The promises and pitfalls of mixed methods approaches

Jenni Burt and Emma Pitchforth
Our learning objectives

By the end of the session, participants will be able to:

• Define key aspects of mixed and multi methods approaches, and describe their applicability within primary care research

• Identify research questions appropriate for mixed methods approaches

• Describe the stages undertaken in a mixed methods matrix analysis
What is mixed methods?

• “Mixed methods research is a methodology for conducting research that involves collecting, analyzing, and integrating (or mixing) quantitative and qualitative research (and data) in a single study or a longitudinal program of inquiry. The purpose of this form of research is that both qualitative and quantitative research, in combination, provide a better understanding of a research problem or issue than either research approach alone.” (John Cresswell)

• The intentional, and connected or linked, use of more than one social science tradition, methodology, and/or method in service of better understanding. (Jennifer Greene)
What is the fuss about?

• Think back to what you may have learnt about paradigms in relation to qualitative and quantitative traditions

Positivism
Objective
Hypothesis-driven

Interpretivism
Subjective
Inductive

Are these incompatible?
Emergence of a third paradigm......pragmatism

- Pragmatism

- “side steps the contentious issues of truth and reality, accepts philosophically, that there are singular and multiple realities that are open to inquiry and orients itself toward solving practical problems in the ‘real world’” (Feilzer 2010)

- Less about accurately representing reality and focus on utility

- Pragmatism adopted and used in many different ways

- Have opened mixed methods research up to the criticism of ‘anything goes’

- Challenge in flexibility Vs quality
Mixed vs multi-method

**QUESTIONNAIRE SURVEY**
- **STATISTICAL ANALYSIS**
  - **SURVEY FINDINGS**

**SEMI-STRUCTURED INTERVIEWS**
- **THEMATIC ANALYSIS**
  - **INTERVIEW FINDINGS**

**NARRATIVE REVIEW OF FINDINGS**
PHASE 1: PROVIDERS’ CONCEPTS OF NEED FOR SPC

Objective: To explore providers’ conceptualisations of need for SPC, and factors determining the offer of care

Methods: Documentary analysis, qualitative observation and interviews with three SPC service providers.

Analysis: Thematic and content analysis of observed meetings; thematic analysis of interviews and fieldnotes

PHASE 1b: MEASURING NEED FOR PALLIATIVE CARE

Systematic literature review and critical appraisal of quality of life instruments used in cancer and palliative care

PHASE 2: EQUITY OF USE OF SPC

Objective: To investigate equity of use of SPC by lung cancer patients in relation to age

Methods: Cross-sectional survey

Analysis: Statistical (multivariable) analysis of questionnaire and medical records data

PHASE 3: PATIENTS’ AND REFERRERS’ VIEWS ON USE OF AND REFERRAL TO SPC

Objective: To explore demand and supply side factors influencing referral to and use of SPC

Methods: Qualitative interviews with lung cancer patients and health care professionals referring to SPC

Analysis: Thematic analysis of transcripts of interviews

Design: Semi-structured interview study

Sub-sample of survey participants; purposive sampling based on survey data
Why would you use mixed methods?

- To seek corroboration, convergence from different methods
- To seek elaboration, enhancement, clarification of results from one method with results from another
- To use one method to improve the development of another
- To deliberately seek new perspective, paradox
- To extend breadth and range of inquiry

Flexibility of design options:
- Triangulation
- Complementarity
- Development
- Initiation
- Expansion
How do we use them in health services research?

• O’Cathain et al (2007) analysed 75 mixed methods studies funded by DH R&D programme between 1994-2004
• Journal publications did not reflect mixed methods approach
• Drivers often pragmatic rather than ideological or for intrinsic value of mixed methods
• Complementarity and development more frequent reasons than triangulation, initiation or expansion
• Use of fairly limited range of methods and often predominantly quantitative
Why we might not want to use them?

- Not suited to the research question
- Integration at any stage requires time, energy, people, expertise
- Even when planned, the realities of funded research can make difficult
What are mixed methods research questions?

- Quantitative
- Mixed
- Qualitative
Quantitative…

• Which physician and patient characteristics are associated with physicians' estimation of their patient social status?

• Do health system differences between the US and England influence the quality of hypertension management and disparities across socio-economic position?

• Can self-rated health predict risk of long-term depression outcomes in primary care?
Qualitative...

• How and why do GPs elicit and address patients’ or parents’ expectations for antibiotics?

• What are parents' and providers’ perceptions of the factors placing infants and young children with complex chronic conditions at risk for hospital admissions and ED visits?

• What are GPs’ views on the use of instruments for depression?
Mixed...

- How do primary care practices accommodate people with disabilities when structural barriers are present in the premises?
- What are doctor’s attitudes to antibiotic prescribing for acute bronchitis?
- How does GPs’ prescribing behaviour determine poor persistence with inhaled corticosteroids in children with respiratory symptoms?
Approaches to integration in mixed methods analysis
Method

Survey of UK HCPs (GPs, practice nurses, health visitors, nursery, community and children's nurses). HCPs (n = 116) rated their confidence in providing infant feeding advice and completed the Obesity Risk Knowledge Scale (ORK-10).

Semi-structured interviews with a sub-set of 12 GPs and 6 practice nurses were audio recorded, taped and transcribed verbatim. Thematic analysis was applied using an interpretative, inductive approach.
Methods

A sequential exploratory mixed methods approach was used. The sample included all the General Practice (GP) practices in a region in the UK (n=345). Postal questionnaires were administered to GPs (n=1249); following 290 returns (response rate 23%), semi-structured interviews were undertaken with GPs (n=14).
“Integration can be said to occur to the extent that different data elements and various strategies for analysis of those elements are combined throughout a study in such a way as to become interdependent in reaching a common theoretical or research goal, thereby producing findings that are greater than the sum of the parts”

Pat Bazeley 2010
Bazeley’s principles of integration

- You can integrate data in many ways
- You need to integrate data BEFORE you draw conclusions
- You must ensure the nature and depth of integration is appropriate to the aims and purpose of your study
- Your end product should be something that would not have been available without integration
- Your write-up should be organized around the particular topics of the research, not around your methods. So, papers might be divided according to substantive issues covered rather than divided according to method
Integrating different data sources after analysis

- Questionnaire Survey
  - Statistical Analysis
    - Survey Findings
- Semi-structured Interviews
  - Thematic Analysis
    - Interview Findings

Narrative Review of Findings
Integrating different data sources after analysis

- Questionnaire
- Survey
- Semi-structured interviews
- Statistical analysis
- Thematic analysis
- Narrative review of findings

Oftentimes done. Often very badly.
Integrating different data sources through design

- Questionnaire
- Semi-structured interviews
- Statistical analysis
- Survey findings
- Thematic analysis
- Interview findings

Identification of sample or issues to be covered
Integrating different data sources through design

- Questionnaire
  - Survey
    - Statistical Analysis
      - Survey Findings
    - Semi-Structured Interviews
      - Interview Findings

Identification of sample or issues to be covered

YEP. USEFUL. IF DONE AS DESIGNED...
Integrating different data sources through analysis

- Questionnaire
  - Statistical Analysis
    - Survey Findings
  - Integrative Findings

- Semi-structured Interviews
  - Thematic Analysis
    - Interview Findings
  - Integrative Findings

- Matrix Analysis
  - Integrative Findings
Integrating different data sources through analysis

QUESTIONNAIRE
SURVEY

STATISTICAL
ANALYSIS

SEMISTRUCTURED
INTERVIEWS

THEMATIC
ANALYSIS

MATRIX
ANALYSIS

INTEGRATIVE
FINDINGS

WHAT WE ALL MEAN TO DO BUT NEVER GET ROUND TO.
Miles and Huberman’s meta matrix: “the intersection of two lists”

1. Detailed case examination
2. Within-case matrix
3. Cross-case matrix

Developed for qualitative analysis
Mixed methods matrix analysis

- **Data source: interviews**
  - Thematic analysis

- **Data source: questionnaire**
  - Statistical analysis

**Within-case matrix**

**Cross-case matrix**

**Development of overall findings**
An example: our current research

• What are the factors which influence patients’ evaluation and rating of GPs’ communication skills, and how these are expressed through survey instruments?

• What are the drivers of concordance or discordance between patients’, GPs’ and external raters’ views of a consultation?
Approach

1. Take one and film lots of

2. Get the patients to fill in a And the GP too…

3. Get GP communication experts to rate the videos

4. Review the videos with some patients at interview
Available data

- **56 CONSULTATIONS VIDEO RECORDED**
- **RATER-COMPLETED INSTRUMENT (GCRS)**
- **PATIENT QUESTIONNAIRE**
- **PATIENT INTERVIEW**
- **GP QUESTIONNAIRE**
- **RATER-COMPLETED INSTRUMENT (CSA)**
Data for each “case” to put into matrix

1. **ONE** audio recording/transcript of patient interview
2. **ONE** patient-completed questionnaire
3. **ONE** GP-completed questionnaire
4. **FOUR** rater-completed GCRS evaluations of consultation
5. **FOUR** rater-completed CSA evaluations of consultation
<table>
<thead>
<tr>
<th>GPPS item</th>
<th>GPPS score: patient</th>
<th>GPPS score: GP</th>
<th>Concordance between patient GPPS and GCRS score</th>
<th>Concordance between patient GPPS and CSA score</th>
<th>Interview themes: internal factors</th>
<th>Interview themes: external factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Giving you enough time</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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<td>2. Asking about your symptoms</td>
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## Individual case integrative matrix

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<td>1. Telling your story from the beginning of time</td>
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**ITEM SCORES FROM PATIENT & GP QUESTIONNAIRES**
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**SUMMARIES OF THEMES FROM INTERVIEWS, BY ITEM (THINK FRAMEWORK APPROACH HERE)**
Within case matrix: summary

- Brings together all data sources for the level of analysis of your choosing, such as:
  - An element of interest e.g. a questionnaire item
  - An individual participant
- Can be constructed using hand-drawn tables, spreadsheets, qualitative data software e.g. Nvivo etc
- Data may be summarised or abstracted as appropriate
- Aim is to examine patterns of interest for each case
- Usually leads on to between-case matrix for final level of analysis (where each case is a row)