Thematic synthesis

Prof Angela Harden (a) and Prof James Thomas (b)

(a) Professor of Health Sciences, School of Health Sciences, City, University of London angela.harden@city.ac.uk

(b) Professor of Social Policy and Research, Social Research Institute, University College London james.thomas@ucl.ac.uk

Trusted evidence.
Informed decisions.
Better health.
Overview of whole program

1-2 pm 28th October, 2021
Introduction to qualitative research and qualitative evidence synthesis
Jane Noyes, Professor in Health and Social Services Research

15th November, 2021
Question formulation and searching for qualitative evidence
Dr Andrew Booth, Reader in Evidence Based Information Practice

13th December, 2021, 14:00 UTC [Check the time in your local timezone]
Selecting studies and assessing methodological limitations
Jane Noyes, Professor in Health and Social Services Research

20th January, 2022
Making Sense of Framework and Best Fit Framework Synthesis
Dr Andrew Booth, Reader in Evidence Based Information Practice & Director of Information, University of Sheffield, UK.

Thematic Synthesis – Thursday 24th February 2022 at 09:00 am - Angela Harden and James Thomas

Meta-ethnography – Thursday 17th March 2022 at 14:00 pm - Kate Flemming

GRADE CERQual – Monday 25th April 2022 at 14:00 pm - Megan Wainwright

Integrating qualitative and quantitative syntheses – Monday 16th May 2022 at 14:00 pm - Angela Harden and James Thomas
Conflict of Interest Statement

We have no actual or potential conflicts of interest in relation to this presentation
Angela Harden and James Thomas
Workshop outline

• How thematic synthesis has been used (5 mins)
• Overview of thematic synthesis and its key features (10 mins)
• Q&A session (5 mins)
• Steps in thematic synthesis: a worked example (15 mins)
• Assessing synthesis robustness (5 mins)
• Planning a thematic synthesis (software, team composition and roles) (5 mins)
• Q&A session (15 mins)
How thematic synthesis has been used
Proportion of thematic syntheses according to review objective
Overview of thematic synthesis and its key features
Research article

Methods for the thematic synthesis of qualitative research in systematic reviews
James Thomas*† and Angela Harden†

Address: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London, UK
Email: James Thomas* - j.thomas@ioe.ac.uk; Angela Harden - a.harden@ioe.ac.uk
* Corresponding author †Equal contributor

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Background: There is a growing recognition of the value of synthesising qualitative research in the evidence base in order to facilitate effective and appropriate health care. In response to this, methods for undertaking these syntheses are currently being developed. Thematic analysis is a method that is often used to analyse data in primary qualitative research. This paper reports on the use of this type of analysis in systematic reviews to bring together and integrate the findings of multiple qualitative studies.

Methods: We describe thematic synthesis, outline several steps for its conduct and illustrate the process and outcome of this approach using a completed review of health promotion research. Thematic synthesis has three stages: the coding of text 'line-by-line'; the development of 'descriptive themes'; and the generation of 'analytical theme'. While the development of
What is thematic synthesis?

A method that can be employed within a systematic review to synthesise findings of multiple qualitative studies.

Synthesis as configuration of findings across studies – offers a meaningful picture of what the research is telling us in relation to the review question.

(Gough D; Thomas J; Oliver S (2012) Clarifying differences between review designs and methods. Systematic Reviews. 1(28))
Thematic analysis in primary research

“A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set.” (p89)

“Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data. It minimally organises and describes your data set in (rich) detail. However, it also often goes further than this, and interprets various aspects of the research topic” (p83)

Key contributions of thematic synthesis

Offers a FORMAL method for moving from the text on the page through to synthesis

In line with expectations of systematic reviews, gives reviewers an ‘audit trail’ of decisions and interpretations throughout the process

Enables authors / readers to trace conclusions directly back into the text on which the synthesis is based

Can be used in conjunction with other qualitative evidence syntheses (QES)
Three main stages of thematic synthesis

1. Coding findings
   - Open coding (‘line by line’)
   - Coding study 1 findings; coding study 2 findings; coding study 3 findings etc (coding moves into theme building from study 2 onwards)
   - Axial coding to capture study context

2. Descriptive themes
   - Stay ‘close’ to the text of the primary studies, and seek to summarise them in their own terms – not ‘going beyond’ what they say

3. Analytical themes
   - Interpret the descriptive themes in the light of the review question(s)
A key feature of thematic synthesis

The ‘line-by-line’ coding of text

- This is a key analytical, cognitive, and communication process
- Best done in pairs or a small team
- Requires team members to be explicit about their understandings and interpretations of the text
- Helps ensure consistency of interpretation across studies
- It is an important discipline, in that it encourages review authors to consider the meaning of ALL findings, rather than those that align with pre-conceived ideas
“Goodness of fit” of the approach within systematic reviews

Provides an ‘audit trail’ of reviewer decisions from the text describing included studies through to review findings

It’s an extremely flexible approach with wide applicability:

- Can be used *within* other synthesis methods to connect study reports with subsequently developed themes, theories and conceptual frameworks
- Can be used as a ‘stand-alone’ tool to support the whole synthesis
- Can be used within a ‘grounded theory’ approach, where all theory is generated from the source documents
- Can also be used within e.g. a framework synthesis, where at least some elements of the review’s conceptual framework are known at the start

Can ‘go beyond’ the content of individual studies and generate new theory (but doesn’t have to)
## Relationship to other QES methods

<table>
<thead>
<tr>
<th></th>
<th><strong>Pros</strong></th>
<th><strong>Cons</strong></th>
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<tbody>
<tr>
<td><strong>Framework Synthesis</strong></td>
<td>Benefits from the use of pre-existing theory. Possibly easier to use with novice teams and/or with short review timescales. Works well when there is agreement on the nature of interventions and desired impacts.</td>
<td>Challenging to identify, select and justify choice of framework. Framework may be seen as inappropriate only once extraction/synthesis is under way. May force data into framework.</td>
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<tr>
<td><strong>Thematic Synthesis</strong></td>
<td>Accessible approach to handle ‘thin’ data (descriptive themes) and ‘thicker’ (in-depth analytic themes). Stages provide an audit trail. Synthesis can be structured to answer review questions directly.</td>
<td>Can be very time-consuming and demanding with large numbers of studies. Moving from descriptive to analytical themes is not always an easy process and requires a high level of analytical skill.</td>
</tr>
<tr>
<td><strong>Meta-ethnography</strong></td>
<td>Primarily interpretive synthesis method leading to creation of descriptive as well as new high-order constructs. Descriptive and theoretical findings can help inform guideline development. Requires primary studies to have ‘thick’/rich data.</td>
<td>Complex requiring highly experienced team. Takes time and resources. Theoretical findings combine empirical evidence, expert opinion and conjecture for hypotheses. May not offer audit trail (eMERGe guidelines may help). Work needed on how higher level findings translate into actionable points.</td>
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</tbody>
</table>

Q&A session
Stages in thematic synthesis: worked examples
Three reviews using thematic synthesis

Older people’s experiences of everyday travel in the urban environment: a thematic synthesis of qualitative studies in the United Kingdom

Hilary Graham1, Sian de Bell2, Kate Flemming3, Amanda Sweden3, Piran White3 and Kath Wright4

1Department of Health Sciences, University of York, York, UK; 2Centre for Reviews and Dissemination, University of York, York, UK; 3Department of Environment, University of York, York, UK and 4Centre for Reviews and Dissemination, University of York, York, UK.

(Accepted 19 September 2018; first published online 25 October 2018)

Abstract
Compared to younger age groups, older people spend more time in their locality and rely more heavily on its pedestrian and public transport infrastructure. Qualitative studies provide unique insight into people's experiences. We conducted a qualitative evidence synthesis of United Kingdom-based studies of older people's experiences of travelling in the urban environment. We searched health, social science, age-related and transport-related databases from 1998 to 2017. Fourteen papers (from 12 studies) were included in a thematic synthesis, a three-staged process that moves iteratively between codes, descriptive themes and cross-cutting analytical themes. Emerging themes were discussed with policy advisors. Four overarching themes were identified: the first and second theme pointed to perspectives and experiences; the third and fourth to intervention perspectives and experiences/acceptability.
<table>
<thead>
<tr>
<th>Study Authors</th>
<th>Objective</th>
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<tbody>
<tr>
<td>Graham <em>et al.</em> (2020)</td>
<td>To synthesise evidence from qualitative studies of older people’s experiences of everyday travel in the urban environment</td>
</tr>
<tr>
<td>Dennison <em>et al.</em> (2019)</td>
<td>To synthesize the literature regarding the views and experiences of women with a history of gestational diabetes on postpartum glucose testing, focusing on barriers and facilitators to attendance</td>
</tr>
<tr>
<td>Campbell <em>et al.</em> (2016)</td>
<td>To identify explanations and possible mechanisms for the impacts of welfare to work on the health and wellbeing of lone parents</td>
</tr>
</tbody>
</table>
## Review methods prior to synthesis

<table>
<thead>
<tr>
<th></th>
<th><em>Graham et al. (2020)</em></th>
<th><em>Dennison et al. (2019)</em></th>
<th><em>Campbell et al. (2016)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Older people and transport</td>
<td>Screening for diabetes after pregnancy</td>
<td>Lone parents and welfare to work</td>
</tr>
<tr>
<td>Stakeholder involvement</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Explicit inclusion and exclusion criteria</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Systematic searching and screening</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Number of included studies</td>
<td>12</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Quality assessment</td>
<td>YES (Hawker et al/tool)</td>
<td>YES (CASP tool)</td>
<td>YES (CASP tool)</td>
</tr>
</tbody>
</table>
# Data extraction and use of software

<table>
<thead>
<tr>
<th>Study findings</th>
<th>Evidence tables prepared on study characteristics</th>
<th><strong>Graham et al. (2018)</strong> Older people and transport</th>
<th><strong>Dennison et al. (2019)</strong> Screening for diabetes after pregnancy</th>
<th><strong>Campbell et al. (2016)</strong> Lone parents and welfare to work</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant accounts together with author interpretations included as study findings</strong></td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td><strong>“Text and tables labelled as ‘Results’ (or equivalent) that resulted from qualitative methods were used as data” (p31)</strong></td>
<td><strong>“The full text of included studies was imported into NVivo software” (p3)</strong></td>
<td></td>
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<tr>
<td><strong>Study findings considered from ‘findings’ and ‘discussion’ sections</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Software</th>
<th>NVivo</th>
<th>NVivo</th>
<th>NVivo</th>
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</thead>
</table>

Cochrane Methods
Qualitative and Implementation
Stage one: coding

Open ‘line by line’ coding carried out across the data set

Usually done independently by two or more reviewers first, codes then discussed with other members of the team and a coding frame agreed upon.

Coding frame subsequently applied to the findings of all included studies.

Example 1

“At least one code was given to all statements relating to travel and/or the local environment; statements often had multiple codes. The preliminary codes were discussed and refined by the review team (SdB, KF, HG). The final set comprised 151 codes, all of which related to older people’s views and experiences; example codes included ‘bus travel gives a sense of belonging to society’ and ‘unwilling to rely on social network for help’.”

(Graham et al. 2020: 846)
Stage one: coding

Open ‘line by line’ coding carried out across the data set

Usually done independently by two or more reviewers first, codes then discussed with other members of the team and a coding frame agreed upon.

Coding frame subsequently applied to the findings of all included studies.

Example 2

“Each reviewer (MC, MG, HT) independently assessed three included papers then discussed initial thoughts on broad descriptive coding themes. Line-by-line coding by MC on the findings and discussion sections of six papers identified 30 codes….. These were then used by MC to conduct line-by-line coding of the remaining included papers. The reviewers met regularly to discuss and agree coding as it developed” (Campbell et al. 2016:3)
as a legitimate use of their money and thought parents should buy this.
*Children did not identify friends as an influence on their healthy eating

Children were well aware of the pressures on them (to be healthy) and of the contradictions in their own behaviour, and knew that they did not always act on what they knew to be healthy: 'When they (the Apples project) come round, you think right, I’m going to get healthy now, but when you get home, you get something out of the fridge or something' (Boys, Year 6); 'At home I just nip into the biscuit tin' (Boys, Year 5) p.74 - e.g. temptation 'All the things that are bad for you are nice, and all the things that are good for you are awful' (Boys, year 6) p.74 Problems with school dinners - 'But once you go down for the school dinners it's a different story, because you've got all your fattening foods' (Boys, Year 6) p.74 Some children reported throwing away foods they knew had been put in because they were 'good for you' and only ate the crisps and chocolate. Influence of advertising - reported keenness to emulate footballer Alan Shearer by eating at McDonald's 'My brother says we have to go to there because Alan Shearer has been there.' (Girls, year 5) 'People thing I want to be like Alan Shearer so I better go to McDonalds.' (Boys, year 6) Children said that adverts made them feel hungry and were particularly
Stage two: descriptive themes

- Related codes grouped together and labelled to form descriptive themes.
- Summaries of each theme written, discussed and refined.

Example 1
“...groups of related codes were identified, and combined into broader descriptive themes by the review team (SdB, KF, HG). The process involved repeated reference back to the papers from which they were derived, to ensure coherence and their grounding in the views and experiences of study participants. The descriptive themes related to older people’s experiences of different travel modes (e.g. bus, car) and their local environment, as well as to individual-level factors (self-identity, health and personal circumstances)” Graham et al (2020:846)
Example 2: Dennison et al. (2019) – relationship between codes, descriptive and analytical themes

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**Figure 1**: Example of the development of the analytical theme ‘Relationship with health care’ within the thematic synthesis. Not all codes were presented for simplicity. GDM, gestational diabetes.
Stage three: analytical themes

Descriptive themes grouped and developed further through using them to address the review questions/objectives.

Process of interpretation undertaken by the review team from which analytical themes are generated.

Example 1
“… The third stage of our synthesis involved identifying and mapping links between the descriptive themes (travel modes, local environment, individual-level factors) to generate analytical themes that, together, made sense of older people’s experiences of everyday travel. Themes were discussed and refined with the project’s policy advisers”. Graham et al (2020:846)
Analytical themes from Dennsion et al. (2019)

**Figure 3** Summary of the themes and subthemes of influences on attendance at postpartum glucose testing after gestational diabetes. GDM, gestational diabetes.
## Analytical themes

<table>
<thead>
<tr>
<th>Graham et al – older people and transport</th>
<th>Campell et al – welfare to work</th>
</tr>
</thead>
<tbody>
<tr>
<td>The importance of getting out</td>
<td><strong>Conflict and control</strong></td>
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<td>Being an independent traveller</td>
<td>(Descriptive themes:)</td>
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<td>The importance of the local environment</td>
<td>- Domestic role (parenting, childcare and social support)</td>
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<td>The importance of local transport systems</td>
<td>- Employment</td>
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<tr>
<td><strong>Intrinsic value of transport</strong></td>
<td>- Welfare to work system</td>
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<td></td>
<td>- Economic circumstances</td>
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<td></td>
<td>- Health and well being</td>
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</table>
Assessing synthesis robustness
Some critical questions to ask

Has the translation of findings between studies been consistent and coherent?

How reliable are the studies included in the synthesis? Should any issues about their quality affect the strength and credibility of the synthesis?

Do the results depend heavily on one or two studies, in the absence of which they would change significantly?

Which contexts can the results be applied to? Do the results vary according to context?

How well do the results answer the review question? What is the result and what does it mean?

## Contribution of studies to the synthesis

<table>
<thead>
<tr>
<th>No.</th>
<th>Study name*</th>
<th>Relevance of body size matters</th>
<th>Health consequences</th>
<th>Size matters later</th>
<th>Popularly/fitting in</th>
<th>Body size and judging people</th>
<th>Acceptable/ideal bodies</th>
<th>Blame/responsibility for fat</th>
<th>Stereotypes</th>
<th>Discrimination is normal</th>
<th>Body size and health</th>
<th>Diet &amp; exercise as influences</th>
<th>Other influences</th>
<th>Body comparisons</th>
<th>Assessing actual size</th>
<th>Adult control</th>
<th>Satisfaction</th>
<th>Size-related ridicule</th>
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<tbody>
<tr>
<td>1</td>
<td>Burrows et al. (1999)</td>
<td>√</td>
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<td>2</td>
<td>Cole et al. (2005)</td>
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<td>3</td>
<td>Dixey et al. (2001)</td>
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<td>Edmunds (2000)</td>
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<td>5</td>
<td>Girlguiding UK (2007)</td>
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<td>7</td>
<td>Kurtz and Thornes (2000)</td>
<td>√</td>
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<td>8</td>
<td>Ludvigsen and Sharma (2004)</td>
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<td>9</td>
<td>McKinlev et al. (2005)</td>
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</table>

### Table 2. Summary of findings and assessment of confidence in analytic themes using GRADE CERQual.

<table>
<thead>
<tr>
<th>Analytic Theme</th>
<th>Studies contributing to finding</th>
<th>Methodological limitations</th>
<th>Coherence</th>
<th>Adequacy</th>
<th>Relevance</th>
<th>CERQual rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>New beginnings: Becoming a parent is an opportunity for 'a fresh start', to put the past behind them and move forward with hope for the future to create a new life for themselves and their child</td>
<td>[45, 52–56, 59–61, 64, 65, 67, 68, 71, 73]</td>
<td>Very minor concerns about methodological limitations related to reflexivity. Removal of seven articles where consideration of researcher-participant relationship (reflexivity) was not reported did not change this finding.</td>
<td>No or very minor concerns about coherence across studies.</td>
<td>No or very minor concerns about data adequacy related to mothers with a history of Child sexual abuse (CSA) and/or other forms of child maltreatment (CM). Some or moderate concerns [few studies] for: fathers, and ethnic minority parents.</td>
<td>No or minor concerns about relevance related to mothers. Moderate concerns for: fathers, and ethnic minority parents.</td>
<td>High Confidence</td>
<td>These findings mainly come from a population of mothers from an ethnic majority with a history of CSA and/or other forms of CM. We are much less confident about these findings for fathers and ethnic minority parents.</td>
</tr>
<tr>
<td>Changing roles and identities: Becoming a parent is an opportunity for ‘a fresh start’, to put the past behind them and move forward with hope for the future to create a new life for themselves and their child</td>
<td>[45–49, 51–53, 55, 57–62, 64, 70, 73]</td>
<td>Very minor concerns about methodological limitations related to reflexivity. Removal of seven articles where consideration of researcher-participant relationship (reflexivity) was not reported did not change this finding.</td>
<td>Very minor concerns about coherence across studies.</td>
<td>No or very minor concerns about data adequacy related to mothers with a history of Child sexual abuse (CSA) and/or other forms of child maltreatment (CM). Some or moderate concerns [few studies] for: fathers, and ethnic minority parents.</td>
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</tr>
</tbody>
</table>

Planning a thematic synthesis

• Usual considerations as per any type of systematic review apply
  ➢ (e.g. public and stakeholder involvement, forming a review team, developing a protocol, setting up systems for information management etc)

• For thematic synthesis in particular:
  ➢ Team composition – skills and expertise in qualitative analysis as well as topic expertise
  ➢ Roles and responsibilities – coding, generating descriptive and analytical themes – balance between individual, paired and group tasks
  ➢ Analysis software – integrated with specialist reviewing software or stand alone qualitative data analysis software (e.g. NViVO)
Overview of whole program

1-2 pm 28th October, 2021
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15th November, 2021
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