Broadening undergraduate research - qualitative research 101 OSEAN Open Forum 1st June 2014

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Workshop aims

- To give you an introduction to qualitative research methods
- Basic differences between qualitative and quantative
- Knowledge generated by qualitative research
- Qualitative research and EBP
- Data collection and analysis
- Assessing the quantity of qualitative research
- Experience from the BSO research department
- Top tips for supervisors



Introduction

- In the UK and throughout the world, osteopathic research has almost exclusively focused on quantitative research studies.
- Since the inception of the International Journal of Osteopathic Medicine in 2001, 68 original articles have been published, of which 5 (7%) have taken a qualitative approach.



Thomson O.P., N.J., Petty and J. Scholes. Re-grounding osteopathic research – Introducing of OSTEOPATHY grounded theory. International Journal of Osteopathic Medicine (Accepted- in press)

Summary of qualitative original articles published in *IJOM* since 2001

Author	Research area	Methodology	Participants	Data	Data analysis	Findings
			_	collection	_	_
Grundy & Vogel ¹⁰ (UK)	Attitudes of UK osteopaths towards prescribing rights	Grounded theory ¹¹	10 practicing osteopaths	Focus group interviews	Constant comparative method; codes; themes	Three ideological themes representing extreme positions of osteopath's views on prescribing rights, labelled as 'Scientific Osteopathy', 'Osteopathic Purity' and 'Osteopathic Prescribing'.
Zamani et al., ¹² (UK)	Analysis of exercise content in undergraduate osteopathic education	Unspecified	7 osteopathic educational institutions	Course curricula (documents)	Content analysis- Codes; categories; Inter coder agreement between two researchers.	Exercise content was variable in quantity and quality; exercise as part of wider public health promotion and education was not explicitly addressed
Carnes & Underwood ¹³ (UK)	Monitoring patient's ability to achieve functional tasks in those with musculoskeletal pain	Phenomenologi cal/ ethnomethodol ogical	13 patients with chronic low back pain	In-depth interviews	Codes; themes	Treatment progress can be more meaningfully monitored by using patient determined goals, rather than practitioner determined clinical outcomes.
Hartup et al., ¹⁴ (Australia)	Exploration of the lived experience of being an osteopathic student	phenomenologi cal approach ¹⁵	19 osteopathic students	In-depth interviews	Codes; themes; clustering	Five main stages of the emotional experiences of student's progression through osteopathic training.
Humpage ¹⁶ (UK)	Opinions on research and evidence based medicine within the UK osteopathic profession	Unspecified	Public documents between 2003-2009	Osteopathic magazines, websites, forum posts	Thematic analysis	A conceptual model of issues relating to research and evidence based-medicine in osteopathy



Thomson O.P., N.J., Petty and J. Scholes. Re-grounding osteopathic research – Introducing grounded theory. *International Journal of Osteopathic Medicine* (Accepted- in press)

A Paradigm Shift...?

In recent years the value that qualitative approaches can add to the knowledge bases of a range of manual therapy professions has been highlighted, for example in musculoskeletal physiotherapy (Petty et al 2013 a,b; Grant 2005; Shepard et al 1997), chiropractic (Adams, 2008) and osteopathy (Thomson et al 2011; Thomson et al; 2014).





Authors	Profession	Research area	Participants	Data collection	Findings
Jamison ⁷²	Chiropractic (Australia)	Patient-practitioner interaction and communication	34 chiropractors	Clinical observations	Interaction observed in chiropractic practice is bidirectional, is both task- and relationship-oriented, Touch, whether diagnostic or therapeutic, emerged as an fundamental feature of chiropractic care
Jensen et al., ⁵⁵	Physiotherapy (USA)	Expert practice in physical therapy	12 peer-designated expert physical therapists	Interviews, nonparticipant observations, videotaping patient treatment sessions, and review of documents (e.g., published papers, teaching materials, patient records).	A theoretical model of expert practice in physical therapy.
Jette et al., ⁵³	Physiotherapy & Occupational therapy (USA)	Decision-making process of physical and occupational therapists when recommending discharge destination for patients following acute care hospitalisation	7 physiotherapists and 2 occupational therapists in an acute care setting	Semi-structured interviews	A grounded theory model for discharge decision making. The basic social process involved the therapists use of clinical reasoning to arrive at what they believe are the best possible recommendations for discharge destinations.
Edwards et al., ⁶⁴	Physiotherapy (Australia)	Clinical reasoning	12 expert physical therapists (6 were peer nominated)	Interview data, observation, reflective diaries	Clinical reasoning in physical therapy was characterized by different "clinical reasoning strategies" and the application of different paradigms of knowledge.
Evans et al., ⁷⁴ , (for full discussion see Evans) ⁷⁵	Physical therapies (osteopathy, chiropractic and physiotherapy) (UK)	Treatment and management approaches of patients with low back pain	8 osteopaths 9 chiropractors 13 musculoskeletal physiotherapists	Focus group interviews	A theoretical model of the factors which influence the behaviour of individual chiropractors, osteopaths and musculoskeletal physiotherapists when caring for patients with low back pain.
Chaffey et al., ⁷⁶	Occupational therapy (Australia)	Intuition among occupational therapists	9 occupational therapists working in mental health practice	Semi-structured interviews	A theoretical model which suggested that intuition was an instinctive understanding of situations, resulting from professional experience and the understanding of emotions.
Petty et al.,^{70, 71,} 77	Physiotherapy (UK)	Students experience of completing a musculoskeletal Masters (MSc) course	11 alumni from one MSc programme	Semi-structured interviews, participant profiles; observational memory.	A theoretical model of the learning transition of students and their development towards clinical expertise
Sexton ⁷⁹	Physiotherapy (UK)	Patient-centeredness in relation to low-back pain	9 musculoskeletal physiotherapists	Semi-structured interviews	A theoretical model conceptualising patient-centred care in musculoskeletal physiotherapy

Qualitative research and evidence informed osteopathy



Evidence-based Medicine (EBM)

 'the conscious and judicious use of current best evidence in making decisions about the case of individual patients'

(Sackett et al, 1996)



What is good evidence?

- RCTs
- Meta-analyses
- Prospective cohort studies
- Systematic reviews
- Retrospective cohort studies
- Case control studies
- Case series
- Expert opinion





Adapted from Haynes et al (2002)

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Different Types of knowledge used in practice

aesthetic artistic assumptions attitudes beliefs emancipatory embodied emotional espoused theories ethical expectations experiential heuristic impressions

intuitive

knowing in practice moral personal practical presentational procedural process professional craft propositional situational tacit theories-in-use values

Ryle 1949/2000, Argyris and Schon 1974, Polanyi 1983, Benner 1984, Kolb 1984, Eisner 1985, Dreyfus and Dreyfus 1986, Schon 1987, Shepard, Jensen and Hislop 1990, Brown and McIntyre 1993, Eraut 1994, Morgan 1994, Benner, Tanner and Chesla 1996, Heron 1996, Fish 1998, Reason 1998, Higgs and Titchen 2000, Beeston and Higgs 2001, Billett 2001, Higgs and Andresen 2001, Titchen and Ersser 2001b, White 2001.

Petty, N.J., O.P. Thomson and G. Stew (2012) Ready for a paradigm shift? Part 1: Introducing the philosophy of qualitative research. *Manual Therapy.* 17(5): 378-384.

OF OSTEOPATHY

Clinical decision-making and knowledge (Petty et al, 2012)

- Practical knowledge (how to)
- Moral and ethical knowledge
- Intuitive knowledge
- Professional judgment and wisdom
- Anatomical, biomechanical, physiology, pathology etc
- Tacit knowledge
- Situational knowledge
- Research knowledge

• Knowledge from experience Attitudes, values and beliefs

Qualitative Research and EBP

- Standard model of EBP insufficient
- Provides rich and deep knowledge
- Acts as a contextual envelope
- Represents the different types of knowledge used in practice
- Lends itself to better understand the multiple facets and complexities of the human side of practice (patients,

Practitioners, (e.g. Professional artistry Vs Technical THE BRITISH STRATIONALITY Thomson et al 2014)

Osteopathy and qualitative research....

• Any ideas....?



Qualitative research- An introduction

 The dominance that quantitative research has had in healthcare means that many practitioners will be unfamiliar with the variety of different qualitative methodologies and how these can help inform clinical practice.



Foundational Differences

- The major difference between qualitative and quantitative research stems from the researcher's underlying strategies.
- Quantitative research is viewed as confirmatory and deductive in nature.
- Qualitative research is considered to be exploratory and inductive.





Quantitative

- Explain phenomena
- Numerical data
- Tests hypotheses
- Controls variables
- Measures
- Identifies cause effect relationships



Qualitative

- Understand, describe human experiences, meaning and social processes
- Text as data
- Asks an open question
- Embraces variability
- Contextual

THE BRITISH SCHOOL PURPOSE OF <u>ALL</u> research is to generate new knowledge

Quantitative research- Deduction

 Quantitative research relies on deduction- starting with a more general theory, to the more specific hypotheses. Then collect data/make observations to test (confirm/falsify) hypotheses (ddx).





Qualitative research- Induction

 Qualitative research relies on induction- specific observations to broader generalizations and theories





Inductive vs. Deductive

Inductive- researcher builds patterns, themes and categories from the data, to increasing levels of abstraction to eventually form a concept or theory, based on their interpretation of the data (as indicated by the arrows moving upward from specific data to a general theory (eg pattern recognition)

Deductive researcher starts with a theory or hypothesis and looks to test or verify the hypothesis with further research or analysis (as indicated by the arrows moving upward from a general theory to a specific focal point). (e.g. HDR)



Often occur iteratively (e.g. Grounded theory)

Foundational Similarities

- All qualitative data can be measured and coded using quantitative methods.
- Quantitative research can be generated from qualitative inquiries.
- Example: One can code an open-ended interview with numbers that refer to data specific references, or such references could become

the origin of a randomized experiment.

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Key terms

- Ontology basic assumptions about the nature of reality.
- Epistemology basic assumptions about what we can know about reality, and about the relationship between knowledge and reality.
- Paradigm Overarching perspective concerning appropriate research practice, based on ontological and epistemological assumptions
- Methodology Specifies how the researcher may go about practically studying whatever he / she believes can be known.



Ontology

- What is the nature of reality?
- How can we come to know reality?





Ontology

- What is the nature of reality?
 - Positivist view:
 Objective, singular, knowable and observable, stable (there is *an* 'out there')





Ontology

 Interpretivist view: Subjective, multiple, interpreted, socially constructed, flexible.



The curse that afflicts abstract painting



Epistemology

Positivism (quantitative)

- Meaning exists in the world.
- Knowledge accurately reflects reality.

Interpretivism (qualitative)

- Meaning exists in our interpretations of the world.
- Knowledge is an interpretation of a reality.



Other differences

Table 3 Comparison of the core assumptions underpinning positivist/post-positivist and interpretive/constructionist research paradigms.^{30,31}

	Positivist/post-positivist paradigm	Interpretive/constructionist paradigm
Ontology (the nature of being and reality)	Realism, critical realism. Single, objective 'real' reality.	Relativism. Multiple realities which are socially constructed.
Epistemology (how it is possible to gain knowledge of this reality)	Objectivism, dualist. Able to directly observe reality. Findings are true.	Subjectivism/constructivism. Subjectivity of observer. Findings are co-constructed.
Data	Use numbers to measure.	Uses words and language.
Position of the researcher	Researcher is distant, objective and detached.	Researcher is close, subjective and participatory.
Aim of research	To explain, predict and control.	To generate a contextual understanding.



Thomson O.P., N.J., Petty and J. Scholes. (2013).Re-grounding osteopathic research-Introducing grounded theory. International Journal of Osteopathic Medicine. In Press

Sampling in qualitative research

- Purposeful sampling (initial sampling, inclusion/exclusion criteria, broad range of perspectives, examples....)
- Theoretical sampling (data-driven sampling, don't know who you will sample until you've done some analysis, examples...)
- Good informants (Morse 1994)- i.e. willing, able to articulate the area/processes under study and meet the informational needs of the study, examples...



Common ethical issues

- Informed consent
- Avoiding coercion
- Avoiding harm
- Anonymity
- Confidentiality
- Dissemination of results



Data collection and analysis techniques

But what about the statistics!!!???





Data collection

- Interviews
- Focus groups
- Observations
- Video-recording
- Text (magazine, journals, historical texts)







Interviews

- Avoid closed questions
- Don't assume meaning (reality is multiple and socially constructed)
- Explore implicit meanings and assumptions



- Ground answers in examples from practice
- Prompt, prompt, prompt..



Data analysis-Coding and constructing categories

- aims to reduce a large amount of data to a manageable amount
- to analyse patterns/trends within the data
- for individual participants or
- within the whole group or
- to compare differences between 2 or more groups of participants



Data analysis

- Data analysis: interviews are transcribed 'verbatim' (e.g. word for word)
- Transcripts read 'iteratively' (e.g. repeatedly)
- Each sentence is read for meaning and 'coded' (e.g. using one or two words only)
- Codes are grouped into 'themes'
- Relationships between themes are analysed, to extract further meaning (e.g. diagrams)
- An over-arching 'theory' may/may not be developed (e.g. grounded theory)

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Iteration between data collection and analysis

- Collect some data (e.g. interview)
- Analyse/code
- Write an analytical memo
- Modify interview guide
- Collect more data (2nd interview)
- Analyse/code
- Etc. etc...



Questions to ask during analysis...

- What is going on?
- What are people doing
- What is the person saying?
- What are they *not* saying?
- What do these actions and statements take for granted (i.e. in their an implied meaning?)



Example Line-by-line coding

Quote	Line-by-line code
I'm being told what to do by what the tissue tells me. So I'm not	Trusting hands
deciding what to do, I'm trying not to do that, I'm trying to assess	Body directing
and let the body tell me what it what it wants me to do to it, or	Working with the
what it will permit me to do.(P2)	body
It [providing choice] treats them as an adult and gives them the	Trusting patient
autonomy to say "look actually I don't agree with this and I don't	Patient directing
want to do this; it doesn't fit in with my values, attitudes and	Equal control
beliefs and I want to change it" so they feel an equal partnership.	Equal control
(P6, 1)	



Focused coding

Quote	Focused code
there is a lot of talk between you and the person and a lot of communication. You are talking to them the whole time, 'how does the treatment feel'?[and] you are trying to get a gauge on how it really feels to them. (P3)	Interacting with the person
there are times when I think I am being intuitive about what the tissues feel like and I'm not actually thinking about what's under my fingers. It's almost like they're going by themselves. (P8, 1)	Interacting with the body
I go quite heavily into the history of their complaint, their occupation and what they do on a day-to-day basis and then how that feeds into their aggravating and relieving factors. So try to get quite a clear picture of all the things that bothers them. (P9)	Interacting with the patient

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How's my coding...?



Code Q. Is there anything (treatment technique) you deliberately chose not to do....? I think I deliberately took that approach ... I deliberately used more of a soft-tissue approach than I would do with other patients I think. I know he doesn't respond well to manipulation because he has reported that, and we have tried it. And I know it hasn't worked in the short-term or in the long-term. So, I think certainly with him, it was a more soft tissue manipulation type treatment. A relaxing treatment and soothing treatment if that makes sense. Rather than a sort of ... a stronger more aggressive manipulative form of treatment. He generally responds better to that. You know he feels better for it; he reports that treatment really helps him in the past. We have tried to be a little bit different, with different approaches. He hasn't responded as well.

How's my coding...?



	Code
Q. Is there anything (treatment technique) you deliberately chose not to do?	
I think I deliberately took that approach I deliberately used more of a soft-tissue approach than I would do with other patients	Patient-specific
I think. I know he doesn't respond well to manipulation because he has reported that, and we have tried it. And I know it hasn't worked in the short-term or in the long-term. I think certainly with	Relying on past experiences
him, it was a more soft tissue manipulation type treatment. A	Patients'
relaxing treatment and soothing treatment if that makes sense.	experience
Rather than a sort of a stronger more aggressive manipulative	Outide d humation to?
know he feels better for it; he reports that treatment really helps him in the past. We have tried to be a little bit different, with different approaches [but] he hasn't responded as well.	response
	Trial and error

Memo-writing

Memos may include:

- Feelings and assumptions about the research and to facilitate researcher reflexivity
- Define codes and their relationships to other codes and categories
- Find gaps in major categories and noting how they may be 'filled' (e.g. through further data collection, analysis theoretical sampling)
- Interrogate codes by asking questions of the data ('when does this happen, why, what is the outcome of this process?)
- Decision-making of the direction of data analysis and sampling





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Managing researcher bias

- Inter-rater reliability tests OK for simple content analysis = % agreement on categories. But conflict with interpretivist/subjectivist nature of qualitative research.
- Multiple people involved in discussions about the coding process better for complex issues
- Share the document with all the quotes for one theme and the OSOP for that theme.
- Discuss whether 'story' makes sense and includes everything.
- Reflect on comments about confusion and ambiguity etc.
- Member checking (transcript and developing themes/findings/model)
- Peer debriefing
- Keeping a reflexive research journal and make reflexive memo-writing) (explicate your own biases, a priori knowledge and experiences, interpretation and 'test' these out during

Assessing quality

- Rigour vs. Trustworthiness
- Validity / credibility
- Reliability / dependability
- Repeatability/ confirmability
- Generalisability / transferability



Quantitative Rigour		Qualitative Trustworthiness		
Internal Validity	Causal relationship between two variables and whether the study measured that which it was intended to measure.	The research has obtained an accurate interpretation of the meaning of the data which reflects the experience of participants.	Credibility	
External Validity	Being able to generalize to a larger population associated with one's research sample.	The extent to which the ideas generated may be applied to other populations or situations.	Transferability	
Objectivity	The absence of bias, by the researcher maintaining 'distance' between researcher and research.	The degree to which the researcher can demonstrate that the findings relate to the data.	Confirmability	
Reliability	The extent to which results are consistent over time and an accurate representation of the total population under study.	Whether the findings of the study offer a dependable and realistic interpretation of the view held by the participants.	Dependability	

Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups

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Abstract

Background. Qualitative research explores complex phenomena encountered by clinicians, health care providers, policy makers and consumers. Although partial checklists are available, no consolidated reporting framework exists for any type of qualitative design.

Objective. To develop a checklist for explicit and comprehensive reporting of qualitative studies (indepth interviews and focus groups).

Methods. We performed a comprehensive search in Cochrane and Campbell Protocols, Medline, CINAHL, systematic reviews of qualitative studies, author or reviewer guidelines of major medical journals and reference lists of relevant publications for existing checklists used to assess qualitative studies. Seventy-six items from 22 checklists were compiled into a comprehensive list. All items were grouped into three domains: (i) research team and reflexivity, (ii) study design and (iii) data analysis and reporting Duplicate items and those that were ambiguous, too broadly defined and impractical to assess were removed.

Results. Items most frequently included in the checklists related to sampling method, setting for data collection, method of data collection, respondent validation of findings, method of recording data, description of the derivation of themes and inclusion of supporting quotations. We grouped all items into three domains: (i) research team and reflexivity, (ii) study design and (iii) data analysis and reporting.

Conclusions. The criteria included in COREQ, a 32-item checklist, can help researchers to report important aspects of the



3 Domains...

- Research team and reflexivity
- Study design
- Analysis and findings

• Useful when publishing....!



Experience from the BSO research department



Methodology	Number	%
Experimental design	12	13
Cross sectional/ questionnaire	26	28
Systematic reviews	19	21
Qualitative	35	38

Quantitative 62% Qualitative 38%



Experience from the BSO research department

- Interviews often used
- Grounded theory used as a framework for analysis
- Usually 8-12 participants
- Theory not built- rather description with some conceptual explanation
- 5000 words (+/- 10%)
- Theoretical saturation/sufficiency rarely
 Teached

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Challenges of qualitative dissertations

- Exploratory nature of qualitative research can be unsettling at times; data analysis may require re-evaluation of the study's focus.
- Although systematic in its processes; analysis can be fluid and soft- uncertainty, anxiety.
- Often superficial descriptions rather than conceptual explanations.
- Data analysis (coding, categorising, memos, diagrams etc) is laborious and time consuming.



Supervisor tips...

- Reassure students that they are producing <u>an</u> understanding not <u>the</u> understanding.
- Remove insecurities which can be distraction/barrier to creating a theory.
- Facilitate creativity in analysis
- Trust in *own* interpretation of data
- Need to help get over the 'doing it right anxiety' (Heath, 2004)



Online resources

- Grounded theory seminar
- <u>http://www.youtube.com/watch?v=fmWKf5</u>
 <u>L0mfA</u>
- Coding (Pt. 1 and 2)
- <u>http://www.youtube.com/watch?v=gn7Pr8</u>
 <u>M_Gu8</u>



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- Critical Skills Appraisal Programme (CASP) www.phru.nhs.uk/Pages/PHD/CASP.htm (Also on BONE)
- DIPEX www.healthtalkonline.org
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