Qualitative and quantitative methods in health research

M. Luisa Vázquez Navarrete
Health Policy Research Unit
www.chc.es/sepps/home.htm

Barcelona 6th of March 2009
1. Introduction
2. Differences in qualitative and quantitative research
3. How to meaningfully combine quantitative and qualitative research methods
4. Final considerations
1. Introduction

• Traditionally quantitative (epidemiological) methods have dominated research in the health field (public health).

• In recent years, the complexity of ill-health (constructed by individuals, communities, health personnel and authorities) motivated the search for other ways to approach knowledge.

• The use of qualitative and quantitative research methods have supporters and detractors.

• I will argue that both types of methods address different research questions, and their combined use contributes to gain a better understanding of reality, which is particularly relevant for our field of work.
1. Introduction (II)

- Qualitative research is usually considered as “soft”, non scientific, ...

- While, quantitative research is considered as scientific, hard data, robust evidence....

- Some authors considered them incompatible, while others as complementary by deficiency
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Positivism</th>
<th>Pos-positivism</th>
<th>Critical theory</th>
<th>Constructivism</th>
<th>Participatory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontology</strong></td>
<td>Naïve realism (real reality)</td>
<td>Critical realism (imperf. Obj.)</td>
<td>Historical realism (virtual/values)</td>
<td>Relativism (constructed)</td>
<td>Participatory reality (co-created)</td>
</tr>
<tr>
<td><strong>Epistemology</strong></td>
<td>Objective, findings true</td>
<td>Modified Probably true</td>
<td>Value mediated findings</td>
<td>Subjective, created findings</td>
<td>Transaction between cosmos and subjectivity</td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td>Experimental Hypothesis verification</td>
<td>Experim. modif. - Also qualitative-</td>
<td>Dialogical dialectic (quali/quanti)</td>
<td>Hermeneutic dialectic (quali/quanti)</td>
<td>Participatory (quali/quanti)</td>
</tr>
<tr>
<td><strong>Nature of knowledge</strong></td>
<td>Facts or laws</td>
<td>Probable facts and laws</td>
<td>Historical and structural insights</td>
<td>Individual and consensus</td>
<td>Practical knowledge</td>
</tr>
<tr>
<td><strong>Values</strong></td>
<td>excluded</td>
<td>excluded</td>
<td>included</td>
<td>included</td>
<td>included</td>
</tr>
</tbody>
</table>
## Characteristics of research methods

<table>
<thead>
<tr>
<th>Qualitative methods</th>
<th>Focus</th>
<th>Quantitative methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding actors’ perceptions,</td>
<td>Flexible, open and circular</td>
<td>Extent, causal explanations</td>
</tr>
<tr>
<td>Flexible, open and circular</td>
<td></td>
<td>Pre-established, linear, experimental</td>
</tr>
<tr>
<td>Intensive</td>
<td></td>
<td>Extensive</td>
</tr>
<tr>
<td>Purposeful</td>
<td></td>
<td>Statistical</td>
</tr>
<tr>
<td>In-depth interviews, observation, documental analysis</td>
<td></td>
<td>Measurements, surveys, mathematical models</td>
</tr>
<tr>
<td>Inductive, theory generation</td>
<td></td>
<td>Deductive, theory testing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Qualitative methods</th>
<th>Focus</th>
<th>Quantitative methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding actors’ perceptions,</td>
<td>Flexible, open and circular</td>
<td>Extent, causal explanations</td>
</tr>
<tr>
<td>Flexible, open and circular</td>
<td></td>
<td>Pre-established, linear, experimental</td>
</tr>
<tr>
<td>Intensive</td>
<td></td>
<td>Extensive</td>
</tr>
<tr>
<td>Purposeful</td>
<td></td>
<td>Statistical</td>
</tr>
<tr>
<td>In-depth interviews, observation, documental analysis</td>
<td></td>
<td>Measurements, surveys, mathematical models</td>
</tr>
<tr>
<td>Inductive, theory generation</td>
<td></td>
<td>Deductive, theory testing</td>
</tr>
</tbody>
</table>

### Data collection

- **Qualitative methods**: In-depth interviews, observation, documental analysis
- **Quantitative methods**: Statistical Measurements, surveys, mathematical models

### Techniques

- **Qualitative methods**: Purposeful
- **Quantitative methods**: Deductive, theory testing
Quantitative research

- Concerned with facts
- Predictions and generalisations
- Measurements
- Causal relationships
- Numerical
Qualitative research

- Concerned with process
- Meanings for the involved subjects
- Researcher as instrument of research
- Fieldwork
- Narrative data
Examples of research questions

Quantitative research
- Effectiveness of a therapy, intervention (RCT)
- Disease causality (link between tobacco and smoking)
- Trends along time (disease incidence, response to public health interventions)

Qualitative research
- Economic, political, social and cultural contextual factors that influence health
- Individuals and communities interpretation of health, disease, disability, ageing (what is disability? why to smoke?)
- Theoretical understanding of rhetorical concepts: participation and empowerment
Quantitative research objectives

- To determine frequency, extent and associated factors of a phenomenon
- To establish care services coverage
- To establish degree of user satisfaction with a service
- To establish levels of services utilization.
- To establish efficiency, efficacy, effectiveness of an intervention
Qualitative research objectives

- To explore taken for granted practice (how waiting lists work)
- To understand behaviours and develop explanations.
- To establish users viewpoint regarding quality and adequacy of care services
- To understand culture and styles in care services management
- To analyse complex health and social policies
Complementarity

Quantitative methods
- How many? How much?
- How often?
- What change? What factors?
- Hypothesis formulation
- Results interpretation
- Questionnaire elaboration
- Indicators elaboration

Qualitative methods
- What does exist?
- Why does that happen?

Discussion on the complementarity of qualitative and quantitative methods.
Combining qualitative and quantitative methods

1. Qualitative → Quantitative → Results
2. Qualitative → quantitative → Results
3. Quantitative → Qualitative → Results
4. Qualitative → Quantitative → Qualitative
Employment and health: an example*

What is the impact of precarious employment on workers health?

What are the dimensions of precarious employment in Spanish workers?

Employment Precariousness Scale (EPRES)

How are dimension of precarious employment perceived by immigrant workers?

Immigrant, Work and Health Questionnaire (ITSAL)

Impact of precarious employment on workers health

*Occupational Health Research Centre. UPF 2002-2009
Research question
What is known about barriers and facilitators for consumption of fruits and vegetables, among 4-10 years old children?

Synthesis 1: Quantitative
RCT
Intervention studies
METAANALYSIS

Synthesis 2: Qualitative
Children perspectives
METASYNTHESIS

Synthesis 3: Integration of Metasynthesis y Metaanalysis

*Thomas J and cols. Integrating qualitative research with trials in systematic reviews. BMJ.2004;328:1010-12. Cited by M José Fernández de Sanmamed
Qualitative research and trials: systematic reviews

**Synthesis 1: Quantitative**
- RCT
- Intervention studies
- METAANALYSIS

**Synthesis 2: Qualitative**
- Children perspectives
- METASYNTHESIS

- Interventions increased slightly fruits and vegetables consumption by $\frac{1}{2}$ day
- High variety among studies
- No explanation for this result (design, setting, type of intervention)
- Children think their health is their parents responsibility, not their own
- Do not consume fruit and vegetables on health reasons (their parents matter).
- Election based on taste
- Distinguish between fruits and vegetables and never consider them as same type of food

*Thomas J and cols. Integrating qualitative research with trials in systematic reviews. BMJ.2004;328:1010-12. Cited by M José Fernández de Sanmamed*
Synthesis 3: Integrating METAAANALYSIS METASYNTHESIS
Children views taken into account

- No study promoted fruits and vegetables as different
- 11 studies reduced emphasis on health

Fig 2: Increase in consumption of fruit and vegetables in trials with data on health emphasis

*Thomas J and cols. Integrating qualitative research with trials in systematic reviews. BMJ.2004;328:1010-12. Cited by M José Fernández de Sanmamed
Conclusions

Much of the research in ill-health (including aging and disability) is concerned with what causes the problems, what programs and processes work, what the needs of the population are, and how best to spend money.

These questions picture complex and diverse situations that justify the use of different research approaches.

Each methodological approach has its strengths and weaknesses.

Rather than concentrating the debate on which approach is superior, it should concentrate in the appropriateness of methods (or combination of methods) to address a research question.

I would like to conclude with a final remark: the use of a combination of research methods will imply the work in multidisciplinary teams, rather than for a researcher to master all kind of methods.