thomas and Harden, 2008). Some authors referred to narrative synthesis as their synthesis method ( $n = 8$ ). Some used it as an umbrella term under which they fitted e.g. a thematic analysis. Other methods of synthesis included meta-study developed by Paterson and colleagues (2001) ( $n = 3$ ), content analysis ( $n = 5$ ), the meta-aggregative approach from the Joanna Briggs Institute ( $n = 4$ , not used in the previous review) and grounded theory ( $n = 2$ ). Two authors indicated having used a deductive approach, but did not specify this any further. Another two referred to the framework developed by Ritchie and Spencer (1994). Yu et al. (2008) based a synthesis on the transactional model of stress. Eight authors mentioned meta-synthesis as their approach. Some referenced methodologists such as Paterson et al. (2001), while others refer to existing techniques such as critical interpretive synthesis, meta-ethnography or meta-aggregation. Most worrisome is that these references are often used alongside each other, while they are considered different techniques of which the basic principles may even contradict each other (e.g. the interpretive versus the aggregative spectrum). For most cases it was unclear what exactly had been executed in the synthesis exercise. Most authors using the meta-ethnographic approach succeed in copying an accurate description of Noblit and Hares' (1988) principles in the methods section. They failed, however, to comply with the methodology in conducting or presenting their synthesis. Only 11 out of 25 review teams that labelled their synthesis as a meta-ethnography presented a model or visually displayed theory on the phenomenon of interest or were explicit on their line of argument and/or second and third order constructs in the findings sections. Authors reporting on methods of synthesis based on the format of basic qualitative research principles, such as grounded theory and thematic analysis, seem to better adhere to the basic principles of their approach.

## Discussion

### *Notable changes compared to the original review*

The number of published QES has increased during the last two decades and there are some important changes in their characteristics when compared with the review conducted by Dixon-Woods and colleagues (2007).

*Searching.* Considerably more authors provide clear details on the databases and other information sources searched. Supplementary search strategies have gained popularity and more authors reveal the specific key-terms that have been used to retrieve original studies. This clearly adds to the transparency of the procedures used by authors of QES, which is a positive evolution. It was noticed that many authors opted for a sensitive search strategy, comparable to what is portrayed as the standard quantitative reviews. There is general agreement on the need for search strategies aiming to identify qualitative research to be systematic and explicit. However, in recent debate the need for comprehensive, exhaustive searches in qualitative research is questioned. Theoretical and

purposive sampling might be a feasible alternative as long as the 'picture' from the studies that have been retrieved incorporate all likely insights. Much remains to be done on when and how these contrasting sampling philosophies are to be used appropriately (Noyes et al., 2008).

*Critical appraisal.* More review teams seem to be convinced of the relevance or added value of critically appraising the methodological quality of studies to be included. Half of those using an appraisal instrument or framework succeed in providing numbers and reasons for exclusion. It shows that authors have begun to consider quality appraisal as an important procedural step that can have an impact on the final result of a synthesis. As a consequence, it becomes more important to shift the academic debate from whether or not to appraise to what criteria to use for an assessment of methodological quality, particularly because the criteria used to assess the quality of studies differ substantially between authors, ranging from very broad criteria aiming to familiarize the reviewers with the studies to explicit checklists leading to in- or exclusion of papers. Authors should be stimulated to give more thought to their choice of instrument. Hannes et al. (2010) recently compared three online available critical appraisal instruments and found that the most frequently used CASP-tool does not score particularly well in evaluating the intrinsic methodological quality of an original study when compared with other instruments, such as the Evaluation Tool for Qualitative Studies (ETQS) and the Joanna Briggs critical appraisal instrument. The CASP-tool gives a good indication of what should be reported in a qualitative report, but barely addresses theoretical and interpretive validity.

*Synthesis methods.* The description of the synthesis approach was a weak issue in many reviews. There appears to be a black box between what people claim to use as a synthesis approach and what is actually done in practice, which was also one of the conclusions of Dixon-Woods and colleagues (2007) in their review. The developers of a particular method for synthesis, or those who have pioneered it in the field, are the ones succeeding in playing the game according to the rules set out in the basic books and articles that promote a particular synthesis strategy. However, the methods are not always accurately applied. One example is the presentation of the results section in papers using a meta-aggregative approach. This approach has primarily been developed to produce lines of actions to inform decision-making processes (Hannes and Lockwood, 2011). The two papers in which one of the developers of the methodology was involved as a co-author clearly presented recommendations for practice and policy (Pearson et al., 2006; Rhodes et al., 2006). Other authors that adopted the meta-aggregative approach presented their findings completely different; for example, as a theory (Briggs and Flemming, 2007). Only a fraction of the users of meta-ethnography presented the synthesis as a line of argument, using first-, second- and third-order constructs. This is, however, a central characteristic of the meta-ethnographic approach (Noblit and Hare, 1988). It indicates that the boundaries between methods of synthesis have become blurred in scientific literature.

*Mixing methods.* Many authors seem to adapt to the different phases identified in quantitative systematic reviews. This is most likely to reach an acceptance stage with potential

adopters. Some reviewers have mixed elements from conventional quantitative reviews with elements from QES approaches, often with little attention for the specific set of standards of a particular method. Although it is possible to use different designs in a single study, reviewers need to be knowledgeable about the various approaches and aware of the consequences of mixing and matching.

### *Strengths and limitations of this review*

In adopting the procedure outlined in the original review from Dixon-Woods and colleagues (2007), some of the limitations they have discussed apply to our update as well. Limiting the search to papers published in peer-reviewed journals will most likely have decreased the number of QES included. In addition, the QES in Table 1 present only a small fraction of the number of syntheses that have originally been retrieved in the search. Although the inclusion criteria have facilitated the selection process, there has been considerable debate between both reviewers. First, there is a very thin line between what counts as a health care topic and what does not. Reviews that addressed policy or educational topics were excluded, as well as reviews that were closer to social welfare than health care. Second, many of the excluded papers presented a systematic and transparent approach of the searching, appraisal and extraction phase in their systematic review, but lacked a clear description of the method used to synthesize data or summarized information in a fairly descriptive way, choosing, for example, tables to include details of the individual studies in a matrix or using a pre-developed coding sheet for data extraction, without synthesizing in more depth. Papers that explicitly stated they could not consider anything else but a narrative or descriptive synthesis for their research were included. We believe that many of the excluded reviews could be considered high quality; however, for the purpose of our review we needed information on their particular approach. Many of the mixed methods or comprehensive reviews were also excluded because their qualitative synthesis method was not described.

We did not systematically evaluate whether there was an acceptable degree of methodological congruence between the chosen synthesis approach and what had been conducted by the authors (Sandelowski et al., 1997). As a consequence, studies that misrepresented their synthesis method – for example, a content analysis wrongly presented as a narrative analysis – were included in the review. Considerable incongruence was noticed while conducting the review. However, to address this issue properly the development of a compendium outlining the specific characteristics of each particular synthesis approach would be necessary, which is beyond the scope of this review.

Although mixed-method studies were considered in the original review, it was not quite clear from its summary table how many of them were identified, since the category 'number of papers' did not outline the proportion of quantitative studies potentially included. We refined this category by including information on the number of qualitative studies in the total amount of original studies considered in the synthesis. About 20 per cent of the syntheses in our update were mixed. We expect this number to increase. It would be worthwhile to evaluate a potential change in the time trend in future updates of this review.

## Conclusion

The number of researchers engaged in the further development of methods for QES is rapidly increasing. The time trend shows that the interest in QES has certainly grown since the publication of the first review from Dixon-Woods and colleagues (2007). This is not surprising since QES enable reviewers to answer different kinds of questions, refine conclusions and act as a scoping exercise for conventional systematic reviews. Our review revealed some shifts in the characteristics from published QES, particularly those related to searching and critical appraisal. These processes have become much more transparent and repeatable. The synthesis part, however, would benefit from clear instructions on the basic methodological and philosophical underpinnings on the approach as well as on the purpose it serves, to prevent authors from choosing the wrong approach or having to modify an approach to fit their particular goals. We are not convinced that additional methods need to be developed at this point in time. The research community would benefit more from specific guidance from those who have developed a particular method. Pitfalls and suggestions for improvement will probably surface best by putting the methods in practice as intended. These particular issues also draw attention to the importance of guidelines on how particular methods for QES should be reported.

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