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Twitter: @james_m_Thomas, @CochraneQual

Thematic synthesis

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

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Trusted evidence.
Informed decisions.
Better health.

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Overview of whole program

1-2 pm 28th October, 2021

Introduction to qualitative research and qualitative evi

Jane Noyes, Professor in Health and Social Services Res

Kate Flemming, Professor of Hospice Practice and Evider

15th November, 2021

Question formulation and searching for qualitative evi

Dr Andrew Booth, Reader in Evidence Based Information F

13th December, 2021, 14:00 UTC [Check the time in your

Selecting studies and assessing methodological limita

Jane Noyes, Professor in Health and Social Services Rese

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

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Conflict of Interest Statement

We have no actual or potential conflicts of interest in relation to this presentation

Angela Harden and James Thomas

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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)*

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How thematic synthesis has been used

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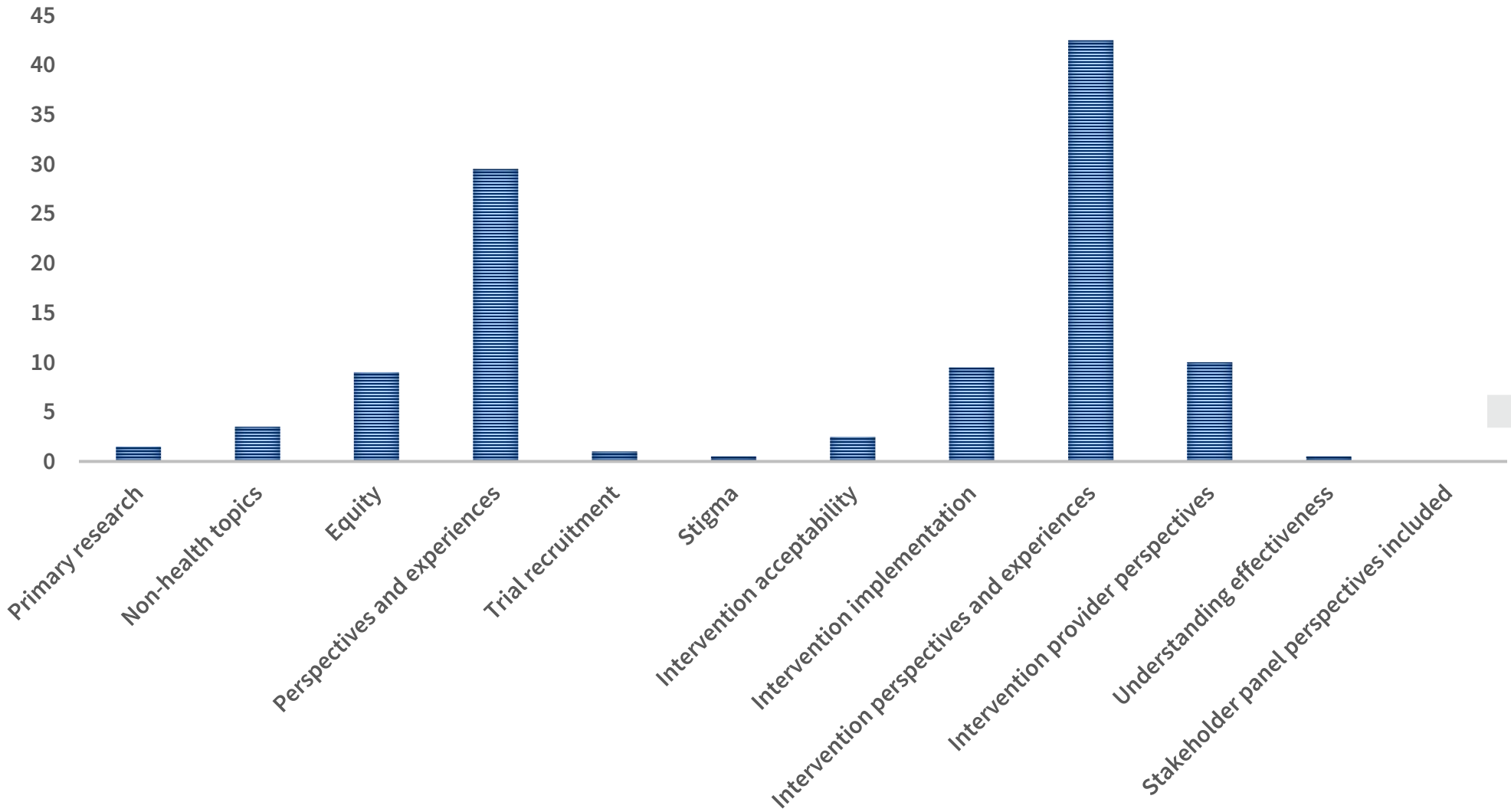
Proportion of thematic syntheses according to review objective



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Overview of thematic synthesis and its key features

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BMC Medical Research Methodology

BioMed Central

Research article

Open Access

Methods for the thematic synthesis of qualitative research in systematic reviews

James Thomas*† and Angela Harden†

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This article is available from: http://www.biomedcentral.com/1471-2288/8/45

Abstract

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 themes'. While the development of

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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))

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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)

(Braun V and Clarke V (2006) Using thematic analysis in psychology. Qualitative Research in Psychology, 3 (2):77-101)

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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)

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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)

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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

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"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)

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Relationship to other QES methods

	Pros	Cons
Framework Synthesis	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.	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.
Thematic Synthesis	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.	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.
Meta-ethnography	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.	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.

Table adapted from Flemming K, Booth A, Garside R, et al Qualitative evidence synthesis for complex interventions and guideline development: clarification of the purpose, designs and relevant methods *BMJ Global Health* 2019;4:e000882.

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Q&A session

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Stages in thematic synthesis: worked examples

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Three reviews using thematic synthesis

Ageing & Society (2020), **40**, 842–868
doi:10.1017/S0144686X18001381

ARTICLE

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

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[1]Department of Health Sciences, University of York, York, UK, [2]Centre for Reviews and Dissemination, University of York, York, UK, [3]Department of Environment, University of York, York, UK and [4]Centre for Reviews and Dissemination, University of York, York, UK
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(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 advisers. Four overarching themes were identified. The first and second theme pointed to

DIABETICMedicine

DOI: 10.1111/dme.14081

Systematic Review or Meta-analysis

Women's views on screening for Type 2 diabetes after gestational diabetes: a systematic review, qualitative synthesis and recommendations for in

R. A. Dennison[1], R. A. Fox[2], R. J. Ward[1], S. J. Griffin[1,3]

[1]Primary Care Unit, Department of Public Health and Primary Care, [2]School of Clinical Medicine and [3]MR
Cambridge, UK

Accepted 12 July 2019

Abstract

Aim Many women do not attend recommended glucose testing following a pr
(GDM). We aimed to synthesize the literature regarding the views and experienc
postpartum glucose testing, focusing on barriers and facilitators to attendance.

Methods We systematically identified qualitative studies that examine women's
glucose testing (diabetes screening) or experience of interventions to promote up
synthesis to develop descriptive and then analytical themes, then developed rec

Campbell *et al. BMC Public Health* (2016) 16:188
DOI 10.1186/s12889-016-2880-9

BMC Public Health

RESEARCH ARTICLE Open Access

Lone parents, health, wellbeing and welfare to work: a systematic review of qualitative studies

Mhairi Campbell*, Hilary Thomson, Candida Fenton and Marcia Gibson

Abstract

Background: Lone parents and their children experience higher than average levels of adverse health and social outcomes, much of which are explained by high rates of poverty. Many high income countries have attempted to address high poverty rates by introducing employment requirements for lone parents in receipt of welfare benefits. However, there is evidence that employment may not reduce poverty or improve the health of lone parents and

Perspectives and experiences

Intervention perspectives and experiences/acceptability

Intervention perspectives and experiences/acceptability

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Review questions/objectives

Graham *et al.* (2020)	To synthesise evidence from qualitative studies of older people's experiences of everyday travel in the urban environment
Dennison *et al.* (2019)	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
Campbell *et al.* (2016)	To identify explanations and possible mechanisms for the impacts of welfare to work on the health and wellbeing of lone parents

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Review methods prior to synthesis

	Graham et al. (2020) Older people and transport	*Dennison et al. (2019)* Screening for diabetes after pregnancy	*Campbell et al. (2016)* Lone parents and welfare to work
Stakeholder involvement	YES	NO	NO
Explicit inclusion and exclusion criteria	YES	YES	YES
Systematic searching and screening	YES	YES	YES
Number of included studies	12	16	16
Quality assessment	YES (Hawker *et al* tool)	YES (CASP tool)	YES (CASP tool)

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Data extraction and use of software

	Graham et al. (2018) Older people and transport	*Dennison et al. (2019)* Screening for diabetes after pregnancy	*Campbell et al. (2016)* Lone parents and welfare to work
Evidence tables prepared on study characteristics	YES	YES	YES
Study findings	Participant accounts together with author interpretations included as study findings	"Text and tables labelled as 'Results' (or equivalent) that resulted from qualitative methods were used as data" (p31)	"The full text of included studies was imported into NVivo software" (p3) Study findings considered from 'findings' and 'discussion' sections
Software	NViVO	NViVO	NViVO

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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)

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Stage one: coding

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

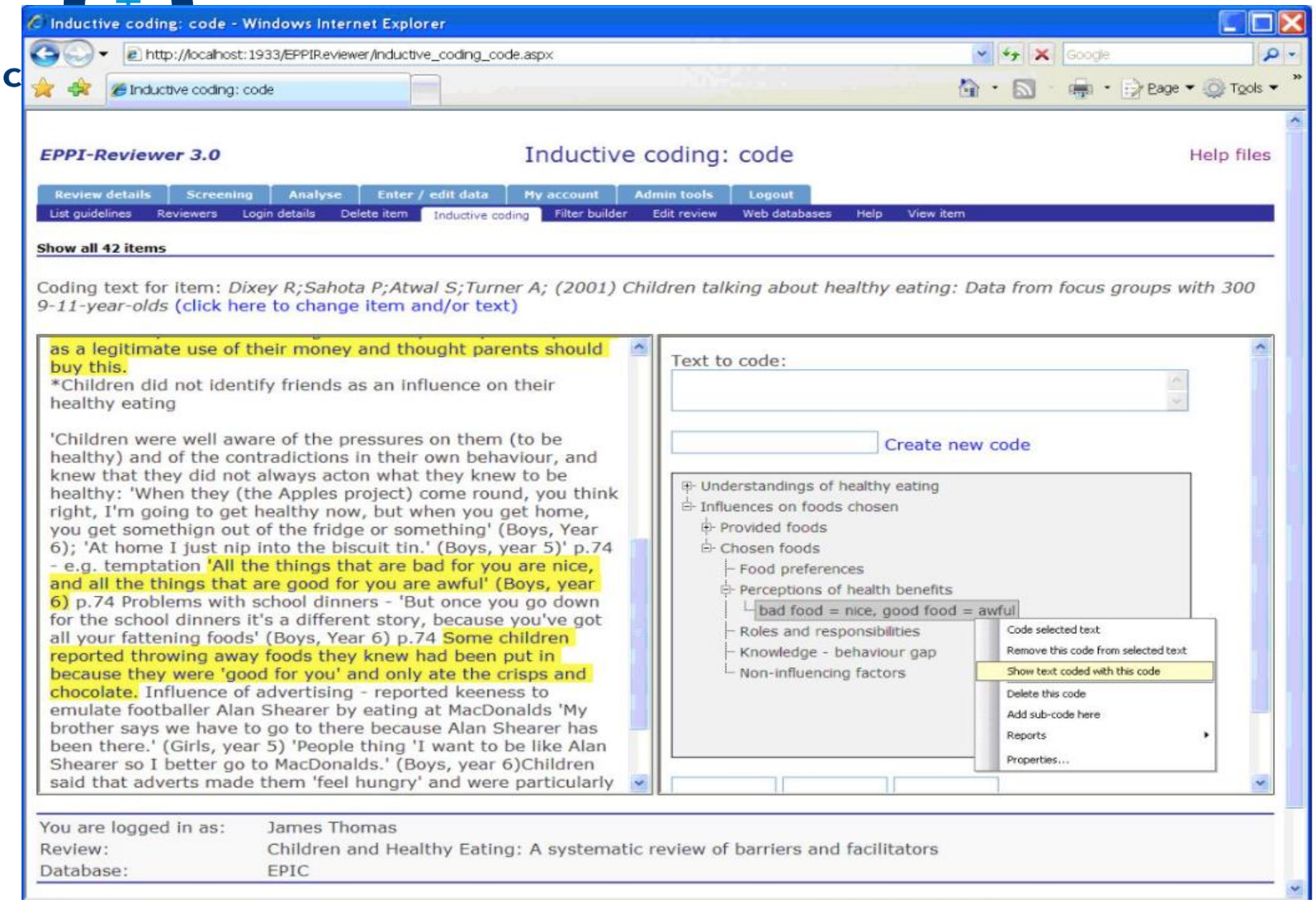
Usually done independently by two or more reviewers first, codes then discussed with other members of the team and a coding frame agreed upon.

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)

C


Inductive coding: code - Windows Internet Explorer
http://localhost:1933/EPPIReviewer/inductive_coding_code.aspx
Inductive coding: code
EPPI-Reviewer 3.0
Inductive coding: code
Help files
Review details
Screening
Analyse
Enter / edit data
My account
Admin tools
Logout
List guidelines
Reviewers
Login details
Delete item
Inductive coding
Filter builder
Edit review
Web databases
Help
View item
Show all 42 items
Coding text for item: Dixey R;Sahota P;Atwal S;Turner A; (2001) Children talking about healthy eating: Data from focus groups with 300 9-11-year-olds (click here to change item and/or text)
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 acton 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 somethign 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 keeness to emulate footballer Alan Shearer by eating at MacDonalds '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 MacDonalds.' (Boys, year 6)Children said that adverts made them 'feel hungry' and were particularly
Text to code:
Create new code
Understandings of healthy eating
Influences on foods chosen
Provided foods
Chosen foods
Food preferences
Perceptions of health benefits
bad food = nice, good food = awful
Roles and responsibilities
Knowledge - behaviour gap
Non-influencing factors
Code selected text
Remove this code from selected text
Show text coded with this code
Delete this code
Add sub-code here
Reports
Properties...
You are logged in as: James Thomas
Review: Children and Healthy Eating: A systematic review of barriers and facilitators
Database: EPIC

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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)***

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Example 2: Dennison et al. (2019) – relationship between codes, descriptive and analytical themes

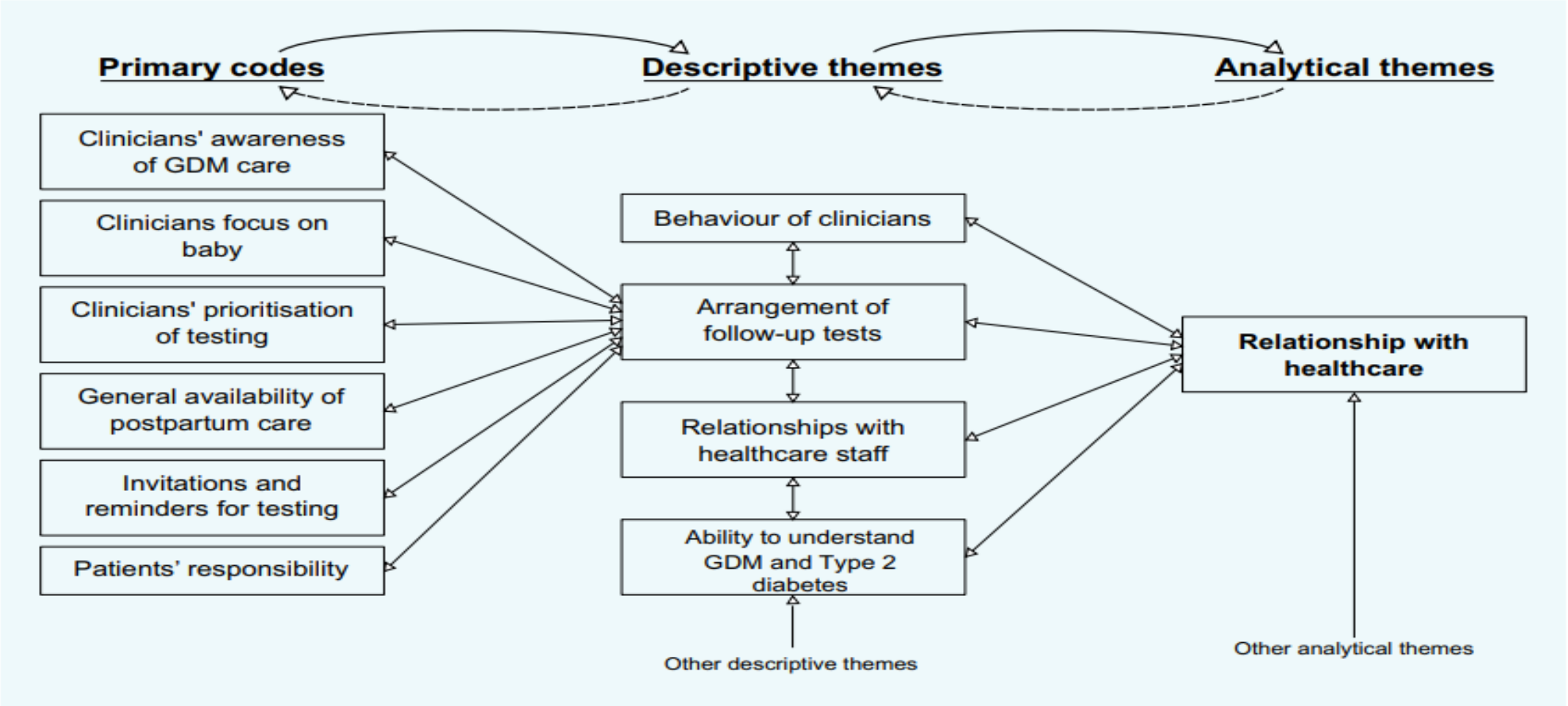

FIGURE 1 Example of the development of the analytical theme 'Relationship with health care' within the thematic synthesis. Not all codes were presented for simplicity. GDM, gestational diabetes.

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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)***

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Analytical themes from Dennsion et al. (2019)

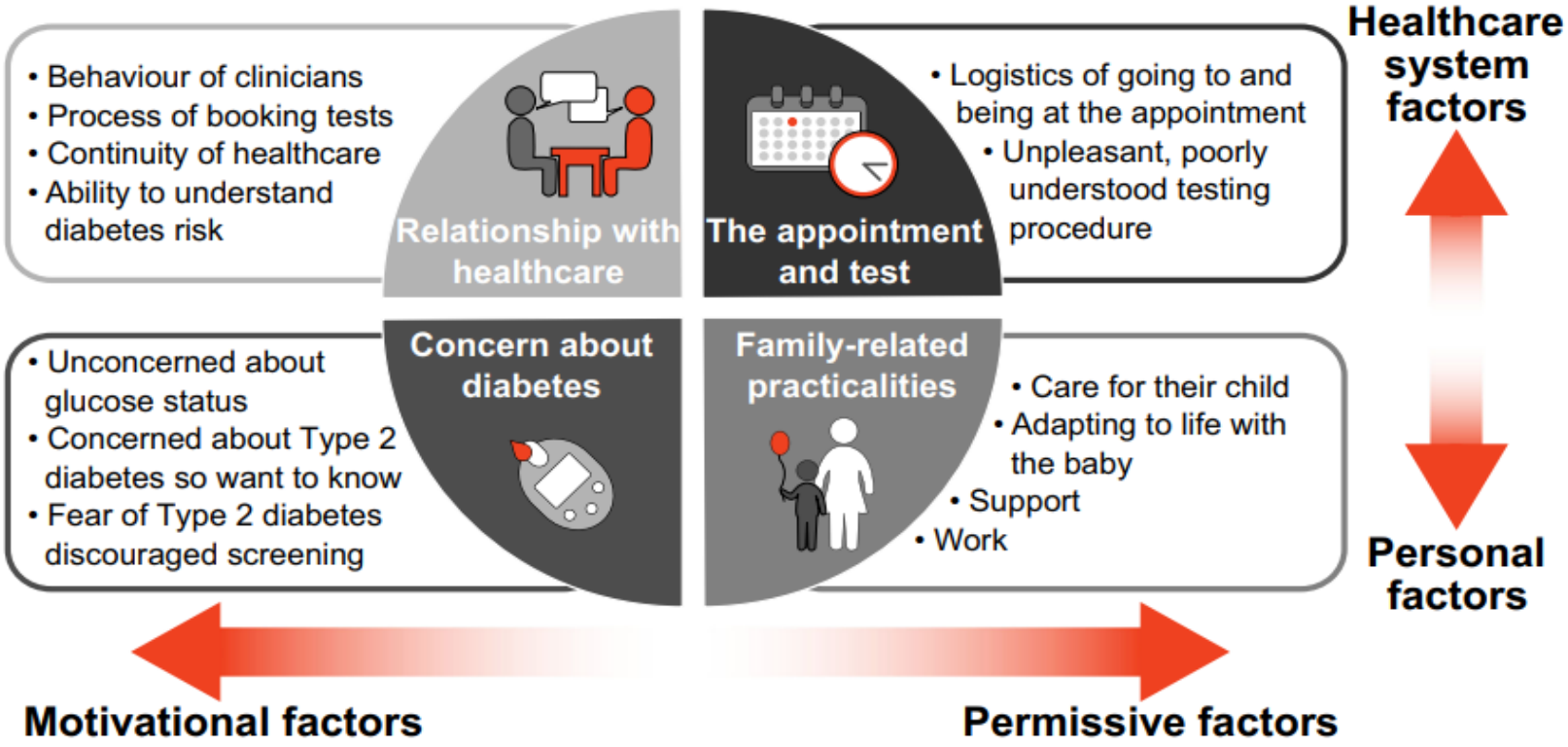

FIGURE 3 Summary of the themes and subthemes of influences on attendance at postpartum glucose testing after gestational diabetes. GDM, gestational diabetes.

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Analytical themes

Graham et al – older people and transport	*Campell et al – welfare to work*
The importance of getting out Being an independent traveller The importance of the local environment The importance of local transport systems *Intrinsic value of transport*	*Conflict and control* (Descriptive themes:) - Domestic role (parenting, childcare and social support) - Employment - Welfare to work system - Economic circumstances - Health and well being

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Assessing synthesis robustness

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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?

Thomas J, O'Mara-Eves A, Harden A, Newman M (2017) Synthesis methods for combining and configuring textual or mixed methods data. In D Gough, S Oliver J Thomas (Eds) *An Introduction to Systematic Reviews*. London: Sage. (p 202)

Contribution of studies to the synthesis

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No.	Study name*	Relevance of body size varies	Health consequences	Size matters later	Popularity/fitting in	Body size and judging people	Acceptable/ideal bodies	Blame/responsibility for fat	Stereotypes	Discrimination is normal	Body size and health	Diet & exercise as influences	Other influences	Body comparisons	Assessing actual size	Adult control	Satisfaction	Size- related ridicule
1	Burrows et al. (1999)		✓									✓						
2	Cole et al. (2005)						✓		✓					✓	✓	✓		
3	Dixey et al. (2001)		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓			✓
4	Edmunds (2000)	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
5	Girlguiding UK (2007)	✓			✓	✓	✓	✓	✓	✓				✓			✓	✓
6	Grogan and Richards (2002)						✓	✓		✓		✓						
7	Kurtz and Thornes (2000)	✓		✓														
8	Ludvigsen and Sharma (2004)				✓		✓		✓		✓		✓			✓		
9	McKinlev et al. (2005)						✓			✓		✓						

Source: Rees et al. (2009) Children's views about obesity, body size, shape and weight: a systematic review. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

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Thematic synthesis and GRADE CERQual

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

Analytic Theme	Studies contributing to finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual rating	Comments
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	[45, 52–56, 59–61, 64, 65, 67, 68, 71, 73]	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.	No or very minor concerns about coherence across studies.	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.	No or minor concerns about relevance related to mothers. Moderate concerns for: fathers, and ethnic minority parents.	**High Confidence**	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.
Changing roles and identities: Becoming a	[45–49, 51, 53–55, 57–62, 64,	Very minor concerns about methodological	Very minor concerns about	No or very minor concerns about data	No or very minor concerns about	**High confidence**	These findings mainly come from a

Source: Chamberlain C et al. (2019) Healing The Past By Nurturing The Future: A qualitative systematic review and meta-synthesis of pregnancy, birth and early postpartum experiences and views of parents with a history of childhood maltreatment. PLoS ONE 14(12): e0225441. https://doi.org/10.1371/journal.pone.0225441

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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)

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Overview of whole program

1-2 pm 28th October, 2021

Introduction to qualitative research and qualitative evi

Jane Noyes, Professor in Health and Social Services Res

Kate Flemming, Professor of Hospice Practice and Evider

15th November, 2021

Question formulation and searching for qualitative evi

Dr Andrew Booth, Reader in Evidence Based Information F

13th December, 2021, 14:00 UTC [Check the time in your

Selecting studies and assessing methodological limita

Jane Noyes, Professor in Health and Social Services Rese

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.

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Thank you!

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