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# Data extraction and synthesis

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# What now?

- Secondary thematic analysis
- Practical: Thematic analysis
- Discussion of practical
- Synthesising your data



# What now?

- You have extracted your data
- You may have coded your data against your framework (framework analysis)
- You may have only extracted relevant data (without using a framework) (the first stage of secondary thematic analysis)
- You may have coded some of your data but not others (“best fit” framework synthesis)
- **You now need to assign themes to those data without themes, i.e. Using secondary thematic analysis (data reduction, display, conclusion)**
- **How do you do it?**



# Generating new themes

- “Evidence does not speak for itself. It requires interpretation .... on the basis of our personal experience and a range of ideas that we use to make sense of our observations”
  - **Kelly M** et al. Evidence-based public health: A review of the experience of NICE developing public health guidance in England, *Social Science and Medicine*, **2010**; 71: 1056-62.



# Included papers

- **Reedy J et al.** Qualitative comparison of dietary choices and dietary supplement use among older adults with and without a history of colorectal cancer. *J Nutr Educ Behav* **2005**; 37:252–8.
- **George J et al.** Use of complementary and alternative medicines by patients with chronic obstructive pulmonary disease. *Medical Journal of Australia* **2004**; 181:248–51.
- **Oldham L et al.** Perceptions of dietary supplements among older women with diabetes. *The Diabetes Educator* **2004**; 30:658–64.
- **Handout 2**



# Developing new themes

1. “...and the things that you learn, read up on, and listen to [on the radio and TV] and that sort of stuff. And just deciding whether [dietary supplements are] good for you or not. Sometimes you hear something and decide right away that it isn't for you. Sometimes you hear something and you might decide to try it for a week or whatever. Trial and error, or common sense, or whatever works for you. I think that you basically know how you feel after you take them. (comparison group, woman, 55 years)”. **Reedy et al 2005**

## ***2. Media input***

## ***7. Other / New theme?***

- Interpret and reflect
- Create
- Revisit and revise
- Discuss
- Agree ...

***= Experience of taking agents***



## Developing new themes

2. “A few felt that they had been doing everything right (diet, physical activity, screening) before they were diagnosed, yet they still got cancer: ‘Well, I was kind of shocked that I had the mass. But then you never know about cancer. I had been eating broccoli and all of the things that they said would help you avoid cancer. And then it didn’t. But, of course, that happens, too. But it was a real shock because I thought I was eating right all along’. (colorectal cancer survivor, man, 82 years)” **Reedy et al 2005**

### **7. Other / New theme?**

- **Interpret and reflect**
- **Create**
- **Revisit and revise**
- **Discuss**
- **Agree ...**

**=Perceived ability to manage own health / self-efficacy?**



# Generating new themes: Practical

- Extracted data in **Handout 2**
- **20 minutes: Individual**
- **10 minutes: Pairs**
  
- Discussion of results and experiences





# Generating new themes: Practical

- **Feedback**
- **Interpretation**
- **Bias?**
  - Reviewers might have agendas too
  
- What is the result of the secondary thematic analysis?



# Synthesis

- Report the results of the new thematic framework
  - Narrative structured by theme
  
- Report each theme with reference to studies and data in order to:
  - Specify the evidence base for the theme
  - Illustrate the theme with reference to actual data
  
- Reduce the findings into a smaller number of categories and then a single finding (metasynthesis, according to the Joanna Briggs Institute approach):
  - **McInerney P & Brysiewicz P.** A systematic review of the experiences of caregivers in providing home-based care to persons with HIV/AIDS in Africa, JBI Library of Systematic Reviews, **2009** ;7(4):130-153:  
[http://www.jbiconnect.org/tools/services/pdf/training\\_mats/Module4/HIV%20AIDS%20Qual%20S%20R.pdf](http://www.jbiconnect.org/tools/services/pdf/training_mats/Module4/HIV%20AIDS%20Qual%20S%20R.pdf)



# Synthesis

## ***Results of meta-synthesis of qualitative research findings***

**Meta-synthesis:** If formal and informal support structures are available to caregivers providing home-based care to persons with HIV/AIDS in Africa, the challenges and burdens they face may be lessened. However, the stigma surrounding HIV/AIDS is powerful and can compound the burden of caregiving. (Figure 2).

A total of 29 findings were extracted from the included qualitative papers. The findings from each study and the illustration to support those findings are presented below:

### **Finding 1:** Beyond the call of duty

**Illustration 1:** *... if you have to bath or clean the person, you do that, when you have finished bathing the person, sometimes you notice that the person is alone and there is no one to care for the patient, there is no one to clean the house, to bath, to feed, or to give treatment, so you do all that. [C]*

### **Finding 2:** Burdens

**Illustration 2:** *The problems are many, due to poverty. As you know I am a single woman. I really struggle to get money. It is either borrowing from someone or selling something so that I can get money. I had a radio but I sold it. I also had some sheep but I sold them too to get money. And right now I no longer have something to sell. The maize that I had is finished ... and I have four orphans whom I also caring for. [U]*

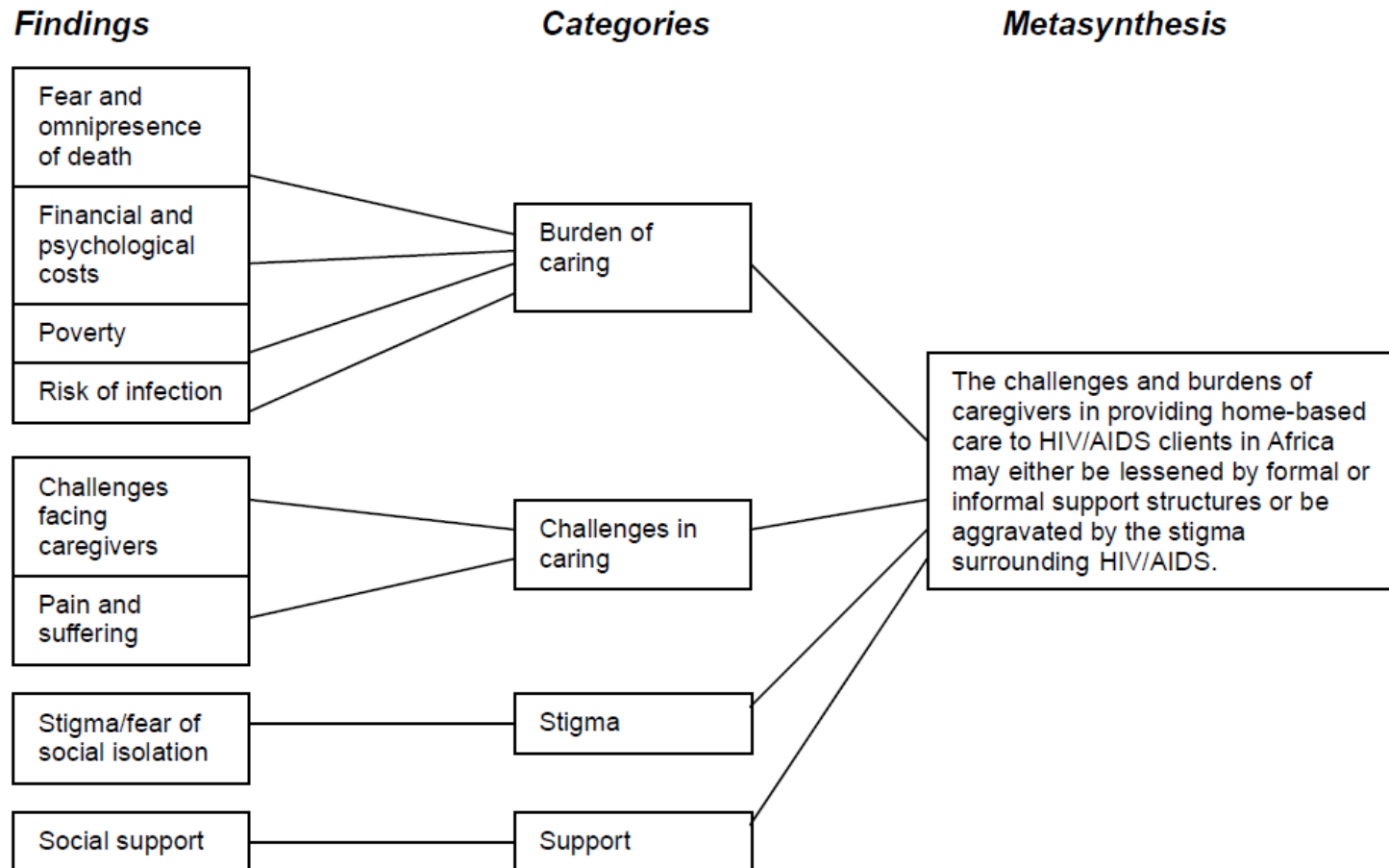
### **Finding 3:** Challenges created by poverty

**Illustration 3:** *As for now, we are taught about things [to prevent the spread of disease – gloves, bleach, linen savers], but we have no means to carry out the advice that is given. [U]*



# Synthesis

Figure 1 Metasynthesis of textual data





# A new framework

## New framework

Age

Education

Health status

Family input into decision-making

Media input into decision-making

Health professionals' input into decision-making

Negatives when taking agents

Benefits of taking agents

Cost of agents

Physical properties of agents

Perceptions and experience

Ability to manage own health, i.e. Self efficacy

# A new framework and synthesis

Findings	Categories
Age	Patients characteristics affecting decision-making
Education	
Health status	
Ability to manage own health, i.e. Self efficacy	
Family input into decision-making	External input into decision-making
Media input into decision-making	
Health professionals' input into decision-making	
Negatives when taking agents	Effects and side-effects
Perceptions and experience	
Benefits of taking agents	
Cost of agents	Other factors
Physical properties of agents	



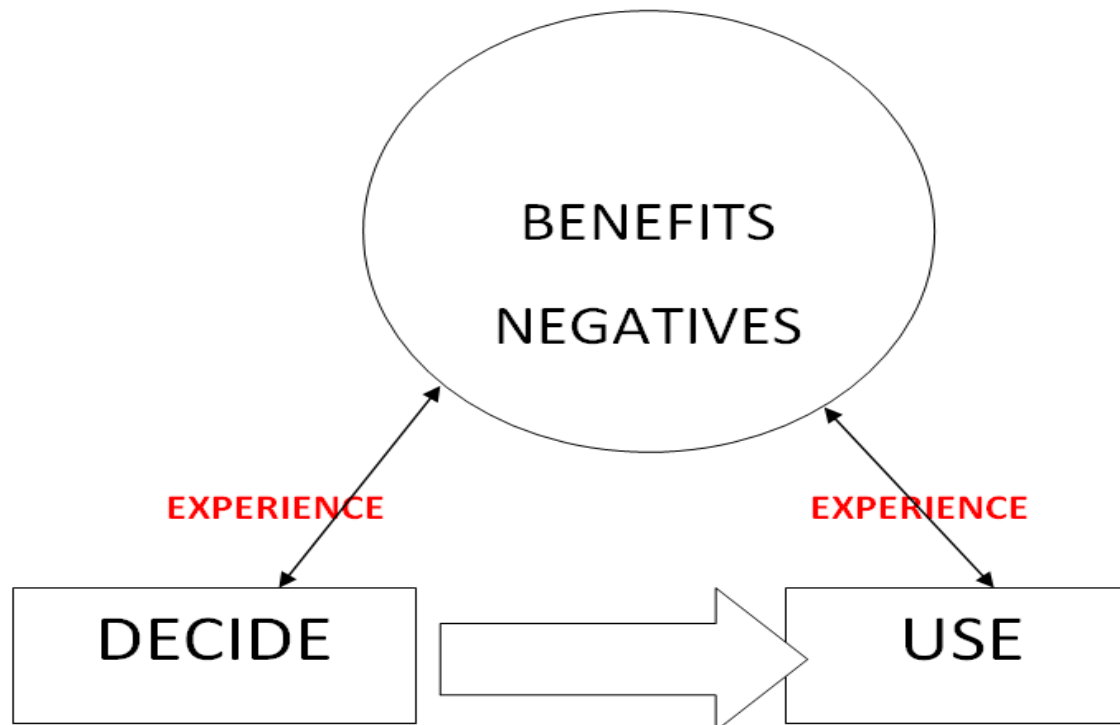
# Synthesis

- Alternatively, go beyond the framework to create a new conceptual model or theory ...
- Revisit data to explore the relationships between the themes or findings of your framework
- The “richer” or “thicker” the data, the deeper the resulting model or theory
- Narrative and diagrammatic representations

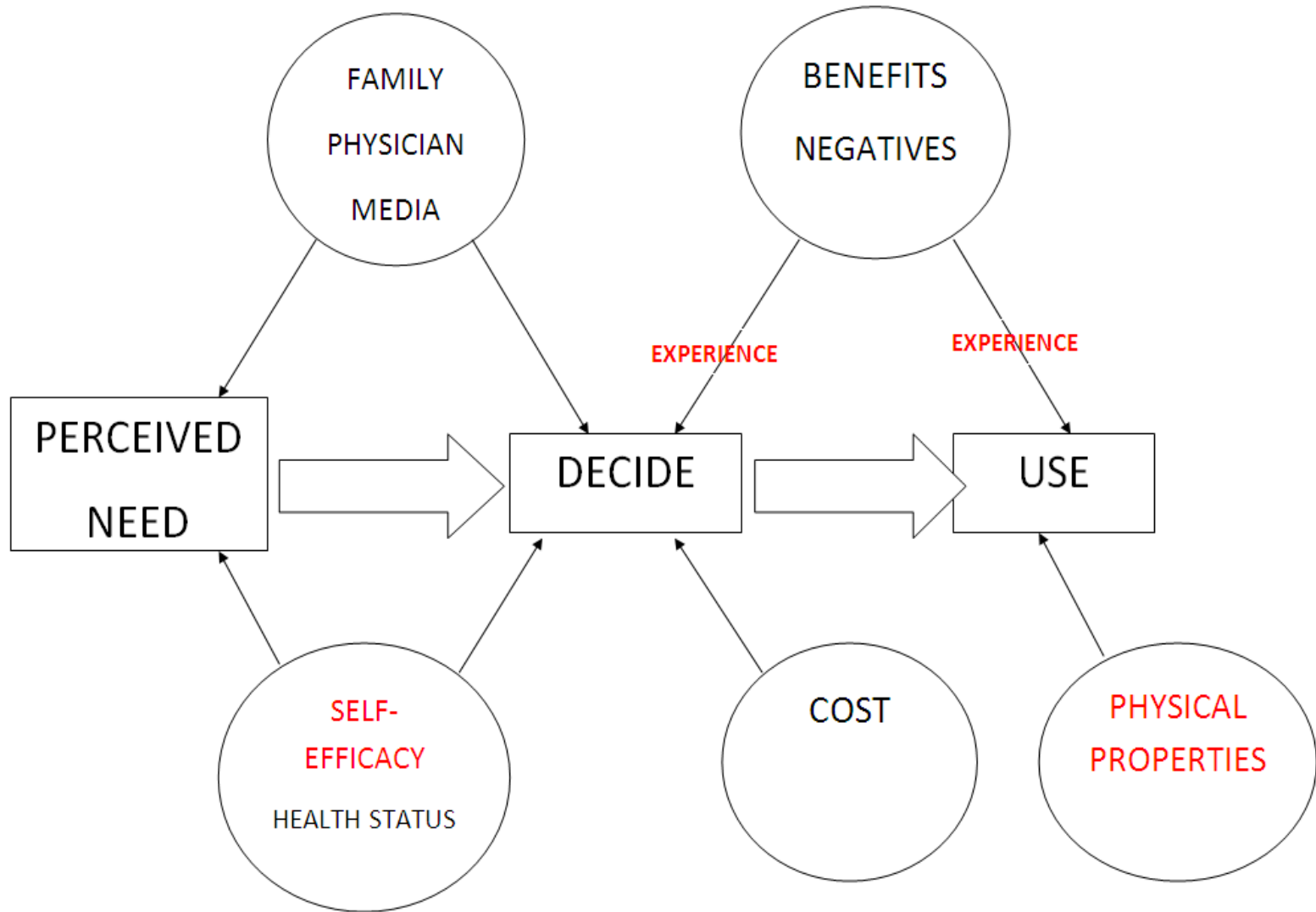


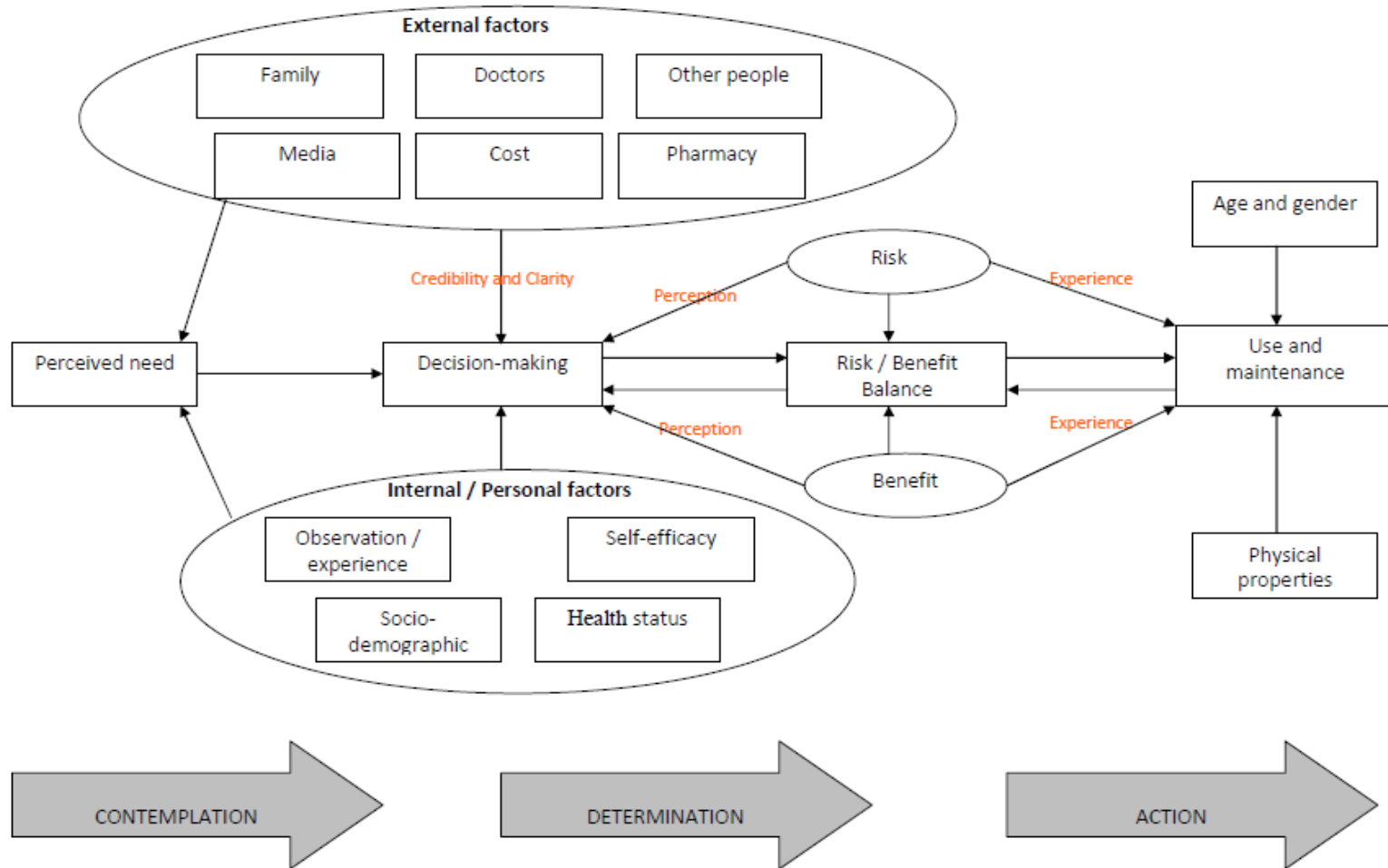
## From framework to model or theory

*“I take glucosamine and chondroitin for my arthritis. I started taking it probably 4 or 5 years ago . . . and ... I quit taking it. It was like 2 or 3 weeks later and I could tell the difference. I hurt. I started taking it again and it [arthritis pain] got better. So, I do believe in it.”*











# Findings for HTA

- Role of health professionals is crucial in determining compliance
  - People are most likely to be influenced by health professionals and their family.
  - Patients would like more information and advice from health professionals.
  - People are more likely to use NSAIDs if there is a strong perceived need, principally determined by health status, self-efficacy and age.
  - Perceptions of risk and benefit also influence the process of decision-making and use: individuals who are required to take NSAIDs tend to weigh up the balance of benefits against risks, and to modify their use of the agent accordingly.
- Recommendation: Health professionals need to spend time and effort informing patients clearly about the benefits and risks of specific chemoprevention strategies, depending on health status/need



# Do you stop there?

- Test your synthesis?
- Disconfirming cases
  - Booth A, Carroll C, Illott I. Desperately Seeking Dissonance: Identifying the “Disconfirming Case”, *Qualitative Evidence Synthesis, Qualitative Health Research* **2012** (in press).
  - Morse, J. M. The significance of saturation. *Qualitative Health Research* **1995**; 5, 147-149.
- Sensitivity analysis
  - By quality, population, location, setting etc.
  - By frequency and “thickness”
    - Carroll C, Booth A, Lloyd-Jones M. Should we Exclude Inadequately-reported Studies from Qualitative Systematic Reviews? An Evaluation of Sensitivity Analyses in Two Case Study Reviews, *Qualitative Health Research* **2012**; 22(10)
    - Boeije et al (2011) Making a difference: towards a method for weighing the evidence in a qualitative synthesis, *Journal of Evaluation in Clinical Practice* **2011** 17(4):657-63



# What is the purpose of your review and synthesis?

- To illuminate patient and client experience and to develop theory
- To be useful
- To answer questions and to solve problems that cannot be addressed by quantitative research



# Conclusions

- Different methods for qualitative evidence synthesis
- Choose an appropriate method
- Extract and interpret data
- Synthesis
- Test your synthesis
- Integrating and writing-up ...