

**Sophisticated research design in chiropractic and manipulative therapy; “*what you learn depends on how you ask.*” Part B: Qualitative research; quality vs. quantity**

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## **Sophisticated research design in chiropractic and manipulative therapy; “*what you learn depends on how you ask.*” Part B: Qualitative research; quality vs. quantity**

### **Abstract**

The plethora of quantitative evidence in chiropractic science stands in contrast to the relative dearth of qualitative studies. This phenomenon exists in spite of the intuitive impression that chiropractic is indeed suitable for investigation with a variety of qualitative methodologies. There is a long tradition of qualitative investigation in the social sciences, which focuses on gathering rich experiential data, recognising both that health research deals with ‘real’ people, and that people are not predictable or pre-determined. Qualitative chiropractic research can examine various aspects of a “package” of care and the participants “care journey” and the interplay between verbal and nonverbal, including tactile interactions, which may be diagnostic or therapeutic. Research in chiropractic ideally integrates experience, neurobiology and nonlinear dynamic thinking. Many chiropractic scientists are used to only working with linear models, consequently they may be reluctant to adopt the nonlinear framework of complexity theory and recognise that the analysis of lived experience including subjective phenomena can be an integral part of studies in the chiropractic space.

Keywords: Chiropractic; Evidence-Based Practice; Qualitative Research; Research Design [Chiropr J Australia 2016;44(2):106-120]

### **INTRODUCTION**

This paper examines the application of qualitative methodology in the chiropractic sector. Philosophers of science have long observed that the positivist paradigm that underpins quantitative research can itself easily become a dogma, they recognise that science can never ‘prove itself’ and many would no doubt agree with Dupre that it may indeed become a form of ‘scientific imperialism’ (1-3). There is thus an increasing recognition that devotion to a purely quantitative methodology in the health sciences is at best, ‘unbalanced’ (1). This paper will lead the reader through a preliminary description of qualitative research methodologies while providing an overview of the major paradigms on which qualitative research is based, along with selected chiropractic examples.

### ***Importance of Qualitative Research to Chiropractic Health Research***

In general, “qualitative research,” refers to social research in which the researcher relies on textual data [preferably gathered by personal contact], rather than by conversion to numbers. The aim is to understand the meaning of human action by asking open questions about phenomena as they occur in context rather than setting out to test predetermined hypotheses (2,3). Adams presented a lucid framework for a qualitative research agenda that could be used to examine the ways in which chiropractic has been (and is currently) represented in a range of written forums

including social policy, mainstream media, and clinical practice guidelines (4). Latterly the formation of a formal practice-based network (PBRN) will facilitate this process (5). Qualitative research has much to offer but may be unfamiliar to researchers with a biomedical or natural science background; health research deals with real people, and people are individuals, not predictable or pre-determined. Acknowledgement of social science does much more than consider people as numbers, thus the opportunity arises to consider what might constitute the best way to answer the research question posed, and that may not be quantitatively. Adams notes such analysis potentially has much to tell about the political, cultural, and social location and positioning of chiropractic. Increasingly qualitative methods are also an element in the development of RCT's – particularly those of complex interventions where the conduct of the intervention is mediated by human behaviour, but, are also often used alongside a clinical trial to provide evidence to intervene if necessary – including to discontinue the trial (6,7). These are so-called 'mixed-methods' studies and can take a number of forms, which will be examined in greater detail in Part C of this series.

### ***Philosophical Assumptions of Research***

*“The thoughtful researcher needs to have an understanding of paradigms and epistemologies before being unleashed to do empirical research” (8).*

All research [both quantitative and qualitative] is based on ontological, epistemological and methodological philosophical assumptions, a fact sometimes under-recognised and under acknowledged particularly by quantitative scientists (9).

Firstly some definitions; A *paradigm* is “a basic set of beliefs that guide action” (10), “...a set of basic beliefs (or metaphysics) that deals with ultimates or first principles” (11). *Philosophy*, [a term dear to the hearts of chiropractors] underpins all research and all professions; it is “... critical thinking, of a systematic kind about the general nature of the world, the justification of belief, and the conduct of life” (12). *Ontology* meanwhile is “the branch of metaphysics dealing with the nature of being” (13), *Epistemology* which is; “the theory of knowledge, especially with regard to its methods, validity, and scope, and the distinction between justified belief and opinion”(13), and finally *Methodology* which is; “A system of methods used in a particular area of study or activity“ (13). There are consequently many scientific paradigms or 'world-views', this paper will consider several of the principal genres with the ontology, epistemology and methodology of the main four summarised in tables 1 & 2.

## Qualitative Research

Amorin-Woods

**Table 1. Philosophical assumptions of research**

	<b>Positivism</b>	<b>Post Positivism</b>	<b>Critical Theories</b>	<b>Constructivism</b>
Ontology	Realism – reality assumed to exist	Reality assumed to exist – but only imperfectly apprehendable	Reality shaped by social, political, cultural, economic, ethnic & gender factors taken as 'real'.	Multiple realities constructed, socially & experientially based
Epistemology	Investigator able to study object without influencing it. Replicable findings are 'true'.	Objectivity remains as 'regulatory ideal'. Replicated findings 'probably true' but subject to falsification.	Investigator & subject linked with the values of the investigator inevitably influencing the inquiry.	Findings literally created as investigation proceeds
Methodology	Q's & hypotheses propositional form – empirical verification – confounders are controlled	'Critical multiplism' a way of falsifying	Dialogue <i>required</i> between investigator & subjects	Individual constructions only elicited and refined through interaction between and among investigator & respondents

**Table 2. World-views of Research Paradigms**

	<b>Positivism</b>	<b>Post Positivism</b>	<b>Critical Theories</b>	<b>Constructivism</b>
Purpose of Inquiry	Explanation ultimately enabling the PREDICTION & CONTROL of phenomena. Inquirer cast as role of 'expert'		Inquirer cast in role of instigator & facilitator.	Inquirer cast in role of participant and facilitator of process
Nature of Knowledge	Consists of verified hypotheses that can be accepted as facts of laws	Consists of non-falsified hypotheses that can be regarded as probable facts or laws	Series of structural/historical insights that will be transformed as time passes.	Constructions about which there is relative consensus. Constructions subject to continuous revision.
Knowledge accumulation	By a process of accretion with each fact (or probable fact serving as a 'building block' that, when placed in its proper niche, adds to the growing 'edifice of knowledge'.		Knowledge grows & changes through dialectical process of historical revision.	Accumulates only in relative sense through formation of ever more sophisticated constructions.

## **Aim**

This paper aims to identify and present examples of complex qualitative chiropractic, complementary and manipulative therapy research within each of the main genres in qualitative research.

## **METHODS**

Five databases were searched in addition to 'Google Scholar' in December 2012. These databases included Medline, Web of Science, EMBASE, SportDiscus, and The Cochrane Library. The search criteria used were "*chiropractic research*" OR "*manipulative therapy research*" OR "*complementary*" AND "*alternative*" AND "*complex research*" AND "*qualitative*" AND "*the particular type of study*", for example; "*Grounded Theory*". The examples are chosen somewhat arbitrarily, primarily on the criteria of their applicability as examples of the study designs.

The search identified limited numbers of examples in each category. Some of the principal approaches of qualitative research will now be discussed along with selected examples of each approach. The examples provided are presented as examples of the study design and not on the basis of the quality of the work per se. I emphasise notwithstanding, that there are many iterations of qualitative research which are not covered in this paper. Note: In most cases the examples include verbatim quotations from abstracts (Including spelling conventions).

## **DISCUSSION**

### ***Grounded Theory [GT]***

GT methods consist of systematic inductive guidelines for collecting and analysing data to build middle-range theoretical frameworks that explain the collected data. Throughout the research process, grounded theorists develop analytic interpretations of their data to focus further data collection, which they use in turn to inform and refine their developing theoretical analyses. The intent is to move beyond description and to generate or discover a theory, an abstract analytical schema of a process, or action or interaction (14). Participants must have experienced the process, or action or interaction. Development of the theory might help explain practice or provide a framework for future research. Theory development does not come 'off the shelf', but rather is generated or 'grounded' in data from participants who have experienced the process (14). Grounded theory served at the front of the 'qualitative revolution' (15).

Chiropractic example:

- Sadr et al: The treatment experience of patients with low back pain during pregnancy and their chiropractors: a qualitative study. "This qualitative study employed semi-structured interviews of pregnant patients in their second or third trimester, with low back pain during their pregnancy, and their treating chiropractors in separate interviews. Chiropractors approach pregnant

## Qualitative Research

Amorin-Woods

patients with low back pain from a patient-centred standpoint, and the pregnant patients interviewed in this study who sought chiropractic care appeared to find this approach helpful for managing their back pain symptoms. Conclusions were that Chiropractors approach pregnant patients with low back pain from a patient-centered standpoint, and the pregnant patients interviewed in this study who sought chiropractic care appeared to find this approach helpful for managing their back pain symptoms.” (16)

### **Case Report (Case Study) Research**

Case report research is a common way to do qualitative research – but is neither new nor essentially qualitative. It has a long, distinguished history across many disciplines – with origins in anthropology and sociology (17,18). In qualitative case report research, the purpose of the case study is not to represent the ‘worlds’, but to *represent the case*; and the utility of the case to practitioners and policy makers is in its extension of experience.

While there is no shortage of case studies of chiropractic patients, such works are invariably presented from a purely clinical, sometimes detached didactical perspective, there is rarely an in-depth reporting of the case *from the patients’ perspective*, their words, feelings, values and lifestyle impact. The case is usually presented as being of interest because of the *condition* rather than the *person*.

### **What is a case?**

Researchers call a great variety of things ‘case studies’ (or case reports)(9). The case is a specific ‘one among others’, a ‘bounded system’. In health/social sciences and human services, a case has working parts, it is purposive, and it often has a ‘self’. It is an integrated system which may be simple or complex(9). The more the object of study is a specific, unique, bounded system, the greater the utility of the term ‘case report or study’(9). The case is of secondary interest: it plays a supportive role and facilitates understanding of something else. Qualitative case studies or reports are distinguished by the size of the bounded case: one individual, several individuals, a group, an entire program, an activity with three main variations; instrumental case study; collective case study and the intrinsic case study (19,20). Cases are chosen because it is believed that understanding them will lead to better understanding about a still larger collection of cases. Often the inquirer purposefully selects multiple cases to show different perspectives on the issue and may replicate the procedures for each case (21). First and last, the researcher wants better understanding of this particular case: the case itself is of interest since the case presents an unusual or unique situation (9,20,22).

Chiropractic example:

Ballew et al: Living the "Vicious Circle" and "Deep Rut" of Pain and Depression: A Qualitative Comparative Case Study. “The purpose of this study was to describe individuals’ perceptions, illness beliefs, and health seeking behaviors related to living with musculoskeletal pain and depression. Individual interviews provided rich data that illustrated very different everyday experiences of two people living with co-occurring pain and depression.

Clinicians should be sensitive to the words patients use when describing their unique pain and depression manifestations. (23)

### ***Phenomenology***

A phenomenological study describes the meaning for several individuals of their lived experiences of a concept or a phenomenon (9). Its basic purpose is to reduce individual experiences with a phenomenon to a description of the universal essence; to “grasp the very nature of the thing” (24). It seeks essences and refers to patterns, structures, invariant features, what is essential rather than incidental to the phenomena. Researchers identify a phenomenon; an “object” of human experience, (e.g. insomnia, being left out, receiving chiropractic care); collect data from those who have experienced it; develop a composite description of ‘what’ they experienced and ‘how’ they experienced it (25). It has its roots in European philosophy [e.g. Husserl and Heidegger]. Phenomenologists study situations in the everyday world from the viewpoint of those experiencing it with the emphasis on the individual’s construction of a ‘life-world’. An individual’s actions can best be understood by situating them within the life-world of the actor. The concept of intentionality is central, if we were to understand why people do things, we have to understand the meaning they give to their actions (26).

Chiropractic example;

Wuytack & Miller: The lived experience of fibromyalgia in female patients, a phenomenological study. “This study aimed to gain a better understanding of the subjective experience of fibromyalgia, focusing on the personal, occupational and social impact of the condition on patients' lives. This included exploring the patients' views about the future. The study revealed the negative impact of fibromyalgia on patients' lives as comprising of great complexity and individuality. (27)

### ***Ethnography***

Ethnography involves investigation of a group (often a culture), such as chiropractic that is based on immersion and, optimally, participation in that group. It is an approach which employs multiple methodologies to arrive at a theoretically comprehensive understanding of a group or culture, in this case a profession or group of professionals. Essentially, ethnography's epistemological orientation is phenomenological (observation based).

Chiropractic example;

Langlois et al: A Living History-A Qualitative Study of Experienced Chiropractors Treating Visceral Conditions. “The purpose of this ethnographic study was two-fold: (1) to investigate the nature of chiropractic treatments used by experienced practitioners for visceral conditions; and (2) to compare and contrast two methods of data collection—focus group and individual

## Qualitative Research

Amorin-Woods

interview methodologies. Their confidence as healers was a consistent and durable theme, supported by four other themes: chiropractic history and philosophy; doctor-patient relationship; independence; and therapeutics” (28)

### ***Participatory Action Research [PAR]***

PAR sees people as the experts in their own lives, who should necessarily be actively involved in decision-making, planning and then both implementing and reviewing change – research is not isolated from daily experience (29).

*“In action research... the instigator is most likely to be one of their own kind, with shared values and similar use of language. In participatory research, the instigator may be from a different sub-culture if that person is better resourced and more highly educated than the other participants. (30)*

PAR has roots in liberation theology and neo-Marxist approaches to community development and liberal origins in human rights activism, originally developed in countries in Latin America, Africa and Asia with a theoretical framework in ‘linking the process of knowing to learning and action’. Paulo Freire (a Brazilian educator) had a significant influence on the process. His seminal work ‘*Pedagogy of the Oppressed*’, linked knowing and learning through an ongoing cycle of action and reflection, leading to the development of a critical awareness of the world in which the participant lives (31). PAR is concerned about marked inequalities in distribution of resources and power between privileged and dominant, marginalised and oppressed, themes that resonate with chiropractors. The need to link research with empowering education and action was strongly emphasised by pioneers in PAR – more recently feminist perspectives have strengthened the work of PAR in the contemporary context. PAR is increasingly being recognised as an important tool in health research since it lessens the gap between the perception and attitudes towards health and illness held by healthcare professionals and lay people. For example Tandon argued that if in the end, research in health care and practice only serves the interests of the medical professions and their associates, “*it will serve to perpetuate the current system of inequality and injustice related to health and health care*” (32). The biomedical framework of illness and disease can be in marked contrast to the understanding embedded in a local cultural setting. Many factors – cultural, historical, socio-economic and political – can have impact on efforts to improve health– and these are not easily measured in biomedical terms - there is a need to recognise that health is indeed an intrinsic part of life. There is a need to ‘demystify’ modern knowledge and medical technology so people have a chance to take responsibility for their own health. These are all central themes in PAR.

Chiropractic example;

Sheppard et al: Self-regulation of a chiropractic association through participatory action research. “This study investigated a small health professional group, the members of The Chiropractic Association Singapore (TCAS), by using a PAR method. This approach bridged the gap between practice and research with TCAS members fully engaged in the process of being critically reflective of their future roles in the local health care market. (33)

### ***Discourse Analysis***

Critical discourse analysis explores the connections between the use of language and the social and political context in which it occurs. According to Gill there are at least 57 ways of doing discourse analysis (34). It explores issues such as gender, ethnicity, cultural difference, ideology and identity and how these are both constructed and reflected in texts. It also investigates the ways in which language constructs, and is constructed by social relationships. A critical analysis may include a detailed textual analysis and move from there to an explanation and interpretation of the analysis, it might also proceed to deconstruct and challenge the text/s being examined thus takes less of a linguistics view of spoken discourse (35). This may include tracing underlying ideologies from the linguistic features of a text, unpacking particular biases and ideological presuppositions underlying the text, and relating the text to other texts and to people's experiences and beliefs (36).

Chiropractic example;

Villanueva-Russell: Caught in the crosshairs: Identity and cultural authority within chiropractic. "This paper analysed the discourse over identity and cultural authority within the profession of chiropractic in the United States using critical discourse analysis. A heterogeneous discourse characterized by conflict was found, with discrepancies between everyday chiropractors in actual practice versus academic chiropractors and leaders particularly over the idea, practice and significance of science for the profession. (37)

### ***Narrative Research [NR]***

Narrative research can take the form of either; an event-centred or experience centred narrative. In the last 2 decades, NR has assumed an increasingly high profile in social research. It offers no automatic starting or finishing points, no self-evident categories on which to focus, no clear accounts of how to analyse data and no overall rules about suitable methods or best level at which to study stories. The researcher aims to be able to see different, sometimes contradictory layers of meaning, to bring them into useful dialogue with each other, and to understand more about individual and social change (9).

NR takes many forms, uses a variety of analytic practices, and is rooted in a range of social and humanities disciplines. Oral history, life history, life story, life narrative, life review, personal narrative, biography, oral biography, memoir and reminiscence have all been used in narrative research (9,10).

Chiropractic example;

Oths: Communication in a chiropractic clinic: How a DC treats his patients. "This study of a chiropractor and his patients represented the first interaction analysis of an alternative practitioner. Relationships between the types and

## Qualitative Research

Amorin-Woods

quantities of communications in clinical exchanges and patient satisfaction with treatment were examined. Findings suggest that patient satisfaction is enhanced by a practitioner-patient relationship characterized by initial transmission of large amounts of comprehensible information successively supplanted by personal affective dialogue. (38)

*NB: While not a purely narrative study, it used mainly narrative methods in the patient perspective data collection arm.*

### **'Generic' Qualitative Approach**

It has become quite common for qualitative research to be described simply as 'qualitative', simply seek to discover and understand a phenomenon, a process, or the perspectives and worldviews of the people involved( 39).

Rather than focusing the study through the lens of a known approach the researchers combine several approaches or claim no particular methodological viewpoint at all. However, there are still 4 key criteria that should be addressed(9);

1. Theoretical positioning of the researcher
2. Congruence between methodology and methods
3. Strategies to establish rigour
4. Analytic lens through which data are examined

Chiropractic example;

Myburgh: Methodological and epistemological challenges for the chiropractic profession in health care - a study of the history, status quo and future of research and clinical practices. "This exploratory, qualitative study sought to investigate the state of the art of chiropractic with respect to beliefs, philosophy, research methods and clinical practices in South Africa. Two cross over themes were revealed. Firstly, chiropractic's investigative paradigm has started to narrow the gap between applied science and clinical practice and secondly chiropractic's legitimacy cannot lie in the opinion of medicine. (40)

Adams and colleagues identified a major potential strength of qualitative inquiry; that of illuminating the landscape of competing representations of chiropractic. The paradigm's ability (indeed focus) is to be sensitive to different local and specific contexts of chiropractic [exemplified by those within the profession who promote the development of 'evidence-based practice', while others accentuate 'wellness']. This sensitivity and focus are often missing from quantitative research (4).

The expansion of clinical research recognising the importance of the individual and context, including the psychosocial elements of back pain has now been extensively catalogued since the time of Waddell (42,43). Much of this work found its way into outcome scales that moved toward quantitative research, but the contextual aspects of psychosocial medicine should be acknowledged; serving also as an ideal bridge to qualitative research in chiropractic. Many modifications of the traditional RCT have

now developed that allow it to make "kinder, gentler" forms of measurement; it can be designed to avoid many of the traditional pitfalls. (41)

## CONCLUSION

Kleynhans, as far back as 1998, called for chiropractic to embrace both quantitative and qualitative research paradigms, and that qualitative methods are the only means to study many questions, problems or issues relating to the humanistic aspects of chiropractic practice; since they have a special role in addressing philosophical issues in chiropractic care relating to its vitalistic and metaphysical roots (42). Chiropractic seems to be perennially living in a time of parenthesis, a time between eras (46,47). This is however, not a situation unique to chiropractic; healthcare is facing challenges world-wide; aging populations are resulting in increased incidence and prevalence of chronic conditions and consequent exploding health-care budgets. Given the growing cost-effectiveness credentials of chiropractic and the CAM sector generally, the "glass half-empty" view held by these commentators may fade with time (43,44). Those researchers who are thus willing to handle the ambiguity of this in-between period and to anticipate the new era will be a quantum leap ahead of those who cling tenaciously to the past (45). The importance of a heightened appreciation of the importance of both qualitative and quantitative research to chiropractic may be perhaps best expressed by a somewhat liberal paraphrase of Frijof Capra. (I invite readers to insert 'chiropractic' in parentheses);

*"A full understanding ... will be reached only when we approach it through the interplay of three different levels of description; 1) the biology of the observed phenomena, 2) the laws of physics and biochemistry, and 3) the nonlinear dynamics of complex systems... A true appreciation of science will be formulated only when we understand how these three levels of description can be woven together in ... the "triple braid" of research. When the study of science is approached by braiding together experience, neurobiology and nonlinear dynamics, the "hard problem" turns into the challenge of understanding and accepting two new scientific paradigms. The first is the paradigm of complexity theory. Since most scientists are used to working with linear models, they are often reluctant to adopt the nonlinear framework of complexity theory and find it difficult to appreciate fully the implications of nonlinear dynamics... the second is the recognition that the analysis of lived experience, i.e. of subjective phenomena, has to be an integral part of any science. This amounts to a profound change of methodology, which many scientists are reluctant to embrace..." (46)*

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## Qualitative Research

Amorin-Woods

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