

Challenges in conducting systematic reviews of qualitative research: Methods and analytical techniques

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Aim

- To explore challenges in using qualitative synthesis methods
- To examine whether common ground and conceptual links exist across different qualitative synthesis methods

Background

- Use of qualitative synthesis (QS) increasing
- QS adds value to the evidence base and to systematic review findings
- Qualitative studies can:
depict the non-linear impacts of different influences on the patient, such as fear, expectations, distaste of possible side-effects; and factors such as uncertainty, risks and benefits of treatment (Cox 2001, p.865)

Background

- Syntheses of studies of healthcare consumer's views, preferences and experiences provide valuable information on:
 - acceptability of interventions
 - patient preferences
 - barriers and facilitators

Examples of QS

- To describe the experiences of adolescents who underwent organ transplantation (Tong et al., 2009)
- To identify key social, contextual and physical concerns held by patients, carers and HCPs when using morphine (Flemming, 2010)
- To synthesise views of older people on the barriers and facilitators to falls prevention interventions (McInnes & Wimpenny, 2008; McInnes et al - in press)

Examples of QS aims

- To understand the perceived meanings of medicines from the patient point of view and how these affect medicine-taking behaviour (Britten N et al. 2002)
- To understand the experiences and perceptions of treatment of people with, or at risk of, tuberculosis (Noyes and Popay 2007)
- To examine the influences on patients, and their partners treatment decision-making for prostate cancer; to identify and understand barriers and facilitators which impact on this process (Schumm et al. 2010)

Cochrane reviews & QS

- Informing reviews
- Enhancing reviews
- Extending reviews
- Supplementing reviews

Noyes et al. *Chapter 20: Qualitative research and Cochrane reviews in Cochrane Handbook for Systematic Reviews of Interventions (2010)*

Many qualitative synthesis methods...

Qualitative meta-synthesis

Narrative synthesis

Interpretive synthesis

Meta-synthesis

Meta-narrative

Realist synthesis

Qualitative synthesis

Bayesian synthesis

Meta-ethnography

Thematic synthesis

Critical interpretive synthesis

Qualitative synthesis methods

'...enlarging the interpretative possibilities of findings and constructing larger narrative or general theories'

Sandelowski et al., 1997



Characteristics of QS methods

- Interpretive rather than aggregative analysis
- Primary data – qualitative and quantitative ‘views’ studies
- Themes/metaphors derived from findings of included studies
- Narrative descriptive summary or analytical reconceptualisation of study findings

Analysis steps

Identify themes and code findings



Compare themes across papers



Determine how studies are related



Creation of new understandings



Synthesise themes



Synthesis model

Definition of first-, second- and third-order constructs

(adapted from Britten et al., 2002)

- **First order:** Direct feedback from study participants – generally obtained from the results sections of the contributing primary studies
- **Second order:** Key findings of primary researchers – obtained from results and discussion sections of contributing primary studies
- **Third order:** Interpretations of findings across studies by reviewer(s) based on first- and second-order constructs – obtained from process of synthesis

Synthesis outputs

- Models of evidence relating to patient views, preferences and experiences
- Conceptual models/diagrammatic representations
- Practical recommendations for healthcare professionals and patients
- Theory development

QS outputs

- A synthesised account is based on the reviewer's own interpretations of the primary researchers' findings
- QS may extend the research findings to answer questions not conceptualised in the original studies
- Rather than producing definitive findings, QS methods may provide another reading of the data or an opportunity to reflect on the data in new ways
- May enable revision of existing theories on patient needs and responses to treatments and illnesses or generation of new theories and ideas

Qualitative synthesis methods

- Meta-ethnography

Noblit & Hare, 1988

- Thematic synthesis

Thomas and Harden, 2004

- Critical interpretive synthesis

Dixon-Woods et al., 2006

Meta-ethnography

- Originally developed for the purposes of comparative textual analysis and synthesis of published ethnographies or 'interpretive studies' (Noblit and Hare 1988, p.9)
- Similarities to grounded theory, for example, in use of the constant comparison technique
- Focus of many meta-ethnographies are people's experiences of care, services or treatment

Meta-ethnography

Studies can be combined in 3 ways:

1. One study is presented and compared in terms of another: that is, they are directly comparable (*reciprocal analysis*)
2. Studies can be set against one another so that 'the grounds for one study's refutation of another become visible' (*refutational analysis*)
3. Studies are tied to one another by noting how one study informs and goes beyond another (*line of argument*)

Meta-ethnography: example

- Aim: *to analyse and describe the views and experiences of older people with respect to falls risk and need for falls prevention intervention*
- Rationale: *to understand the factors that may facilitate or impede acceptance of risk status and need for intervention*

(McInnes et al. 2011 *in press*)

Meta-ethnography: example

Review methods:

- *Assessment of quality*
- *Themes and concepts extracted comparing similarities and differences across the retrieved studies*
- *A line of argument developed to produce explanatory framework based on extracted themes and concepts.*

Meta-ethnography: example

Results:

- *Six key concepts identified from 11 papers:*
beyond personal control
rationalising
salience
life-change and identity
taking control and self-management.
- *A line of argument synthesis describes how older people approach self-appraisal of falls risk and need for intervention, and their coping and adaptation strategies.*

Meta-ethnography: example

Conclusion: *The perceived associations of elevated risk status with frailty and loss of independence, means that older people may prefer to adapt to risk by 'taking control' and implementing self-management strategies in preference to formal falls prevention strategies*

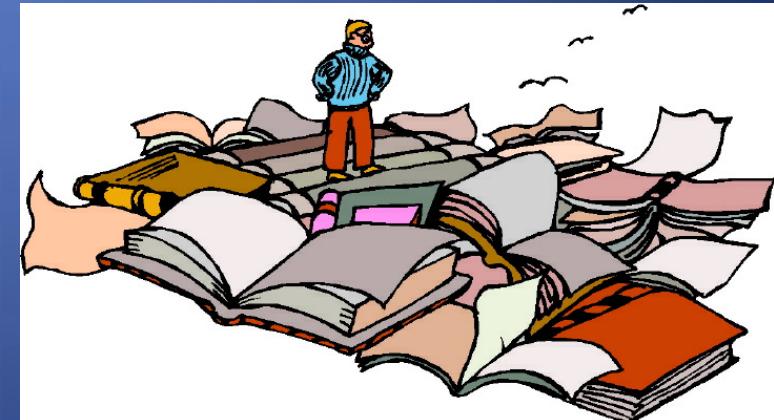
HCPs should negotiate choices for intervention, recognizing that some individuals prefer to drive the decision-making process and make choices that conflict with the evidence in order to preserve identity as a competent and independent person

Critical interpretive synthesis

- Critical Interpretive Synthesis (CIS) is a method for synthesising diverse bodies of literature
- Adapted from meta-ethnography - a method for synthesising qualitative research
- CIS has mainly been used to address broad research areas eg access to healthcare by vulnerable adults (Dixon-Woods et al 2006)

CIS: analysis techniques

- Generates theory from diverse literature
- Deconstructs body of literature
- Understand each article in relation to itself
- Translation of studies into one another
- Compare translations: reciprocal & refutational
- Generation of synthetic constructs
- Final output: synthesising argument



CIS: example

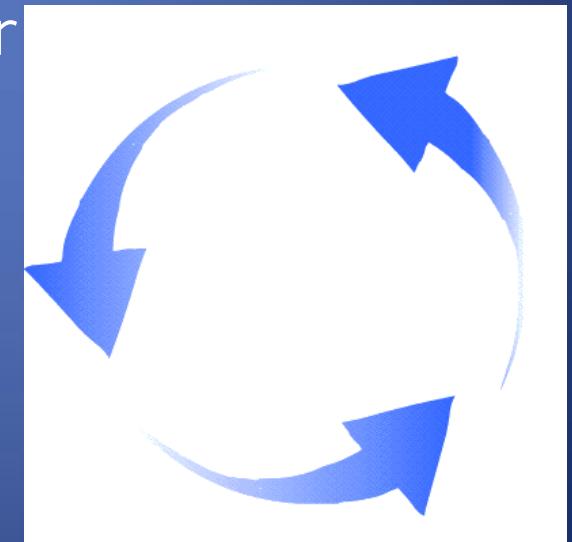
- **Aim:** To identify the key social, contextual, and physical concerns held by patients, carers, and health care professionals when using morphine for cancer pain
- **Rationale:** Despite its established effectiveness, morphine it is often used cautiously in clinical practice, particularly outside specialist palliative care.

(Flemming, 2010)

CIS: example

Review methods:

- Quality assessment undertaken
- Understand the article in relation to itself
- Translate studies into one another
- Synthesize translations
- Express the synthesis - synthesising argument



CIS: example

Results:

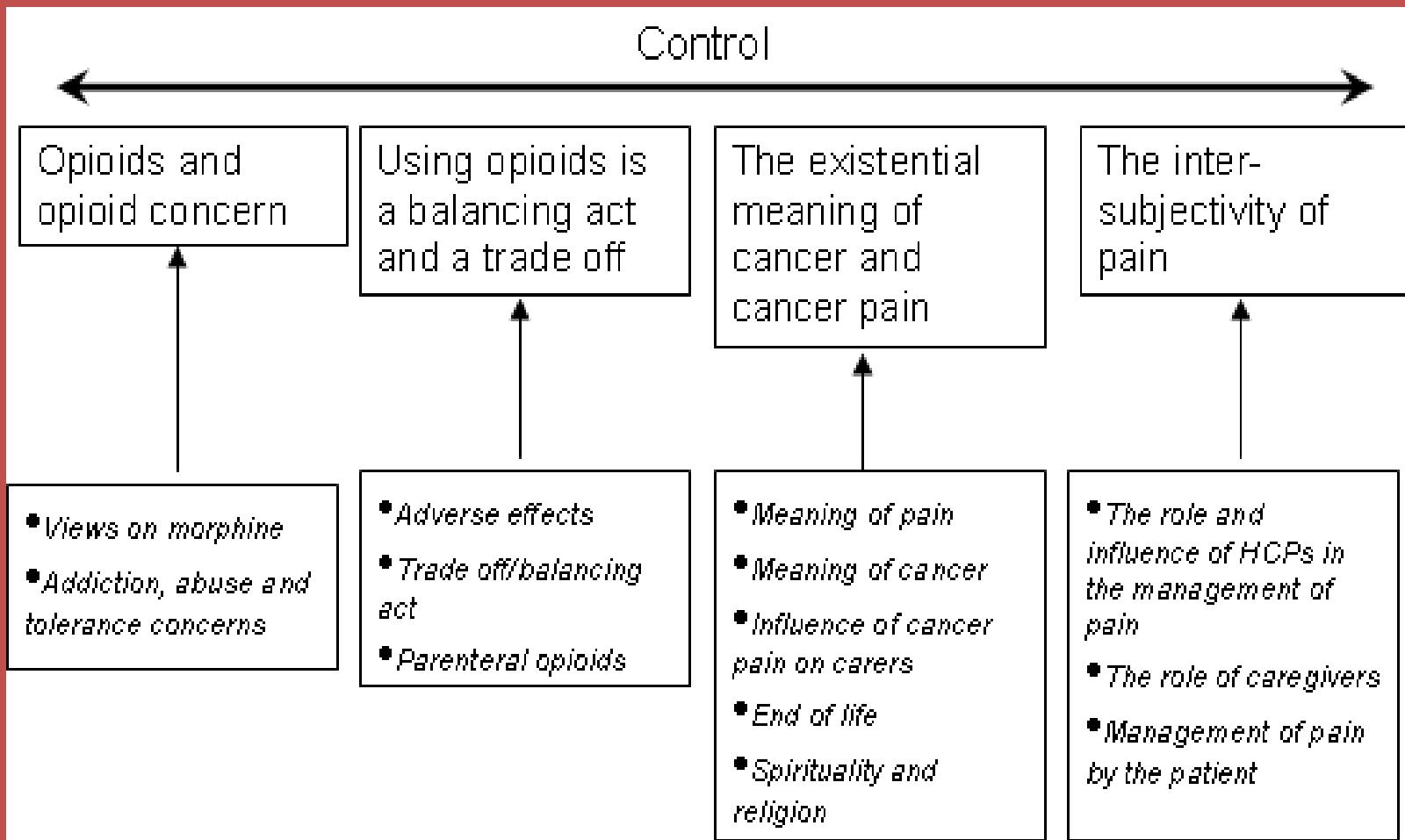
- From 19 papers, 4 synthesizing arguments were developed from the synthetic constructs and the coding arising from the processes of RTA:
 - Concerns about opioids
 - Using opioids is a balancing act and a trade off
 - The existential meaning of cancer and cancer pain
 - The inter-subjectivity of pain

CIS: example

Synthesis:

- Synthetic construct of 'control' was presented as an over-arching part of the synthesis
- The essence of 'control' was that patients can perceive cancer pain to be enormous, exceeding all sense of control
- Achieving pain control was essential to patients' sense of self-control

CIS: example of output



Thematic synthesis

- Draws on other established methods
- Uses techniques commonly described as 'thematic analysis'
- Aims to achieve analytical abstraction in addition to identifying and developing themes

Thematic synthesis: analysis techniques

- Coding of findings of included studies
- Development of descriptive & analytical concepts
- Comparison of concepts across studies
- Development of descriptive and analytical themes

Thematic synthesis: example

- **Objective:** To describe the experiences of adolescents who underwent organ transplantation
- **Rationale:** To understand the needs of this group of patients to plan services and assist with decision-making

(Tong et al., 2009)

Thematic synthesis: example

Review methods:

- Assessed comprehensiveness of reporting
- Thematic synthesis involved
 - i) line by line coding of the findings of the primary studies
 - ii) examined for similarities and differences
 - iii) development of descriptive and analytical themes
 - iv) grouped into a model structure of themes

Thematic synthesis: example

Results: Five major themes from 18 articles:

- 1) Redefining identity (*seeking normality, anxiety and disappointment, adopting a positive attitude, desiring independence*)
- 2) Family functioning (*parental overprotection, sibling support*)
- 3) Social adjustment (*support networks, peer rejection, maintaining schoolwork, participation in physical activities*)
- 4) Managing medical demands (*assuming responsibility, dependence on caregivers, disruption to lifestyle, vigilant adherence, pain and discomfort*)
- 5) Attitude toward the donor (*obligation of gratitude, strengthened relationship, concerns about risks to donor*)

Thematic synthesis: example

Conclusions:

A multifaceted response is needed to equip adolescent transplant recipients with skills and capacities to help them achieve a sense of normality, cope with fear of death and organ rejection, gain acceptance among their peers, build confidence in learning, and resolve relationship tensions with the living donor.

QS: Similarities & differences

Analysis stages	Meta-ethnography	Thematic analysis	CIS
Review question	May be refined	A priori	May be refined
Deconstructs literature	-	-	√
Methodology iterative	√	√	√
Accommodate diverse study designs	√	√	√
Translation process	√	√	√
Refutational/reciprocal analysis	√	√	√
Reviewer generated concepts	√	√	√
Synthesis	√	√	√

Challenges

- Lack of clarity about the purpose and operationalisation of some analytical techniques reported in the literature, eg:
 - concept/theme derivation
 - determining relationships between studies
 - ‘translation’ of studies
 - reciprocal and refutational analysis

Descriptors of analysis techniques

Stage	Meta-ethnography	CIS	Thematic analysis
Analysis techniques	Determine how findings relate to each other	Translating studies into one another	Development of descriptive & analytical themes
	Translating studies into one another – reciprocal and refutational	Synthesising translations (reciprocal and refutational)	Translation of concepts
Analytical concepts	Third-order construct	Synthetic constructs	Analytical themes
Synthesis	Line of argument (linking third order constructs)	Synthesising argument (network of synthetic constructs)	Analytical framework

Other analysis challenges

- Whose voice is represented?
- Differing levels of abstractness and concreteness in primary studies
- Narrative description vs analytical summaries
- Including diverse study designs
- Cultural and contextual differences minimised



Core set of techniques?

- Proliferation of methods addressing similar aims using similar methods
- Need to increase transparency of methods
- Demystify methodological language for end-users
- Develop a core set of techniques?

Conclusion

- Basic similarities in approach – profusion of labels describing the same techniques with minimal differences in operationalisation
- Methodological language can obscure similarities between some qualitative synthesis methods
- Establishing a core set of procedures using a common language may help provide an ‘auditable framework’

Conclusion

- Need to harness collective efforts to improve and develop similar qualitative synthesis methods
- Further exploration needed through empirical work on:
 - similarities/differences; strengths/weaknesses of QS methods
 - QS outputs most useful to health professionals
 - linking the findings of QS to systematic reviews
 - criteria for evaluating the rigour of a qualitative synthesis

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