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Mixed methods research: integration

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What is integration?

- Linking
- Integration
- Synthesis
- Conversation

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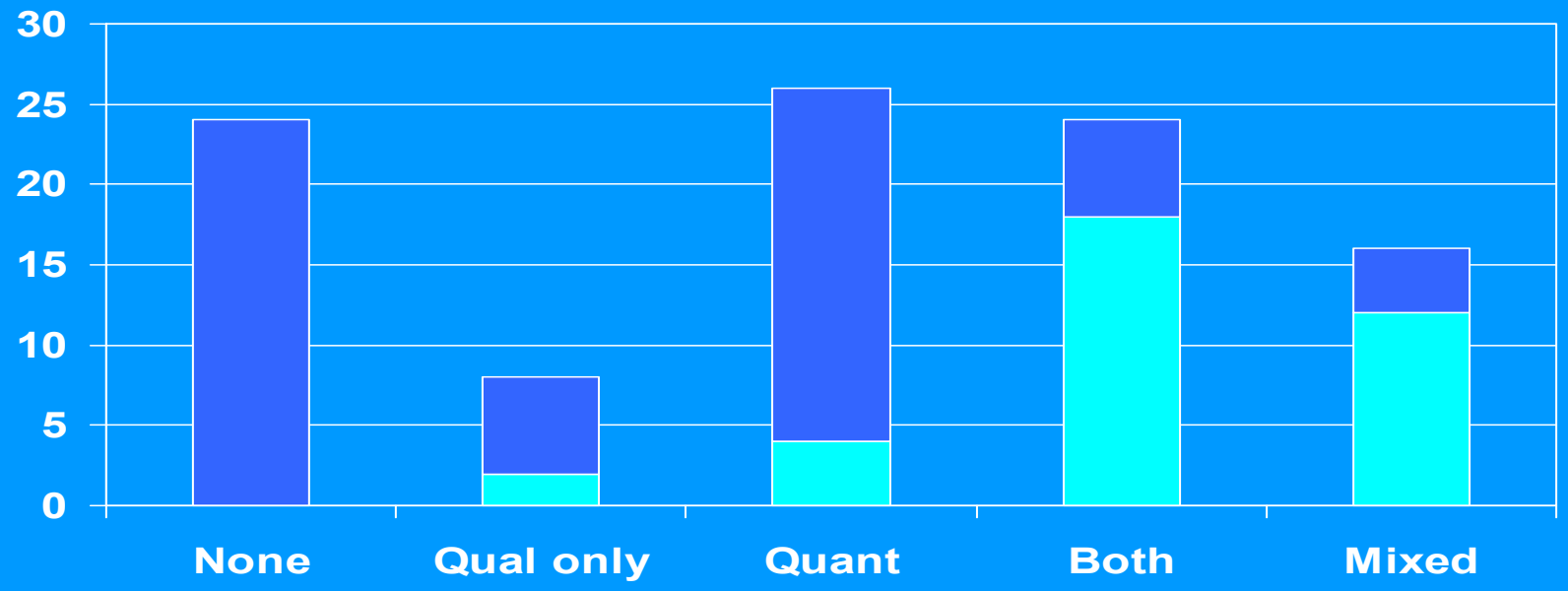
Yield in journal articles in 2000s
(49 studies)



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Integration

- What and where to integrate
- Integration techniques
- Who is involved
- Disseminate ‘yield’ from integration

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A. 'Triangulation' of **findings**

- Analyse each component separately and have two sets of findings
- Morgan's 'third effort' (1998)
- 'Triangulation protocol' (Farmer et al 2006)
- Adapted triangulation protocol
  - Two investigators identify key themes from each data set
  - Identify unified set of themes
  - Themes make the rows in the convergence coding matrix, data sets the columns

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- Counting/frequency= no
- ‘Convergence, complementarity, discrepancy/dissonance’ rather than ‘agreement, partial agreement, dissonance, silence’
- Example: **O’Cathain A**, Knowles E, Turner J, Maheswaran R, Goodacre S, Hirst E, Nicholl J. Explaining variation in emergency admissions: a mixed methods study of emergency and urgent care systems. Health Research and Services Delivery 2014;2(48).

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Figure 18 Matrix of findings from each component

Factor	Regressions Phase I and III	Case studies Phase II	Relationship
SAAR 14 conditions	Based on 14 conditions SAAR generally consistent for different conditions	Credible set of conditions for admission avoidance Some successful pathways or services existed for specific conditions	Convergence Not consistent – some pathways for conditions highly regarded but still had high SAAR
Variation	Three fold variation in SAAR	-	Silence
Population Deprivation	Strongest predictor	Big influence on avoidable admissions. Includes neediness for immediate access, lack of awareness of services, morbidity, and some ethnic groups.	Convergence and complementarity (case studies explain why deprivation is important in regressions)
Elderly	SAAR adjusted for age but % over 75 in population still explained 18% of variation in univariate regression. No longer explains variation when deprivation in regression. %Elderly living alone does not explain variation in univariate regression. % Nursing and residential home admissions explained 4% of variation in univariate regression. No longer explains variation when deprivation in regression.	Both elderly living alone and in nursing homes increase avoidable admission rates.	Convergence and complementarity (regression shows that deprivation subsumes some of these age related factors)
Ethnicity	Explains variation in univariate regression (9%) but not once deprivation is in the regression.	Can vary by ethnic group. Correlation between deprivation and ethnic groups. Effect of recent immigrants is on emergency department attendances, not admissions.	Convergence and complementarity (case studies show it is not as simple as 'ethnic groups have higher admissions'

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B. Integration is built into sequential design

- QUAN data to sample QUAL cases
- Types of sampling
  - Extreme case, purposive
- Teddlie & Wu 2006, Sandelowski 2000
- Questionnaire based on interviews

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C. Combining QUAL and QUAN **data**

- Unique aspect of some mixed methods studies
- Technique: Meta-matrix (Miles & Huberman 1994)
  - Within cases, across cases
  - Similar to case survey, multiple case studies
  - Question emerges from one method for a case that can be explored in the other method (Mason 1994)

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Made up example…

	Survey	Interview themes	
ID	Satisfaction	Expectations	Values
1	5	Low expectations	Relationships Efficiency
2	5	Medium expectations	Relationships
3	2	High expectations	Technical
4	1	Low expectations	Technical

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ID	Status*	Yield**	Knowledge	Expertise	Planning	Valuing mm and int/motivation	Damage and contam	Team	Respect
1	C	Y 5.2	Yes	Yes Mixed bag	Yes	Yes. Int was motivation	Fears of damage to trial but show by action that not true	Close and friendly	Yes
2	C	Y 5.2	----	Yes	--	Qual= people's view. Does not value integration really, but mm. Paper was strategic	--	The lead researcher is the team	Yes
3	C	Y 4.3	Has learnt on job and wants to learn more	No qual expertise on team but CR worked hard at it	--	Integration important.	--	Integrated Ql and qn same dept	Yes
4	C	Yb 4.3	Developing through experience of doing it	Yes. Developing expertise in mixing but calls this 'jack of all trades'	They didnt plan properly for this one but learnt as they went. Will plan for next one.	Values integrated working practices and sees them as together	--	Integrated team. PI foot in both camps Geographically close.	In early days clinicians + HEs did not respect qual but learnt to and use it now

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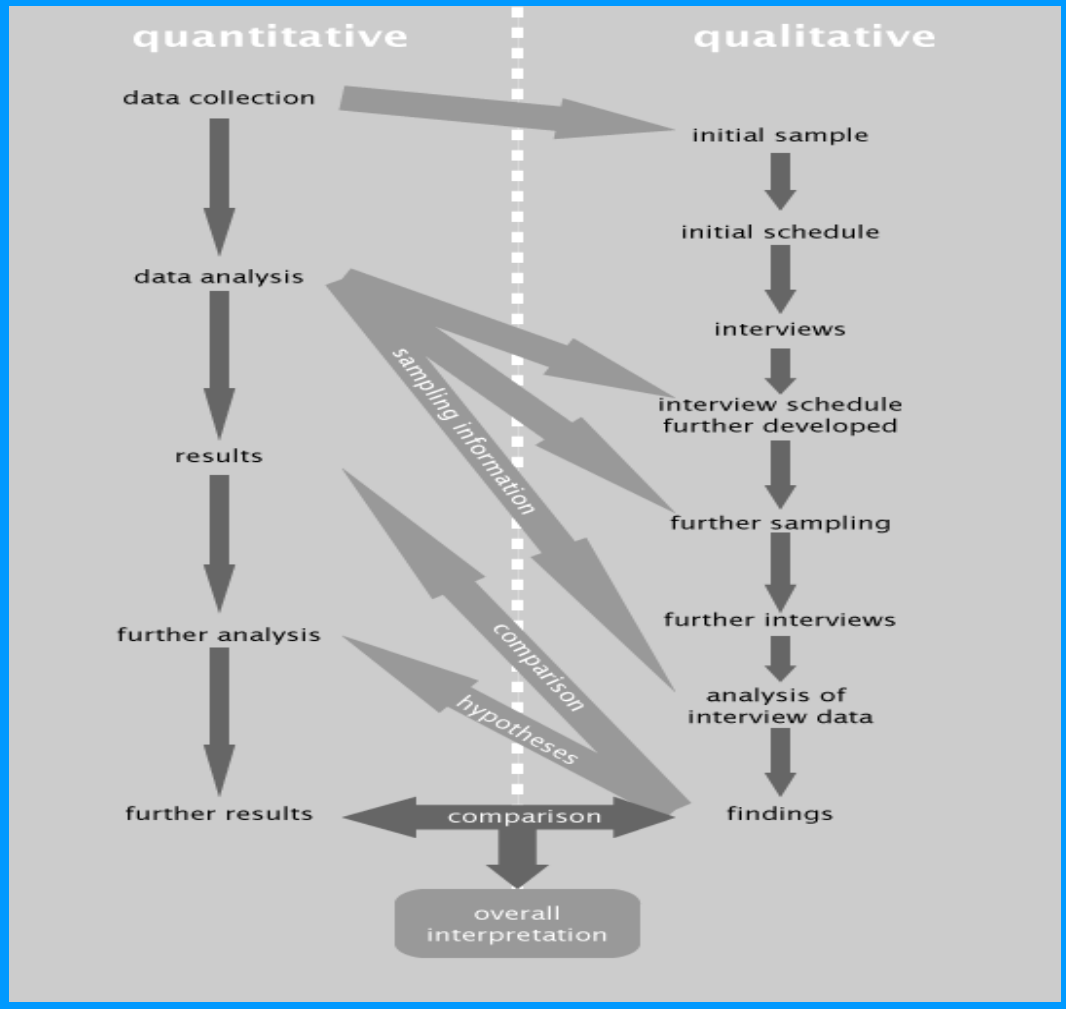
Figure 8.4 Visual model of a mixed methods study



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Who does the integration?

- Qualitative researcher
- Quantitative researcher
- Team approach

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Communicate the 'yield'

- What is the yield? What did I get that I couldn't get without doing both components in the same study?
  - Better outcome measure
  - Improved component
  - Reaching a hard to access group
  - More insights

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Invisible integration

- Bryman found 200+ mixed methods papers; 14% integrated
- “it highly informed how we looked at the trial though, and how we tried to interpret the trial” R3
- “the papers about the quantitative findings were informed by the qualitative findings” R7

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- O'Cathain A, Murphy E, Nicholl JP. Three techniques for integrating qualitative and quantitative methods in health services research. BMJ 2010; 341:1147-1150

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