MEANING AND MECHANISM IN OSTEOPATHY

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ABSTRACT

Osteopathy is a demand-led service, confronting external demands for evidence and internal debate about whether future development should be based on the medical model. Much of the dialogue between osteopathy, complementary and conventional medicine is framed in terms of holism and reductionism. However, research has focused on trials of manipulation and the possibility that the central terms of problem, process and outcome may have a different meaning within holistic and reductionist frames of reference has attracted little research attention. This possibility provided the focus for the current enquiry into pain meaning, management and outcome in osteopathic practice.

The semiotic distinction between indexical, iconic and symbolic signs was used to investigate the influence of explanatory frameworks on interpretation and management of chronic pain. It is concluded that in conventional medicine, reductionist definition of objects in terms of properties is reflected in a tendency towards polarisation between physical indexical interpretation of pain; and reciprocally defined psychosocial iconic or symbolic interpretation. In osteopathy, holistic definition of objects in terms of inter-relationship is theoretically reflected in symbolic understanding of pain in terms of the unique person/environment context, though there is little evidence that this is reflected in practice. Facet theory and methodology was used to translate the focus on physical and psychosocial relationships in osteopathic pain interpretation, management and outcome evaluation into a series of empirical studies.

The relationship between practitioners (n=3) pain explanation, treatment and outcome was evaluated in a questionnaire and interview study of 150 National Health Service (NHS) patients. Explanations were found to map onto the semiotic index (physical); icon (uncertain), symbol (physical and psychosocial) distinction. This was associated with corresponding differences in practitioners’ treatment intentions and outcome evaluation; patients’ self-reported health status, and, to a much lesser extent, outcome. This distinction was independent of low back pain (LBP), which has provided the focus for trials of manipulation.

A questionnaire study of methods used and perception of the ways in which osteopathy helps patients (n=74 osteopaths) showed widespread multi-modal practice.
Treatment use was described as an interaction between modality (e.g., physical non-invasive, psychological) and degree of specialisation. Individual differences were associated with number and range of methods used, but not physical or psychosocial modality. Osteopathy was most frequently rated as helping patients to understand their problem, enhancing well-being and symptom relief.

Two parallel sentence completion studies of private osteopathic patients were carried out to evaluate expectations (n=267) and experience of the helpful and unhelpful aspects of treatment (n=211). Responses were content-analysed using the mapping sentence. Results showed problem descriptions were primarily body-based, though a minority referred to the whole body or person. Process was described primarily in terms of explanation, which provides the basis for perception of osteopathy as a natural, constructive treatment which treats the cause of the problem, and facilitates self help, in the context of an ongoing therapeutic relationship. Outcome was primarily described in terms of pain relief, mobility, activity, well-being, prevention and health promotion. A subgroup of patients described the most unhelpful aspects of osteopathy in terms of lack of understanding and limited effectiveness, associated with uncertainty about whether to invest in further treatment.

In all studies, osteopathic practice was associated with "both physical and psychosocial" understanding and management. This is consistent with the structural characteristics of the holistic explanatory framework, and does not correspond to definitions of problem, process and outcome definitions in trials of manipulation. In view of the limitations of dualism and advocacy of the biopsychosocial model, meaning and management of complex problems in routine practice would provide a productive and osteopathically valid focus for future research.
OVERVIEW AND CHAPTER SUMMARIES

Osteopathy is currently confronting the challenge of legitimising knowledge and practice in the wider scientific and clinical community. At this stage of professionalisation, osteopathic research almost inevitably requires interdisciplinary collaboration, and most of the work to date has been conducted with medical researchers. The current thesis originated from recognition of the potential contribution of psychology, and was carried out as an extension of the authors role as lecturer in psychology and health at the British School of Osteopathy (BSO). In the context of a limited history of dialogue between psychology and osteopathy, the first task was to map out a shared frame of reference within the demand for evidence of effectiveness could be translated into meaningful research questions.

Chapter 1 Osteopathy: mapping its place
Osteopathy includes both a knowledge base of anatomy, physiology and clinical medicine shared with conventional medicine, and a concern with the whole person shared with CM. Holistic construction of objects in terms of relationships has proved difficult to quantify, by contrast with reductionist construction of objects in terms of properties. The claim to holism therefore implies that the distinctive feature of CM is construction of problem, process and outcome in relational terms. This suggests that the research crisis is not simply a result of inadequate resources to meet external demands for evidence, but a theoretical and methodological problem common to all holistic theories. From this perspective, research strategies which embody reductionist assumptions about the objects of enquiry may lack validity and fail to address the empirical claim that holism in CM corresponds to a different understanding which contrasts with the reductionism attributed to conventional medicine (defined throughout this thesis as a collective term for NHS health care providers).

Comparison of osteopathic claims and accounts of practice with the empirical research literature resulted in formulation of the problem which has provided the focus for this thesis: how to address the question "does it work"? if the central concepts of problem, process and outcome may have a different meaning within holistic and reductionist explanatory frameworks.
Chapter 2 The interpretive challenge of chronic pain

The semiotic distinction between indexical (causal relationship between sign and signified), iconic (resemblance between sign and signified) and symbolic (interpreted relationship between sign and signified) signs was used as a cross-disciplinary classification system to compare the structure rather than content of pain interpretation. This analysis indicated that some differences in structure of pain interpretation in conventional medicine, CM (complementary medicine) and osteopathy are consistent with the distinction between holism and reductionism.

In conventional medicine, indexical interpretation has proved highly effective when pain can be understood and effectively treated on the basis of known physical pathology. Many cases of chronic pain are biomedically indeterminate, in that no pathological cause can be identified to account for symptoms. Current evidence is inadequate to determine whether these conditions can, in principle, be translated into a sign of physical pathology, e.g., as a result of developments in diagnostic technology, or whether they represent the limits of the biomedical paradigm, e.g., because the problem is inherently biopsychosocial. Perseverance with the diagnostic quest has been recognized as unhelpful, and may be brought to an end, a discrete shift to iconic interpretation of the pain as the problem in itself, or symbolic interpretation of pain as an indication of psychosocial problems. Dualism associated with the reductionist explanatory framework is reflected in the polarisation between indexical (physical) and symbolic (psychosocial) interpretation, and has been recognized as unhelpful in clinical understanding and management of chronic pain.

Recurring themes in the CM literature suggest an idiographic symbolic approach to problem interpretation. This includes emphasis on the whole person, described as mind, body and spirit in context; the unique qualities of patient, practitioner, and the interaction between them; and the potential for self-healing. Symptoms are understood as meaningful indications of an imbalance in the person/environment system; and outcome as facilitating wholeness and health. Strategies for managing the complexity of idiographic problem representation include use of metaphor and privileging the patients' experience, though much of the holistic literature has been generated within conventional
medicine rather than CM, and questions have been raised about the extent to which this translates into clinical practice.

Within osteopathy, the predominantly biomechanical literature suggests indexical interpretation. However, holism is explicitly taught at the BSO, using general systems theory as an organising framework. Some conceptual and diagnostic tools are based on hierarchical elaboration of basic concepts such as the lesion, function, health and the body. This suggests that psychosocial factors can, in principle, be accommodated at higher levels of description within the same frame of reference, without the need for a discrete shift from physical to psychosocial explanation. However, there is little available evidence about how osteopaths understand and manage chronic pain in routine clinical practice.

The strategy adopted in this thesis was to empirically evaluate whether osteopathic patients and practitioners understand problem, process and outcome in holistic or reductionist terms. Findings were compared with definitions of these terms in the research literature and conventional medical practice in order to identify productive directions for future research.

Chapter 3 Facet theory and methodology
Facet theory was used to translate the research focus into a series of empirical studies. A distinctive feature of this methodology is the construction of objects of enquiry in terms of relationships, which is compatible with holism. In relation to understanding and management of chronic pain, holism was defined as emphasis on relationships between physical and psychosocial factors; and reductionism as emphasis on either physical or psychosocial factors. These definitions were formulated as a mapping sentence, which provides the basis for an integrative exploration of the nature and consequence of different ways of representing complex problems. Data from each study were analysed in order to evaluate the structure of relationships between physical and psychosocial factors in relation to a particular domain; and to identify patterns of individual variation in relation to the identified structure.
Chapter 4 Pain explanation, treatment process and outcome

The Stockwell study (study 1) was carried out to evaluate relationships between practitioners' explanations of pain, treatment intentions and outcome. Interview and questionnaire data were obtained from 150 NHS primary care patients treated by three manual therapists (two osteopaths and one Shiatsu). Subgroups corresponding to indexical (primary physical), iconic (uncertain) and symbolic (psychological) interpretation were identified from cluster analysis of practitioners' ratings of physical and psychosocial influences on pain and recovery in each case. Pain interpretation was holistic in that there were no between group differences in physical attributions: psychosocial factors were taken into account in addition to but not as an alternative to physical factors. Subgroups were independent of LBP, which has provided a focus for trials of manipulation. The clear and interpretable relationships identified between these subgroups, practitioners' treatment intentions, and patients' self-reported health status provides some indication of the empirical validity of this classification. However, as the study was based on a small sample of practitioners, results may reflect individual characteristics rather than holistic explanatory framework.

Chapter 5 Osteopaths' use of treatment methods and perception of treatment effects

The BSO questionnaire studies were carried out to evaluate self-reported treatment use (study 2); and perceptions of treatment mechanism (study 3) in 74 osteopathic faculty members. Results showed extensive use of both physical and psychosocial methods. There were indications of a cumulative order between non-cranial osteopaths, so that a wider range of methods was used in addition to, and not in place of, basic physical techniques. These results suggest restriction of intervention to standardized manipulation in fastidious trials is not representative of practice. Pragmatic trials provide a closer but still more restricted approximation to modal osteopathic practice. Patterns of treatment use suggest a closer analogy with multi-modal management of chronic illness and health promotion in conventional medicine, than single problem/single method biomedical practice.

Osteopaths' perception of treatment effects (study 3) was evaluated using a questionnaire derived from Guttman & Levy's (1982) mapping sentence for adjustive behaviour. This includes both well-being and coping within the theoretical frame of
reference. Perceived treatment effects were defined in terms of the extent to which osteopathic treatment facilitates different kinds of physical and psychosocial adjustment in patients. The most commonly endorsed items were understanding, enhancing well-being and symptom relief. Individual differences were consistent with a broadly quantitative distinction in "psychological mindedness", and independent of perceived physical effects. However, this study was strongly theory-driven and feedback from 9 osteopaths indicated that questionnaire items did not correspond to their understanding of treatment mechanism. Results therefore reinforce the need for collaborative research, which imports minimal \textit{a priori} assumptions.

\textbf{Chapter 6 Patients' expectations and experience of osteopathy}

The EGOR sentence completion studies (study 4, chapter 6) were carried out to evaluate private patients' expectations of osteopathic treatment (n=267) and experience of the helpful and unhelpful aspects of osteopathy (n=211). Responses were content-analysed within the definitional framework of the mapping sentence. Results showed conceptual similarity in the content of patient expectations and experience. Patients explained pain in predominantly physical terms, though a minority used whole body, whole person or additional psychosocial descriptions. The central theme in patients' accounts of the treatment process was explanation and understanding of the problem. This was associated with perception of osteopathy as a natural, constructive form of treatment, which "got to the root of the problem" and provided a basis for self-help, in the context of a supportive therapeutic relationship. The central theme in patients' accounts of outcome was the experience of "feeling better", primarily pain relief which was often described as immediate. Patients also reported increased mobility, ability to lead a normal life, prevention and maintenance, and a feeling of well-being and relaxation. Some patients referred to the lack of explanation and effective treatment in conventional medicine. Unhelpful aspects of osteopathy included lack of access on the NHS, lack of explanation and limited or partial effectiveness. These responses were made by a sub-group of patients and conceptually related. Patients were uncertain about the problem, whether and how treatment could help, whether short-term relief was an indication of genuine improvement, and whether continued investment in treatment would lead to hoped for improvements.
Chapter 7 Discussion

Results provide some support for the osteopathic claim to holism, and are broadly consistent with the proposal that problem interpretation and treatment process may be shaped by the structural characteristics of explanatory framework. This understanding is potentially important in the context of the recognised clinical and conceptual difficulties associated with dualist approaches to complex, chronic biopsychosocial problems. However, osteopathic holism is not reflected in trials of manipulation, which have been based on increasingly specific definitions of problem, process and outcome in terms of particular quantifiable properties. Holism and reductionism have been described as complementary levels of description, and the scope for holism defined in terms of conditions which have not been understood within a reductionist frame of reference. The clinical and research implications of this integrative strategy are considered in relation to primarily physical (indexical), uncertain (iconic) and both physical and psychological (symbolic) modes of osteopathic practice.

In conclusion, current findings provide a theoretical and empirical basis for recommending that the research focus should be expanded from comparison between osteopathy and prototypical biomedical treatment, to comparison of different approaches to complex biomedically indeterminate problems, which are understood in the context of different assumptions about the person, and how knowledge of the person can be obtained. A valid and potentially fruitful strategy would therefore be to ground research in osteopathic theory and practice, in collaboration with other disciplines who share particular common interests, rather than uncritical adoption of methodologies from different disciplines. In view of the potent reflexive impact of research, this strategy could minimize the risk of defining the profession in terms, which reflect the assumptions embodied in the research methodology rather than the empirical characteristics of osteopathic practice. The focus on meaning as well as mechanism provides a broad basis for intra- and interdisciplinary dialogue, and a means of exploiting the reflexive potential of research to facilitate development of osteopathic knowledge and practice towards the broadly shared aims and values of the profession.
CHAPTER 1
OSTEOPATHY: MAPPING ITS PLACE

Osteopathy was founded in America during the 1870's by Still, a former "magnetic healer" and intensely religious man who established an infirmary and spa offering manipulative treatments, baths, surgery and a teaching school. He was joined during the early 1890's by Smith and Littlejohn, two Scottish surgeons, and in the late 1890's by Littlejohn's younger brother, John Martin, who subsequently established the British School of Osteopathy (BSO) in London in 1916. Still's approach has been described as largely intuitive and inspirational, though he did produce a definition of osteopathy on the final page of his autobiography:

"Osteopathy is that science which consists of such exact, exhaustive and verifiable knowledge of the structure and function of the human mechanism, anatomical physiological and psychological, including the chemistry and physics of its known elements, as has made discoverable certain organic laws and remedial resources, within the body itself, by which nature under the scientific treatment peculiar to osteopathic practice, apart from all ordinary methods of extraneous, artificial or medicinal stimulation, and in harmonious accord with its own mechanical principles, molecular activities and metabolic processes, may recover from displacements, disorganisations, derangement's, and consequent disease, and regain its normal equilibrium of form and function in health and strength" (Still, 1st edition, 1899).

This "torturous" definition has been described as a "statement of intent" to use minimal intervention in order to make better use of the human organism's own intrinsic structuring processes and functions in order to restore health (Latey, 1990, p13).

Osteopathy has expanded from this humble beginning, and is now used by an estimated 8% of the adult population in the UK (Social Surveys Gallup Poll Ltd, 1991). This expansion is part of a broader resurgence of interest in complementary medicine (CM) over the past 30 years, which has been described as "the third force in the therapeutic arena" after medicine and psychotherapy (Rapoport, 1993), and in Europe is the fastest growing industry after microelectronics, worth an estimated £3-4 billion annually (Fulder, 1998).

In the UK, an estimated 1.5 million people (2.6% of the population) received courses of CM treatment during 1985 giving an average of between 8 and 11 million consultations annually (Fulder & Monro 1985). Subsequent estimates indicate 14% of the
population used CM in 1986 (Which! 1986), rising to 25% in 1995 (Which? 1995), only
6% of whom used CM within the framework of the NHS. A MORI (1989) poll found
74% of the British public in favour of including CM within the NHS. In America, an
estimated 33% of the population have used CM, and a study in Vermont found the
proportion of full-time CM practitioners (1:652 population) approximately equal to that
of medical practitioners (McPartland & Richardson Soons, 1997). During 1990, 10% of
the American population consulted a CM practitioner, making an estimated total of 425
million annual CM consultations. This was costed at $11.73 billion, of which 75% was
paid for directly rather than by health insurance (Eisenberg et al, 1993). Osteopathy is the
most prevalent form of CM in the UK, used by 28% of the population of CM users
(Which?, 1995). In the USA where all osteopaths are medically qualified, 10% of the
population have an osteopathic physician as a primary care provider (Allen, 1990).

CM is also increasingly recognized within the medical profession. CM is now
included in the core curriculum of a number of medical schools in the UK, and at least 44 in
the USA, including Harvard, Yale and Cornell (Daly, 1997). Many medical practitioners
take an active interest in CM, partly as result of patients’ use (Reilly, 1983), and a
substantial proportion of General Practitioners (GP’s) refer patients to CM (Wharton &
Lewith, 1986), though the proportion varies depending on how CM is defined. Over 50% of
a sample of over 200 GP’s in the UK (Anderson & Anderson, 1987) and almost all of 360
GP’s in the Netherlands (Visser et al, 1992) had referred patients to CM. Similarly, 58% of
90 acupuncture patients, and 83% of osteopathic patients said that treatment had been
suggested by their GP (Budd et al, 1990). GP’s have described osteopathy as the most
useful form of CM to include in primary care (Rees, 1976), and 74% of fund-holding
GP’s state that they would refer patients suffering from LBP to osteopaths, though there is
debate about the scope for osteopathic treatment of other conditions (Cameron et al,
1993).

The demand for evidence
Having developed from a range of different philosophical traditions and empirical
practices, grown as a result of patient choice, and as a source of representations of health
and illness, CM is now thriving in a culture which demands that its claims be subjected to
empirical scrutiny. The demand for evidence stems from a number of sources, both within
and outside CM. There is a shared emphasis on effectiveness, though the kind of evidence required depends partly on the particular concerns of each group.

The public
CM has developed as a result of consumer demand, and the hallmarks of the consumer movement are safety, high-quality information, and customer satisfaction, which includes provision of efficient procedures for handling complaints. Dickinson (1996) has argued that the consumer movement will support interference in a free market, or override unlimited choice when safety is at stake, so unless safe treatment can be guaranteed, patients require adequate information about risk. He suggests the public are currently under informed:

"whatever the causes, they are more confident of a successful outcome than the evidence will support; over-optimistic about the safety of their treatment; and more confident than they should be about their ability to control the therapist/patient relationship" (Dickinson, 1996, p158).

A number of professionals from different disciplines including medicine (Baum, 1987) and journalism (Grant, 1997) have warned that unsubstantiated CM claims may mislead the public into delaying the search for appropriate medical treatment.

Purchasers
It has been argued that the single development that may make CM more widely available is not dramatic evidence of effectiveness, but the reorganisation of the NHS into a more market-led model. This provides purchasers with more freedom of choice about which services to buy in, provided certain professional standards are met, and overall clinical responsibility remains with the medical practitioner (Wood, 1996 p40). All disciplines are, in principle, accountable to purchasers and the final court of appeal is seen more in terms of cost-effectiveness than professional authority: in the context of competition between different disciplines making similar claims, administrators appear to be primarily concerned with "what works best, cheapest". This is an inherently democratic procedure and has been broadly welcomed within CM as an opportunity to compete on a "level playing field" for an NHS role.

The National Association of Health Authorities and Trusts (Cameron, 1993) estimated that District Health Authorities were spending £1 million on CM in 1993, and 66% of purchasers declared themselves in favour of providing CM on the NHS. Lack of
information on effectiveness was reported to be the main factor influencing the decision on whether to support CM by 66% of District Health Authorities, 50% of GP fundholders and 59% of Family Health Service Authorities. The NHS standing group on health technology identified evaluation of the effectiveness of physiotherapy treatments for LBP in primary care as one of its highest research priorities (SGHT, 1994). This was subsequently extended to include evaluation of manipulative therapies (SGHT, 1995).

This pragmatic attitude towards service provision is reflected in the view that all those involved in health care are "engaged in a common search to find interventions that can reliably cure or ameliorate disease; reduce pain and suffering, and improve quality of life and functioning... in this search, there is no alternative, there is no mainstream - there are only interventions and procedures that work according to conventional standards of efficacy" (Gruman, 1995, p65).

The scientific clinical community
CM has been criticized as a manifestation of the antiscientific irrationality of the New Age Movement, and its popularity explained in terms of the inability of consumers to differentiate wishful thinking from reality. CM has provided a focus for teaching philosophy students how to differentiate real science from pseudoscience, using a range of criteria including empiricism, repeatability, testability, compatibility with existing knowledge, seeking out falsifying data, use of specific language and controlled experiments, and guarding against experimenter effects (Halpern, 1996, Gray, 1991).

The view of CM as anti-scientific has been eloquently expressed in the medical literature:

"The distinction between alternative and orthodox medicine is simply that of science versus nonscience, or the competing claims of the rationalism that has been hard won, since the age of the enlightenment, versus a return to the inductive philosophy of the dark ages, dressed up in the fashionable new garb of the 'New Age' movement" (Baum, 1987).

In response to a series of articles on manipulative therapies in the British Medical Journal, Bramwell-Wesley (1999) argued that this form of practice is isolated from scientific medicine, common sense and logic:

"the majority of chiropractors in the US and Canada espouse treatments based on a world view totally at odds with modern science. .. A majority believe in the innate healing potential of the body... I am at a loss to understand why the BMJ, surely an organ devoted to REAL medicine, should be giving house room to chiropractic rot".

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Similarly, the initial British Medical Association (BMA) report on CM (BMA, 1986) was largely antagonistic, mobilising scientific discourse against which CM was claimed to be demonstrably inadequate, and indicating the absence of any scientific principles in the tenets of some therapies. CM was described in terms of "primitive beliefs and outmoded practices, almost all without basis" which had developed as a result of a "flight from science" on the part of gullible or desperate patients who "failed to appreciate the scope and benefits of orthodox medical treatments". The subsequent BMA report on CM adopted a more accepting stance, emphasising the importance of professional standards, regulation and the need for CM practitioners to communicate with GP's (BMA, 1993).

From this perspective, science has an obligation to assume a hegemonic role and challenge the superstitious lay beliefs which have persisted - possibly even increased - despite the massive scientific achievements of the past century.

**Professionalisation of CM**

CM is currently in a transitional stage from a largely unregulated "rainbow alliance" (Baum, 1987) of independent practitioners dependent on word of mouth recommendation from satisfied patients (Sharma, 1996), towards a professional infrastructure which provides a mechanism for establishing the relationship between CM disciplines and other professions. Though professionalisation is uneven across CM, some disciplines including acupuncture, homoeopathy, chiropractic and osteopathy, now have educational institutions which offer accredited degree courses, carry out research, organize international conferences and publish journals. Osteopathy obtained statutory registration in 1993, and an MSc program was established at the BSO in 1996.

From an intradisciplinary perspective, professionalisation requires shifting the knowledge base away from charismatic individuals, who inspire enthusiasm in students and confer internal legitimacy on a discipline, towards a well-defined and accredited core curriculum (Cant, 1996). The long-term value of adopting a critical evaluative stance rather than responding to the current popularity of CM with complacency has been recognized within CM (Pietroni, 1986). Woodhouse has recommended the development of a set of principles to enhance the prospect of working through contradictions in CM, reducing the tendency for "minimal data ... to be maximally interpreted" e.g., tingling hands as the
awakening of healing potential; and for the naive and uncritical use of scientific studies to support particular claims, such as "the Simontons showed that we can visualize cancer away" (Woodhouse, 1995, p66). The process of articulating the knowledge base is challenging because it inevitably surfaces debates and controversies which were less salient in the more autonomous and loosely regulated structure of pre-professional CM. However, the attempt to formulate and answer such questions using established procedures can be seen as the engine which drives scientific progress.

CM practitioners have expressed optimism that professionalisation and government registration will result in expansion, and increased credibility though most expressed a wish to remain a separate and autonomous domain independent of conventional medicine (Cant & Calnan, 1991). However, professionalisation is not without risk: it involves heavy expenditure of time, energy and resources; has a powerful reflexive impact on practice, and the outcome in terms of the eventual location of CM on the professional map of health care providers is uncertain (Gruman, 1995). More fundamentally, CM's task of codifying its knowledge base is taking place in the context of a critical re-evaluation of the nature of knowledge and its relationship to professional practice.

In health-related professions, this relationship is predominantly understood as a direct application of scientific knowledge to patient problems, and defined in terms of evidence-based practice. Objective knowledge of cause and effect relationships is established through accepted scientific procedures and disseminated through accredited training programs. This knowledge provides the basis for specialist technical solutions to well-formed instrumental problems. Professional status is dependent on securing a discipline specific basis of generally applicable expert knowledge, which is legitimated with reference to the scientific meta-narrative (Lyotard 1980). This epistemology of practice has been described as "technical rationality" (Schon, 1987). The route to professionalisation for CM involves establishing privileged access to a scientific knowledge base, which can be deployed on behalf of the lay public.

Alternatively, the validity of professional claims to expert knowledge in matters of human importance has been a focus for debate (e.g. Gergen & Kaye, 1992; Schon, 1991; 1987; Illich, 1976), and public concern about the adequacy and legitimacy of professional
knowledge has been linked to loss of confidence in the professions, which is reflected in readiness to blame professionals for their failures; calls for external regulation of professional activity; creation of public organisations to protest and protect against professionally recommended policies, and appeals to the courts for recourse against professional incompetence (Schon, 1991, p4).

The research crisis
As a result of external demands for evidence and internal demands for a legitimized knowledge base, CM is widely understood to be facing a research crisis. Having made considerable inroads in clinical practice, its future development is likely to be shaped by the nature and effectiveness of its engagement with the research process. There is almost universal consensus that the ubiquitous call for "more research" is particularly urgent in CM, and the predominant research question confronting all disciplines is "does it work?". There is more scope for debate about what kinds of research are needed.

A central aspect of professionalisation is the articulation and legitimation of CM knowledge relative to other established knowledge communities (Sharma, 1996). In the context of currently scarce resources for research or postgraduate training in CM, engagement in research almost inevitably requires collaboration with different disciplines, which are unlikely to share a common background of knowledge and theoretical orientation. The task of engaging in collaborative research to "legitimate its existence vis-a-vis other disciplines and society at large" (Robbins, 1993, p116) is challenging because the role of CM in the clinical arena does not correspond to any single clearly defined position in relation to other health care disciplines or traditions.

In addition to discipline-specific knowledge, principles and practices, osteopathy includes a number of components, which are broadly shared with other disciplines, and provide a potential basis for collaborative research. These include a holistic explanatory framework which is broadly shared with other CM disciplines; anatomy, physiology and clinical medicine which are shared with other medical disciplines; palpatory skills and manipulative techniques which are broadly shared with other manual medicine disciplines e.g. chiropractic and physiotherapy (Ben-Sorek & Davis, 1988); and a commitment to reflective practitioner model of professional training and development (Schon, 1987).
There have been relatively few collaborative research initiatives between osteopathy and other CM disciplines, with the exception of chiropractic. This may be partly attributable to the diverse historical and philosophical backgrounds, theories and methods of CM disciplines, and a common concern with defining their relationship to conventional medicine (Nanke & Canter, 1993). The COST action B4 in Unconventional Medicine was established in 1993 as part of a European Commission initiative to increase collaboration in science and technology. The heterogeneity of CM is explicitly recognized in the statement that "the common denominator of all respective treatments is their exclusion from the realm of conventional, established scientific medicine and their sparse representation in research and teaching at universities", and debate about whether research should be based on application of existing methods (COST Action B4,1995).

The research crisis has been primarily considered in terms of the relationship between individual CM disciplines and conventional medicine. This is consistent with an emphasis on physical aspects of practice within CM, which has been attributed to the need to establish scientific credibility in order to obtain statutory recognition (Power, 1991), fear of reinforcing the allegation that CM is "nothing but the placebo effect" (Taylor, 1994), and the important role of the medical profession as advisors to state legislators in relation to registration of CM disciplines (Sharma, 1996, p166). The nature and implications of the relationship between CM and conventional medicine has been a focus of enquiry in sociology (Saks, 1995; Sharma, 1996) and anthropology (Power, 1991). Despite the fact that the "whole person" discourse of CM includes both psychological and physical aspects of the person, with few notable exceptions (e.g. Vincent & Furnham, 1997) consideration of the relationship between CM and psychology has been conspicuously scarce in the literature of either. However, there are a number of areas which may be of common concern.

Firstly, psychology could make a substantive contribution towards broadening the possibilities for CM research. Psychology is a theoretically and professionally heterogeneous domain which now plays a significant role within the structure of the NHS. In the process of establishing this role, psychology has confronted some similar problems to CM, both methodologically in the definition, quantification and observation of relevant variables, and culturally in establishing its relevance to conventional medicine (Gruman,
1995). As research-based disciplines, both clinical, and more recently, health psychology have developed a wide range of conceptual and methodological tools for establishing, legitimising and disseminating knowledge and informing practice. Psychological theories and methodologies provide a range of currently under-exploited resources, which could contribute towards more adequate representation of the psychosocial aspects of health and illness in CM research, and facilitate more broadly based dialogue with the scientific and clinical community.

Secondly, the fact that a significant proportion of the population uses CM is a phenomenon of intrinsic interest to psychology in its own right. Despite the diversity of theories and methods, CM disciplines share a common discourse centred on "the whole person" and positive health (Levine, 1994); similar patterns of patient motivation (Furnham, 1996) and history of recent expansion (e.g. Fulder, 1984). CM has developed as a result of free choices made and paid for by patients as consumers, in the absence of any central regulatory agency or body of expert knowledge concerning the appropriateness of particular treatment for particular conditions. CM provides a potentially rich source of information about the beliefs, concerns and priorities of ill people seeking help:

"there is a growing body of previously published evidence that the public wants it, will pay for it, and will get it! Whatever the arguments and prejudices for and against these therapeutic modalities, it is no longer scientific, nor rational, to ignore the phenomenon, and the need for systematic evidence is ever more urgent" (Jobst, 1997, p305).

Claxton (1991) has proposed that many contemporary issues such as over-consumption are "at root not economic or technical problems, but psychological ones, reflections of the beliefs, values and assumptions that billions of ordinary people are expressing in their daily choices and life goals... It is the implicit theories that we hold that determine how we lead our lives" (Claxton, 1991, p249). He advocates a psychosophical approach to the study of personal philosophies, values and lifestyles associated with such "psychological epidemics " as depression and psychosomatic disorders. The psychosophical approach is proposed as a generic term for applying psychology, psychotherapy and philosophy to the task of understanding the content of implicit philosophies, and the ways in which these philosophies inform impulses, perceptions and needs. Though CM may not constitute a psychological epidemic, it is a demand-led service with a history of rapid recent expansion, which claims to be based on a holistic paradigm, by contrast with the reductionist
paradigm attributed to conventional medicine. The psychosophical strategy provides a means of exploring the role of philosophical frameworks in the development of CM.

There may be an analogy between CM as a source of ideas about health and illness, and psychoanalytic representations of emotional and interpersonal problems, which have been assimilated into popular culture (Moscovici, 1976). A content analysis of CM and holistic medical texts has mapped out the terms of this discourse as a movement from soma, separate entities, isolation, reductionism, mechanism, didacticism, empiricism, dualism, objectivism, to psyche, psychosocial, occupational, personal, behavioural, humanism, self-healing, patient agency, monism and subjectivism (Power, 1991). This shift has been described as one facet of a "paradigm war" or emerging interdisciplinary worldview (Woodhouse, 1995), represented in the clinical arena by a "struggle for the right to define the causes of human problems" (Marshall, 1995).

To the extent that different research strategies embody different assumptions about the nature of the person, and how knowledge of the person can be obtained, CM's claim to holism raises substantive questions about how to respond to the research crisis. Uncritical choice of research strategy may preclude empirical evaluation of CM's claim to represent a different way of thinking about health and illness. Conversely, whether or not holism and reductionism embody different assumptions, and the implications of these assumptions for CM and conventional medical practice and research, is a substantive area of enquiry. The starting point for this enquiry is consideration of the descriptive meaning of holism and reductionism, and the way in which they have contributed towards defining the research crisis in CM.

Reductionism: what is it made of?
Reductionism is the broad philosophical framework which has provided the context for the dramatic progress in science and technology over the past century. At an ontological level, reductionism is the belief that reality consists of a minimal number of substances which constitute the building blocks, or basic unit of analysis for everything else, and in terms of which everything else can be explained. The view that there is only one kind of basic substance is monism, which can be either materialist i.e., everything can be reduced to matter; or idealist, i.e. everything can be reduced to mind. The view that there are two fundamental kinds of substance, usually mind and matter, is dualism.
At a methodological level, the reductionist view is that "small is beautiful" (Honderich, 1995, p750) so the best scientific strategy is to explain any phenomenon in terms of the most basic entities, or the simplest level of analysis possible. Objects of enquiry are construed as self-contained entities which can be defined in terms of their internal properties. It has been described as a bottom-up path to knowledge "in which we progress by dissecting complicated things, breaking them down step by step into manageable pieces" (Barrow, 1998, p70), associated with the view that "a whole can be understood completely if you understand its parts and the nature of their sum" (Hofstadter, 1979, p312).

Reductionism has been described not only as the predominant framework for scientific activity, but as a particular "world hypothesis" or generic set of beliefs which people use to make sense of their lives and the world (Pepper, 1942). On Pepper's account, reductionism is the most basic world hypothesis, termed "formistic" in which all structures and functions are thought to exist as separate categories, associated with a binary "either/or" approach to understanding, for example "animate/inanimate" "healthy/ill" "mind/body". This approach is a prerequisite for categorisation, which is basic to much scientific activity.

Reductionism is characterized by a number of root metaphors, including fragmentation, or a tendency to make distinctions and classify phenomena into objects, which are then construed as self-contained and understandable in isolation from their context, for example diagnostic categories; and "localisation": the assumption that to be is to be in a certain measurable place at a certain measurable time, for example "if we think of values as socialized expressions of approval, and expressions of approval as reflecting states of consciousness, and consciousness as neurochemistry in action, then values become progressively more localisable" (Woodhouse, 1995, p16).

Despite the tremendous achievements of modern science, the term reductionism seems to have acquired a negative rhetorical force, and has been described as "one of the most used and abused terms in the philosophical lexicon" (Honderich, 1995, p750). This attitude may be partly explained by "a tendency ... to say that if something is simple and tidy and clear cut there must be something wrong with it. There are people who want the world to be a complicated messy place and so, when a Watson or a Crick comes along and
shows that what had been messy is beautifully and elegantly and supremely simple, there is
a sort of resentment" (Dawkins, 1998, p316).

In summary, a central feature of reductionism is construction of the objects of
enquiry as discrete entities defined by their properties. The corresponding research strategy
of analysing complex entities into component parts has resulted in massive scientific and
technological achievements. Reductionist philosophy provides a rationale for deconstruction
of CM into particular methods, which can be independently studied, and the whole
understood primarily as the sum of those methods.

An empiricist research agenda
Reductionism is consistent with empiricist philosophy, based on the proposition that the
final arbiter of any scientific dispute must be the evidence of observation (Doyle &
Harris, 1986). During the early twentieth century, the logical positivists attempted to
develop a verification criterion to distinguish between genuine and pseudoscience. This
identified the meaning of a statement with its method of verification so that
pseudoscientific or metaphysical statements could be defined as meaningless because
they were empirically unverifiable (e.g. Carnap, 1956). Questions or disputes which
could not be resolved by observation were defined as belonging to the domain of
metaphysics, dogma, superstition and speculation. The verification principle was
reformulated by Popper (1959) into the falsifiability principle, which identified genuine
scientific theories as those which make testable predictions and are abandoned when they
fail to meet those tests, so that pseudoscientific theories could be defined as those which
were not tested or not abandoned following failure. This has encouraged scientists to
attempt to disprove rather than prove theories, e.g., by using the null hypothesis.

Despite the recognized limitations of empiricist philosophy of science, much of the
scientific criticism of CM is explicitly framed in terms of empiricist language and aims. The
task of distinguishing clearly between genuine and pseudo science has moved from
philosophy to empirical science. From this perspective, the task confronting CM is to
disprove, or falsify the claim that it is pseudoscientific. This requires a two stage process.
Firstly, in order to establish CM theories and statements as genuinely scientific, they must
be articulated in a form which can be observationally verified or falsified. Secondly, in order
to establish theories and statements as true, they must be verified by empirical
correspondence with objective events, or by the repeated failure of rigorous attempts to obtain observational evidence of falsification. This research strategy assumes some form of representational relationship between language and the objective world, so that any particular theoretical construct e.g. diagnosis, can be empirically evaluated in terms of correspondence with quantifiable patient characteristics.

Randomised controlled trials: an empirical verification criterion?

Within conventional medicine, randomised controlled trials (RCT's) provide the "gold standard" for differentiating between effective and ineffective treatments, and can be seen as the empirical scientist's equivalent of the verification or falsifiability principle. This involves random assignment of a homogenous patient group to either an active treatment or placebo control group. In the placebo group, outcome is attributed to "non-specific factors"; in the active treatment group efficacy is measured by subtracting placebo outcome from total treatment effect. The active treatment is construed as the single causal agent responsible for between group outcome differences, and the mechanism is explained as a cause and effect relationship between intervention and a specific biological/physiological outcome (Lyon, 1990).

Use of the RCT dates from post WWII recognition of the ubiquitous role of non-specific factors in medical research, and development of the research tools of randomisation and blinding which created the question of "what is beyond the placebo" and supplied the mechanism for an answer. In combination with sophisticated statistical methods, controlled trials provide quantitative, precise and objective answers to questions about efficacy as required by a mechanistic orientated biology (Kaptchuk et al, 1996, p42). Since the thalidomide tragedy in the 1960's, comparison of an intervention with placebo became the pre-eminent question for biomedicine and government regulatory agencies responsible for approving access to consumers.

The demand for evidence has therefore been widely translated into "increasing pressure on unconventional therapy to document effects by using the randomised double-blind controlled trial" (Launso, 1994, p7), which is widely perceived as the only route to scientific legitimacy and an NHS role. At an anecdotal level, Pincus (1997, p4) observes that at a Harvard Medical School course on CM, "almost all speakers called for clinical trials to analyse the therapy presented; (without apparent concern whether this method
would provide definitive information). Similarly, Gruman, a representative of the Centre for the Advancement of Health in Washington, comments that after a CM conference there was "a surprising level of agreement about one very critical issue: it is time to invest substantial energy and resources in subjecting alternative medicine to the test of modern science in order to determine their efficacy" (Gruman, 1995, p65).

Randomised controlled trials of manipulation
Despite the widespread consensus that available research evidence concerning the efficacy of CM is inadequate, manipulation has been the most frequently studied intervention for LBP in randomised controlled clinical trials (Koes et al, 1996). The results of these trials have been summarized in a number of meta-analytic studies (e.g. Curtis, 1988; Koes et al, 1991; Shekelle et al, 1992), including two studies of 36 trials to evaluate the evidential basis for USA (Bigos et al, 1994) and UK (CSAG, 1994) guidelines recommending use of manipulation in acute LBP (Koes et al, 1996). Findings have provided sufficient evidence of efficacy to warrant inclusion of manipulation within evidence-based guidelines for management of acute LBP. However, currently available evidence has been described as inadequate to definitively answer the question of whether manipulation is more effective than placebo (Kaptchuk et al; 1996; Koes et al, 1996). Very similar conclusions have been drawn from meta-analyses of RCTs in acupuncture (e.g. Eisenberg, 1993; Ter Reit et al, 1990) and homoeopathy (e.g. Linde et al, 1997; Kleinjen et al, 1991). On the basis of a review of trial results across CM, Kaptchuk et al (1996) state that many methodological problems must be resolved before randomised controlled trials produce definitive answers to the question of whether any form of CM is more effective than placebo.

The quality of manipulation trials have been assessed in recent meta-analyses (e.g. Shekelle et al, 1992; Koes et al, 1996) using criteria developed for the evaluation of LBP interventions (Koes et al, 1991). These criteria represent key features of the fastidious RCT, including homogenous patient population; randomisation procedure, blinding, description of intervention and avoidance of co-interventions. Each criterion is weighted, so that trials can be rated on a scale from 0-100, though the authors acknowledge some inevitable arbitrariness in allocation of weightings. Both Shekelle and Koes conclude that the quality of trials is generally poor, though there is a slight
improvement from pre 1990 trials (median score 37) to post 1990 trials (median score 44). Koes et al (1996) recommend that future meta-analyses could be limited to trials with high methodological quality. This is likely to have a powerful reflexive impact on osteopathic research, as these criteria define the gold standard for evaluation research in terms of the fastidious RCT, and the question to be addressed as efficacy beyond the placebo effect.

Limitations of RCTs
From a practical perspective, the research crisis can be largely seen as the problem of how to generate the resources required to "prove that it works" in response to external demands for evidence. Methodological problems are not unique to CM trials (e.g. Pocock, 1993), and could, in principle, be overcome e.g., by matching groups on the basis of prognostic factors; including multiple outcome criteria, increasing sample size (e.g. Pocock, 1993), extending follow up periods (e.g. Pincus, 1997) and carrying out replication studies (e.g. Kleinjen et al, 1991). These strategies almost invariably increase costs, which is a considerable problem given limited access to resources. The CM research crisis has been described as a catch 22: "we won't prescribe these alternatives because they are unproven, and we won't waste precious resources studying them because they can't work anyway" (Woodhouse, 1995, p354). Under a congressional mandate, the National Institute of Health is evaluating various forms of CM, though the small budget set aside for this purpose ($5 million for 1995/6) has been described as "largely symbolic, given the amount of research that would have to be undertaken by major research institutions to generate much interest in the medical community" (Woodhouse, 1995, p354). In the UK, the Research Council for Complementary Medicine (RCCM) was set up jointly by the medical profession and the main CM disciplines to address this problem, but the funding issue remains largely unresolved (Pincus, 1997).

More fundamentally, the research strategies adopted are likely to have a profound reflexive impact on the future development of CM. Research is not an inert mechanism which can be slotted into the epistemological foundation of a discipline in place of received wisdom, without shaking the structure. A brief consideration of the history of science suggests that research is a much more dynamic influence: issues which are a focus of research are more likely to become the growing edge of a discipline, a focus for
innovation and development and a central constituent of its justificatory discourse. By contrast, those issues which are not researched are more likely to atrophy and diminish in importance.

Positive RCT results constitute scientifically acceptable evidence that a particular CM method produced significantly greater improvement on a particular measure than placebo in patients with the same diagnosis. Such findings play a central role in negotiating the relationship between CM and the scientific and clinical community, but provide relatively little information within CM. Treatments selected for research are likely to be the most easily defined, specifically applicable methods already in general use, which are judged to be most effective, and positive trial results provide empirical support for continuing to use the method. To the extent that RCT evidence is specific to well defined method/problem combinations, and CM practitioners do not have a monopoly on those methods, it is in principle possible for demonstrably effective methods to be assimilated into conventional medical practice leaving the untested residue to CM.

Evidence of efficacy does not significantly contribute to understanding of mechanism: "It is not enough to know that a given practice works. Understanding how and why it works strengthens both our ability to intervene effectively and contributes more broadly to our understanding of human functioning" (Gruman, 1995, p69). Rapoport has argued that reliance on RCT's risks losing the phenomenon of interest by restricting research to easily quantifiable factors; is likely to gain compliance only from non-representative sample of those involved in CM, and avoids the conceptual challenge of developing research strategies which are relevant to holistic medicine (Rapoport, 1993).

Negative trial results constitute a considerably greater risk for CM than conventional medicine. The risk in all scientific research is that theoretical predictions may prove inconsistent with evidence, and though some degree of tenacity in the face of contradictory evidence is common, and may lead to scientific progress (Feyerabend, 1970), ultimately theories must be modified on the basis of evidence or risk the charge of being pseudo scientific by evading the possibility of falsification.

In conventional medicine, poor RCT results lead to the particular method not being sanctioned for general use so that it does not enter the clinical arena. The implications are different for CM, where the methods being evaluated may have been in use for centuries,
and are currently part of the treatment repertoire of thousands of practitioners, which is sought after by patients. Negative trial results cannot be ignored and must either stimulate costly methodologically improved trials, or removal of a widely used method from the largely unregulated clinical arena. For example, the Bristol Cancer Help Centre invited scientific evaluation by an external team of scientists and doctors. The initial research findings showing poor outcome (Bagenal et al, 1990) received considerable media attention, and were described in the (British Medical Journal) BMJ under the title "death from complementary medicine" (Richards, 1990). The researchers subsequently published a retraction (Chilvers et al, 1991), explaining that the results had been misinterpreted as the samples were not comparable in a number of ways. In spite of this, the clinic was closed down as a result, and one of the original researchers committed suicide some months after, though whether these events were connected is unclear. One legacy of this trial is an increased wariness within CM about participation in research:

"If inviting researchers into your Centre alienates your patients and nearly destroys your work, it is hardly likely to foster a productive relationship between complementary practitioners and researchers" (Vincent & Furnham, 1997, p255).

In summary, positive trial results may contribute to the external credibility of CM, and negative results stimulate methodologically improved trials or the abandonment of particular methods, but the extent to which any of these options will contribute to understanding what is going on in CM, and the development of a research based culture in which theoretical differences are articulated in testable form, and practice is refined on the basis of empirical evidence, is unclear. The choice of research strategy and focus has powerful reflexive implications for the future development of CM.

**Holism: what is it part of?**

Holism has been defined as "any view according to which properties of individual elements in a complex are taken to be determined by relations they bear to other elements" (Honderich, 1995, p371). This contrasts with the reductionist definition of elements in a complex in terms of their internal properties. The term seems to have acquired considerable positive evaluative force over recent years, though it is theoretically less well articulated than reductionism, and the literature is dispersed throughout many different areas of study (Phillips, 1976). Holism in CM is reflected in representations of the person as a
multidimensional being, possessing body mind and spirit, all inextricably connected, each part affecting the whole and the whole being greater than the sum of its parts (Power 1991).

At the most general level, holism has been described as the view that "everything is connected to everything else" or the "new age philosophy of interconnectedness" said to characterize the new physics, the new biology, new psychology, and the whole new age movement (Barry, 1993, p15). This interconnectedness is poetically represented in popular culture in the notion that a butterfly stirring the air today in Peking can transform storm systems next month in New York (Gleick, 1988).

Holistic approaches have most commonly been advocated in the life sciences to study complex systems with emergent properties which arise from properties and relationships between simpler constituents but are not predictable from or reducible to these constituents. For example the properties of water cannot be deduced from knowledge of the properties of hydrogen and oxygen alone. The central feature is a "top down" approach to understanding, in which the constituent parts of a whole are defined partly by their interrelationships. The object of study is therefore the whole functioning system rather than the constituent part in isolation or in a different context. From a holistic perspective, understanding of a living organism cannot be reconstituted from knowledge of its component parts studied in isolation, as when isolated they are no longer parts of a living system; a word cannot be understood independent of the language to which it belongs; and CM may have properties which cannot be predicted from or reduced to its constituent methods.

Holistic research methodology
Holism may provide the philosophical basis for CM, but it has not made a substantive contribution to empirical research. Systems Theory was developed as an approach to the study of systems which could not be completely analysed using a reductive approach due to non linear interaction between parts. The aim was to provide:

"a general science of wholeness, which up to now was considered a vague, hazy and semi-metaphysical concept. For sciences concerned with organized wholes, it would be of similar significance to that which probability theory has for science concerned with 'chance events'; the latter too is a formal mathematical discipline which can be applied to the most diverse fields" (von Bertalanffy, 1968, p47/8).

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The hope that cross-disciplinary application of GST would reveal laws of similar structures in different fields (Ranjan, 1998, p54) has been largely unfulfilled, in part due to the difficulty in defining a system. The holistic approach draws attention to relationships between the system of concern and the larger context, or what the system is part of as well as what it is made of. The implication that any system can in principle be analysed at progressively higher levels until it includes the state of the universe as a whole (a concept which is used in physics), is not rejected by many holists. For some, this is viewed as providing a welcome continuity with the interconnectedness of all things emphasized by many religious and mystical traditions (e.g. Barry, 1993). This continuity is reflected in proposed definitions of the term "system", e.g., a "complex of elements in mutual interaction" (von Bertalanffy, 1968); an "organisation in which the characteristics of individual parts change according to their context" (Ranjan, 1998); a transaction between organism and environment or knower and known in which "no one of its constituents can be adequately specified as fact apart from the specification of the other constituents of the full subject matter" (Dewey & Bentley, 1946).

These definitions have been criticized for failing to draw a non arbitrary boundary between any particular system and everything else:

"the concept of system .. provides no ground for limiting their attention to anything but the universe as a whole ... once the theorist has embarked on this road - as in fact he does when he defines a system as elements in interaction - he seems committed to continuing his journey until he joins the Hegelians in contemplating the whole of reality" (Phillips, 1976, p61).

The implication seems to be that if every system is embedded in a larger system, then in order to know anything it would be necessary to know everything (Capra, 1996). This problem has been recognized by systems theorists:

"the crucial scientific problem for systems research is this: how to separate a particular viable system for study from the rest of the universe without committing an annihilating divisio .. These are problems of desperate urgency for every non trivial systems study" (Eckman, 1961, pp18-19).

More recently, there has been a proliferation of interest in the sciences of complexity, which are concerned with "the potential for emergent order in complex and unpredictable phenomena" (Goodwin, 1998, p150). Chaos theory is broadly concerned with what
happens to a dynamic system when it is forced out of a stable state, or driven beyond its capacity for self-correction, e.g., a pendulum weight on a non-rigid wire pushed too high above the horizontal. Though chaotic systems are not theoretically indeterminate, in practice they are unpredictable because the initial conditions cannot be described with sufficient accuracy. The outcomes or set of possible emergent patterns associated with complex systems are typically large but not indefinite and the possibility of understanding and accurate prediction diminishes as the complexity of outcomes increases (Barrow, 1998, p67). This unpredictability "puts an end to the seventeenth century belief that all aspects of nature could be, in principle, the subject of quantitative analysis " (Silver, 1998, p250) and "long term prediction and control, the hallmarks of science of modernity, are no longer possible in complex systems" (Goodwin, 1998, p152).

Chaos theory has been successfully applied in a range of fields including weather prediction, astronomy, chemistry, medical statistics, mechanical engineering and biological systems (Silver, 1998, p239) and there has been recent interest in the scope for application to psychoneuroimmunology (e.g. Lloyd, 1996) the psychology of attitudes (Eiser, 1994), and as a meta-theoretical tool potentially capable of reducing the "conceptual chaos" in the social sciences (Nowak et al, 1994), which have been described as "sorely fragmented by data overload" (Lloyd, 1996, p10). Though this work is in its early stages, and "the complexity of many systems frustrate the easy application of theory" (Silver, 1998, p239), chaos theory and the sciences of complexity are part of the changing intellectual landscape which represents the acceptable face of modern holism.

Despite interest in the sciences of complexity, and their compatibility with both CM (Pietroni, 1986) and psychoneuroimmunology (Lloyd, 1996), their potential as research tools or as the basis for "a new scientific approach to health care" (Capra, 1998, p43) remains uncertain. The paucity of research emerging from the holistic paradigm can be related to the conceptual and methodological problems involved in quantifying phenomena which are defined in terms of their relationships rather than their internal properties, and the difficulties of defining what is to count as a system in any particular case.
A new paradigm? The post modern medical market place
In the absence of well-established clinical research methodology compatible with holism, there has been a tendency to polarisation of possible responses to the research crisis into either acceptance or rejection of RCT's.

The implicit identification of science with empiricism, and interpretation of the research crisis in terms of the need to evaluate CM using RCT's has led some to reject the demand for external scientific evaluation of CM. This has been described as an act of "epistemological violence" (Scheid, 1993), which could result in complete submission to the possibility of take over by conventional medicine, and a distortion of CM's "essential nature in order to fit the needs and vested interests of orthodox medicine" (St George, 1994). It has been argued that the problem stems from the definition of these therapies as "complementary or alternative medicine", which invites comparison between the two domains:

"it is inconceivable that anyone from an Eastern culture could get away with defining Christianity as "Alternative Buddhism" - and then have its research programs dismiss Christianity because it does not adequately measure up to the Eightfold Path" (Ranjan, 1998).

This reaction has been reinforced by the fact that in some cases engagement with medical research strategies has resulted in increased rejection of CM knowledge as illegitimate or marginal, which "has tended to increase their intellectual isolation, and has focused on cultural discontinuity rather than continuity" (Sharma, 1996, p166). In the absence of dramatic evidence of effectiveness, whether or not a method is accepted as "proven" by scientific research depends on theoretical understanding as well as replication and empirical evidence (Gruman, 1995), for example scepticism about results of homoeopathy trials (e.g., Linde et al, 1997; Kleinjen et al, 1991) has been attributed to lack of a biomedically plausible treatment mechanism (Kaptchuk, 1996).

Post-empiricist philosophy has provided a context in which the "cultural discontinuity" between CM and conventional medicine can be understood, and a rationale for denying the legitimacy of evaluating CM using the methods and models of conventional medicine. The logical positivists attempt to define a verification criterion focused attention on the central relationship between scientific theory and evidence, though it did not prove possible to liberalize the criterion sufficiently to allow for the legitimacy of scientific
theoretical constructs without also legitimising the metaphysical and pseudoscientific concepts which the approach was developed to exclude.

Recognition of the role of theory in constituting what counts as observational evidence, and the limitations of the falsification principle for resolving disputes between broad explanatory approaches (Doyle & Harris, 1986, p13) has problematized the task of distinguishing between genuine and pseudoscience. These developments have paved the way for post-empiricist epistemologies such as Kuhn's (1970) analysis of scientific paradigms. On this account, "normal science" develops within a paradigm of theoretical commitments shared by a particular scientific community. Research is directed towards solving problems within the paradigm, failure to solve particular problems is attributed to individual scientists rather than the paradigm, and results are evaluated by criteria defined within the paradigm. During times of "revolutionary science" there is a "gestalt switch" of perspective, the old paradigm itself is blamed for generating insoluble problems, and is partly or wholly replaced by a new paradigm. As the theory, methods and standards of science are constituted by the paradigm, when paradigms change "there are usually significant shifts in the criteria determining the legitimacy both of problems and of proposed solutions" (Kuhn, 1970, p109). This analysis preserves the meaning and role of empiricism within paradigms, but is post-empiricist in that the choice between paradigms during periods of revolutionary science is not based on evidence alone (Kuhn, 1970, p94). Feyerabend has argued that Kuhn's account is often understood as prescriptive as well as descriptive, and has been interpreted as a formula for making a field scientific by restricting criticism, choosing a single comprehensive theory, and creating a "normal science" by using this as the paradigm (Feyerabend, 1974, p198).

Post-empiricist philosophy has provided a rationale for denying the legitimacy of evaluating CM using the methods and models of conventional medicine. In the absence of any criterion independent of the paradigm to be evaluated, in terms of which the paradigm can be evaluated, no paradigm is privileged and each is free to define its own discourses and establish its own procedures for the production and legitimation of knowledge. This approach has culminated in the suggestion of a "growing incredulity" towards the scientific meta-narrative, which has undermined its previous role in legitimising knowledge and
resolving disputes, leading to a "loosening of the encyclopaedic net in which each science was to find itself" (Lyotard, 1986, p39).

The popularity of CM has been interpreted as a possible indication of the weakened legitimating function of science, which confronts CM with the problem of how else to legitimate their knowledge in the wider social arena (Cant & Sharma, 1996, p5). This view is consistent with evidence from a study of homeopaths which showed high levels of uncertainty about which legitimation strategies should be pursued in order to situate their knowledge in a broader cultural landscape, and extreme eclecticism in connecting homeopathic knowledge with such diverse areas as the periodic table, Jungian archetypes, the Doctrine of Signatures, the New Age movement, Druidism, quantum physics, and traditional empirical science (Sharma, 1996).

From this perspective, different approaches to health care can be seen as specialized language communities in which there is a hierarchy of skill in the use of terms and related practice so the experienced practitioner will be expected to perform differently, and in some sense better than the novice (Koch, 1964). The scope for dialogue between paradigms is limited by the differing context of theoretical commitments, and the value of dialogue is limited as scientific progress is understood to take place within rather than between paradigms. The relationship between CM and conventional medicine can then be defined as that of competitors engaged in the Darwinian struggle for survival in the post modern medical market place, and the relationship between them defined by the free choices made by the patient as consumer.

Limitations of the paradigm argument
There are a number of problems with the post-empiricist approach, the most serious of which is its explicit relativism, with notions of truth and falsity defined within paradigms, but having little or no meaning between paradigms. Post-empiricist approaches such as constructivism and post modernism in psychology have been described as leading to an "anything goes" mentality radical cultural relativism, and a "paralysing nihilism" (Spence, 1985, p1285). An extreme relativism is reflected in the new age view "if you sincerely believe it, then its true for you", such that even radically inconsistent beliefs or criticisms can be dismissed as just another point of view (Woodhouse, 1995, p66). Relativism has been a focus of considerable criticism in the academic community. The post-modern stance in
psychology has been described as including "an ingredient of resentful envy at the status the natural sciences have achieved", such that "we abdicate any distinctive or useful role as a science and profession if we give up .the aims and strategies of science towards approximating an ideal of truth" (Smith, 1994, p411).

The paradigm argument applies not only to the relationship between CM and conventional medicine, but also to the relationships between CM disciplines. There are no obvious means of translating discipline specific concepts or principles into ordinary language, scientific or other CM discourses, e.g. there is no homeopathic equivalent of the acupuncturist's diagnosis of "damp on the liver". Resort to the paradigm argument is therefore likely to increase fragmentation between CM disciplines, as attention is focused on the production of knowledge within paradigms rather than in questions which arise between paradigms. The resulting difficulty of communicating between language communities is apparent in Reason's (1990) suggestion that multidisciplinary case conferences involving CM and conventional practitioners are better described as a power-based competition for the right to define reality, than collaborative efforts within a shared frame of reference.

On a practical level, there seems to be an inverse relationship between discussions of the relationship between conventional and CM in terms of paradigms, and innovative responses to the research crisis. Vickers has argued "the notion of a paradigm is a tool against discourse", which has had an unhelpful and inhibitory effect on CM research, and made little or no contribution to the debate about methodology. He attributes the paradigm argument to "a fear of the other", and recommends

"it is surely time to foster discourse and incorporate different points of view and to abandon the forced choice between different global systems. In short we need to stop talking about paradigms and start embracing pluralism" (Vickers, 1996, p16).

In the real world context of service provision, it is not possible to ignore the question of relationships between service providers. If their theoretical and research strategies emphasize internal, discipline specific issues, these relationships will be mediated by the choices made by patients and purchasers.

An integrationist strategy: holism and reductionism as levels of description
Interpretation of the CM research crisis in terms of RCTs is based on the assumption of a particular model of the therapeutic process in which understanding of the problem can be
equated with diagnosis, intervention with a standardized method and outcome with a predetermined measures of success. From a psychological perspective, these assumptions can be seen as substantive empirical hypotheses about why patients consult CM, what happens to them during treatment, and with what effects. This observation suggests that a higher level of analysis, which provides a coarser mesh but broader scope, may be an appropriate strategy for mapping out the general shape of the domain to complement the more fine grain analysis provided by RCT’s.

Holism and reductionism can provide the basis of a meta-theory if they are seen complementary levels of description, defining the endpoints on a continuum of types of explanation, from the biochemical to the bio- psycho- socio - spiritual - environmental, the value of which is dependent on adequacy to achieve a particular purpose in a specific context.

This integrative approach avoids the stereotyping which often occurs when alternatives are seen as mutually exclusive, and the false dilemma that either CM must be subjected to evaluation using the principles of reductionist science; or conventional medical knowledge is denied any privileged status in a constructivist re-evaluation of knowledge production and legitimation. The strategy of endorsing a particular approach and attempting to discredit alternatives has been described as "sectarian fundamentalism" based on a Kuhnian view of scientific progress which impedes integration (Turner, 1992). He recommends a strategy of "epistemological pragmatism", in which different approaches are seen as representing complementary levels of analysis, so the most appropriate level can be identified in relation to contextual factors such as the nature of the problem and orientation of the researcher (Turner, 1992, p235).

There is a tradition in philosophy of viewing explanatory frameworks as different levels of analysis which play complementary roles in the constitution of knowledge. Pepper (1942) has described a continuum of "world hypotheses" from the reductionist or "formistic", characterized by either/or logic and focused on independent objects, to the holistic or "organismic", characterized by a "both/and" approach to understanding, in which virtually all things are seen as reflecting the interaction of multiple component structures and functions. Pepper emphasized the complementarity of these world hypotheses, and proposed the model with the aim of improving mutual understanding and
effective communication between scientific disciplines. A very similar approach has is reflected in Dewey's proposal of a continuum of modes of knowledge from more reductionist lower level of description to the more holistic high level description (1946). These complementary modes range from construction of objects of enquiry as independent; through to causal interaction, to transaction, in which the nature of objects of enquiry are understood to be constituted by their interrelationship (Dewey & Bentley, 1946, p536).

This integrationist approach within which any phenomenon can be seen both from a reductionist perspective as a whole constituted by smaller parts, and from a holistic perspective as a part which is a constituent of larger wholes has been proposed as a potentially fruitful framework for CM research (Schwarz & Russek, 1997, p 12). The problem of defining a system, which was associated with difficulties in translating holistic theory into empirical research, may be partly resolved with reference to the context and purpose. On the principle that every phenomenon should be described at the simplest possible level of analysis but no simpler, the potential range of application for holistic approaches is limited to phenomena which have not proved effectively understandable or manageable using a more reductionist approach.

In summary, holism and reductionism can be seen as theoretical endpoints on a continuum of levels of description which can be pragmatically evaluated in terms of their effectiveness in a particular context. The key features of reductionism have been definition as representation of the objects of enquiry in terms of their internal properties, and a predominantly either/or approach to decision making. The key features of holism have been defined as representation of the objects of enquiry in terms of their relationships, and a predominantly "both/and" approach to decision making.

**Summary and conclusions**

As a result of internal demands for a legitimized knowledge base, and external demands for evidence of effectiveness, osteopathy is facing a research crisis. In order to provide empirical answers to the central question “does it work?” some definition of problem, process and outcome is required. Interpretation of the CM research crisis in terms of RCT's is based on the assumption of a particular model of the therapeutic process in which understanding of the problem can be equated with diagnosis, intervention with a
standardized method, and outcome with a predetermined measures of success. If these assumptions are not valid for CM, they may be associated with increased probability of a Type II error, i.e., failing to obtain evidence for an effect which is present. Unless evaluation research is perceived as valid within the discipline, it is unlikely to contribute towards internal generation and legitimation of knowledge, or development of a research based culture. From a psychological perspective, these assumptions can be seen as substantive empirical hypotheses about how patients problems are understood and managed during osteopathic treatment, and with what effects.

Establishing definitions of problem, process and outcome is complicated by CM claims to be based on a holistic philosophy, reflected in common concern with “the whole person”. In the absence of well-established holistic clinical research methodologies, there has been a tendency to polarize the debate into either acceptance of the validity of evaluation using RCT's, or rejection of the validity of RCT's as a method of generating and legitimising osteopathic knowledge and evaluating practice. With few notable exceptions (e.g. Reason; 1988) there has been no systematic attempt to develop research methodologies which are compatible with holism, or to empirically evaluate CM claim to holism.

The approach taken in the current study was to construe holism and reductionism as the basis of a meta-theoretical framework, which was used to study problem, process and outcome from both practitioners’ and patients’ perspectives. This strategy is compatible with Canter’s proposal that a robust meta-theory of practice which could accommodate similarities and differences between and within CM and conventional medicine would facilitate cumulative research and cross-disciplinary dialogue (Canter, 1987). In order to translate this focus into a series of empirical questions, some potentially cross-disciplinary definition of holism and reductionism was required.

Holistic and reductionist explanatory frameworks can be defined in the abstract in terms of construction of objects in terms of properties or relationships. In practice, the influence of explanatory framework is always mediated by discipline-specific theories and applied to specific conditions. In the next chapter, conventional medical and osteopathic understanding of pain will be considered. This will provide a basis for
comparison with the way in which pain has been defined in responses to the research crisis to date, and provide a basis for recommendations for future research.
CHAPTER 2
THE INTERPRETIVE CHALLENGE OF CHRONIC PAIN

The aim of this chapter is to explore pain explanation in conventional medicine, CM and osteopathy, in order to establish a basis for comparison and formulation of empirical questions about osteopathic practice.

In order to determine whether the abstract descriptions of holism and reductionism developed in chapter 1 correspond to more focused explanations of chronic pain, an organising framework was required which could accommodate both conventional and complementary medical explanation. This requirement was fulfilled by the semiotic distinction between indexical, iconic and symbolic signs, which had been proposed as a framework for analysing pain explanation on the basis of structural characteristics. The semiotic classification was used to analyse pain explanation in conventional and complementary medicine in order to establish a basis for comparison; and applied to analysis of the theoretical structure of osteopathic explanation, and formulation of empirical questions about osteopathic practice.

Chronic pain overview
Osteopathy was originally developed as a form of treatment applicable to the whole spectrum of physical illness. The legitimate range of application is currently a focus for debate (Cameron et al, 1993), though there is general consensus that osteopathy specializes in the treatment of pain. This is reflected in a BSO clinic information leaflet, which describes osteopathy as "a system of diagnosis and treatment designed to provide pain relief for the body’s structural and mechanical problems. A gentle form of treatment, osteopathy can benefit most types of aches, pains and strains in people of every age."

Chronic pain has received a great deal of attention in the research literature, provided a focus for innovative biopsychosocial practice in conventional medicine, and is commonly presented to CM practitioners, particularly manual therapists. Pain is also a ubiquitous problem in medical practice, the most frequently stated cause of disability, and the single most compelling force underlying the decision to seek or avoid medical help (Karoly, 1985, p461).
The importance of developing an adequate theoretical understanding is magnified by the increase in chronic pain disability over the past three decades, to the point where it has been described as an epidemic (Bonica, 1990; Osterweis et al, 1987). In the UK, data from the Department of Health and Social Security show an increase in sickness and invalidity benefit for low back disorders, from approximately 10 million days per annum in 1955 to approximately 60 million in 1990 (cited by Waddell, 1992, p523). CLBP disability is a specifically Western epidemic: despite comparable levels of reported LBP, there is very little evidence of corresponding back pain disability in developing countries in the Middle East (Waddell, 1987) or South Asia (Anderson, 1987).

The scope for interpretation of pain is defined by the gate control model (GCM). This was proposed as a model of the activities in the nervous system which mediate between injury and pain perception, and account for the variability of their relationship (Melzack & Wall, 1996). Pain perception is explained in terms of the interaction between afferent and efferent signals in the nervous system, converging on the gate control mechanisms in the spinal cord. The gate control mechanism integrates information from the body periphery with higher order information from the central nervous system, including past experience, beliefs and emotions. Interactions between these different sources of information determine whether the gate is opened, resulting in pain experience, or closed. This multifaceted model has been described as a paradigm shift in understanding pain (Kugelman, 1998), which makes mind body interactions acceptable from a theoretical point of view (Melzack & Wall, 1983). This is reflected in the definition of pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (IASP, 1979). The integration of all facets of the person in the GCM has provided the context for a rapid expansion of knowledge about the cultural, social, occupational and psychological as well as biological aspects of pain. The impact of the GCM on clinical practice has been summarized by Kugelman: 

"in this new world of pain - surgical, psychological, social and spiritual modulations all serve the same purpose, the influencing of the gate control mechanism and its central connections" (Kugelman, 1998, p193).

A semiotic approach to the clinical interpretive challenge of chronic pain
The GCM considerably liberalized the interpretive possibilities for professional understanding of chronic pain, without providing clear criteria for evaluating the
accuracy of pain representation in any particular case. Chronic pain therefore confronts practitioners with the interpretive challenge of making sense of the relationships between physical and psychosocial factors in the context of the diversity of approaches which can be accommodated within the theoretical framework of the GCM. The task of reconstituting an integrated understanding of the chronic pain patient is complicated by lack of theoretical consensus; the privacy and intractability of chronic pain (Baszanger, 1997, p2); and the multiplicity of explanations and interventions in the contemporary therapeutic arena (Hadler et al, 1987). For example, LBP has been seen as a somatic illness which requires a few days rest (Deyo, 1986); a transitory stress-related neurotic conversion reaction which requires explanation but not physical treatment (Sarno, 1991) and the muscular component of a general stress syndrome, which requires daily stretching exercises (Hanna, 1987).

Priel, Rabinowitz & Perls (1991) have proposed that the diverse possibilities for interpreting chronic pain can analysed in terms of the semiotic distinction between indexical, iconic and symbolic signs (Pierce, 1965), which represent different types of relationship between the immediately perceived signifier i.e. pain, and the signified content i.e. pain meaning. A sign which is interpreted as an index normally embodies a concrete, causal relationship to the signified e.g., smoke is an indexical sign of fire. A sign is interpreted as an icon by virtue of the resemblance between sign and signified, e.g., an X-ray is an iconic sign of particular physical structures. A sign which is interpreted as a symbol requires the presence of an interpreter e.g. a sentence is a symbolic sign of meaning to a speaker of the relevant language. Priel et al propose that both indexical and iconic interpretation of pain can lead to substantive problems, which disrupt the therapeutic relationship, and that symbolic interpretation offers the most productive approach to understanding and management of chronic pain. The semiotic distinction proposed by Priel et al was used to classify types of pain interpretation and to consider the way in which these pain interpretations are translated into practice.

**Pain as an index of physical pathology**

Construction of medical practice in terms of the diagnosis and treatment of disease is based on interpretation of symptoms as an index of underlying pathology (Kleinmann, 1988). This assumes a causal relationship between signifier (symptom) and signified (pathology), so that
the meaning of the diagnosis is defined in terms of empirically demonstrable physical pathology. The practitioner’s role is to translate the presenting symptoms e.g., a complaint of chest pain into objective signs of disease e.g., angina (Kleinmann, 1988; King, 1982). This translation of the sign of pain to the signified pathology is primarily carried out by physical examination (Nessa, 1996). This requires specialist knowledge and skill (King, 1982), and a scientific mode of understanding, in which subjectivity is minimized in order to identify the disease on the basis of objective physical findings (Chinen, 1988). Interpretation of pain as an index of pathology minimizes the need to take account of the role of the interpreter who deciphers this relationship.

The indexical interpretation of symptoms is grounded in understanding of the body as a self-contained spatial object, which can be known through external observation and application of quantitative methodology. This construction of the body as independent of the observer has been traced to Cartesian dualism (Leder, 1990), which is widely seen as defining the basis for contemporary biomedicine and the predominant worldview in contemporary lay and professional thought (Yardley, 1996; Leder, 1990). Within a dualist frame of reference, mind and body are the qualitatively distinct basic elements in terms of which everything else can be understood. The properties of these basic elements are mutually defining and complementary, the body being characterized by spatial extension and the mind by the capacity for thought.

The distinction between the non-spatial mind known through introspection, and the body machine known through external observation, is reflected in the biomedical distinction between information carrying medical signs and symptoms. Symptoms are represented as subjective, transient, verbally expressed sensations not conveying substantial medical information (King, 1982), or patient concerns without any necessary diagnostic significance or medical sign forming capacity (Puustinen, 1999). For example, patient expressions of distress and social context are of little relevance to the diagnosis of a broken leg. The resulting exclusion of the patient’s account as unmeasurable and subjective has been traced to the seventeenth century view of natural science embodied in the biomedical model (Engel, 1997, p522). In the absence of the specialist knowledge required to translate symptoms into signs of pathology, the patient's contribution to the diagnostic process is limited to accurate symptom reporting and treatment compliance.
Similarly, psychological theories about patients’ experiences, beliefs, behaviour and social context can make little substantive contribution to the diagnosis.

The biomedical explanatory system is constituted by a finite set of diagnostic categories, which represent the basic unit of analysis. Though in practice many symptoms are continuously distributed, this variability is contained within a discrete either/or system by using explicit well-established criteria. Diagnostic conclusions can be categorically described as correct or incorrect depending on objective findings using specific methodologies (Nessa, 1996). Each diagnostic category can then be treated as a self-contained entity, so that patients with the same diagnosis can be understood as largely homogeneous with respect to the presenting problem. Health is most easily defined by default in the absence of any diagnosable physical disease. The structure of clinical explanation exemplifies the reductionist approach to enquiry by analysis of the object of enquiry i.e. the body, into component parts.

The biomedical approach has proved highly effective in the diagnosis and treatment of pain which is clearly related to tissue damage or demonstrable physical pathology. In such cases, pain is represented as the result of a linear sequence from physical stimulus to receptor to the brain via the spinal cord, resulting in pain perception (Melzack & Wall, 1996; Weisenberg, 1977). Theoretical models of the mechanisms involved include specificity theory, which proposes a distinct sensory system for pain perception, and pattern theory, which proposes that pain receptors are shared with other sensory systems such as touch, and are activated by the intensity of stimulation. In either case, the causes of pain are located within the body, and reflected in but not mediated by subjective experience and behavioural responses. This model is consistent with evidence that emotional disturbance in CLBP tends to co-vary with pain, so levels of depression tend to return to normal following successful treatment (Sternbach, 1974; Sternbach & Timmermans, 1975).

Those conditions in which the indexical interpretation of symptoms leads to identification of signified pathology have provided the basis for the massive achievements of scientific biomedicine. In these cases, the reductionist approach to understanding by asking "what is it made of", and analysis of symptoms into component physical parts has proved successful. The presenting symptoms can be effectively understood and treated on the basis of lower level physical processes. Psychological problems such as distress and
disability can be explained as a result of physical pathology, and resolved by effective treatment of that pathology.

Limitations of the index interpretation

The limitations of the indexical interpretation are defined by those cases in which presenting symptoms cannot be translated into signs of pathology. Persevering with an indexical interpretation in the absence of improvement or identification of physical pathology has been recognized as unhelpful (Priel et al, 1991).

Absence of demonstrable physical pathology is a relatively common in LBP. Between 60-78% of CLBP patients have no physical signs on X-ray or orthopaedic examination, and there is no evidence of permanent structural impairment in cases with no nerve root involvement or previous surgery (Waddell, 1992). Modern imaging techniques produce non-specific findings which discriminate poorly between LBP patients and normal subjects, and the more sensitive the investigation, the more it suffers from age-related false positive findings (Waddell, 1987). The prevalence of LBP is almost as great in patients with normal or virtually normal radiographs of the lumbar spine as in those with severe degenerative changes (Lawrence, 1977). Priel et al (1991) propose that in the case of chronic pain, the well-established relationship between pain and physical pathology does not exist.

To the extent that the problem is defined in terms of demonstrable pathology, and treatment in terms of technical methods, treatment cannot begin until a treatable physical disorder has been identified. If the attention of patient and practitioner is restricted to the quest for a physical cause and potential cure, there is a risk of over-diagnosis resulting from failure to take account of the high false positive rate of sensitive investigations (Waddell, 1992). Negative test results can be interpreted as proof of the absence of a physical cause (Hartnell, 1987), leading one pain clinic consultant to comment "the doctors had looked for possible structural or mechanical causes of their patients' complaints only to find out what was not wrong with them" (Kallinke, 1995). The diagnostic quest may be facilitated by the "technological imperative" in health care i.e. the principle that everything technically possible which can be done, should be done, which may be reflected in patients' understanding of quality care as technical intervention, despite the limitations of this approach for dealing with human problems (Barger-Lux & Heaney, 1986, p1314-5).
Failure to identify a treatable cause of persisting symptoms can lead to frustration for both patient and practitioner (Diamond & Grauer, 1986; Kaplan et al, 1988; Green, 1985; Reuler et al, 1980) rendering the therapeutic relationship ineffective (Gorlin & Zucker, 1983), as both patient and practitioner find it difficult to accept there is no cause which can be named and treated (Priel et al, 1991, p68). Medical practitioners are significantly more likely to describe patients as difficult in the absence of an identifiable physical cause, and when presenting problems are perceived as predominantly psychosocial, mixed (Crutcher & Bass, 1980), or uncertain and medically insoluble (Schwenk et al, 1989; John et al, 1987). High reported levels of practitioner dissatisfaction with current management of LBP (e.g. Little et al, 1996) have been attributed to perceived inability to influence the course of the condition, leading to feelings of therapeutic inadequacy, which may be reinforced by the patient's response (Elliston, 1996). Conversely, GPs have expressed higher satisfaction with the instrumental medical problem solving role than the relational affective role (Carmichael & Carmichael, 1978) or legitimation role e.g. endorsing eligibility of illness claims (Sparr et al, 1988). Patients who are perceived as difficult tend to seek medical advice more frequently, and receive more medication and tests than controls (John et al, 1987). Preoccupation with the quest for a treatable cause of pain may result in decreased sense of control and responsibility (Gottlieb et al, 1977), as patients either "plague the system to which they remain faithful, or search for a cure elsewhere" (Eisenberg et al, 1993, p250). The search for a cause can prove expensive, by definition fruitless, and takes considerable time, during which the problem becomes chronic and pain disability increasingly difficult to shift (Waddell, 1998).

In summary, perseverance with an indexical interpretation of pain in the absence of an identified pathological cause or improvement may strain the therapeutic alliance, perpetuate insoluble physical problem presentation, decrease the patient's perceived sense of responsibility and control, and pave the way for "doctor shopping".

These difficulties have been recognized in UK guidelines for LBP, which note that many routinely used treatments are ineffective (Spitzer, 1987; AHCPR, 1994); some patients appear to be more disabled after treatment than before, and the trends of increasing work loss, chronic disability early retirement and state benefits all demonstrate that treatment is not overcoming the problem (CSAG, 1994, p22). A stronger statement
has been made by Waddell, a contributor to the guidelines, who has described CLBP as "a 20th century health care disaster", resulting from inappropriate ways of thinking about and responding to pain (Waddell, 1998, p421). This problem has been attributed to a mismatch between the semiotic structure of medical explanation and the complex nature of chronic pain (Priel et al, 1991). Guidelines include recommendations to curtail the quest for pathology by limiting investigation to a preliminary diagnostic triage. This involves distinguishing between nerve root pain, possible serious spinal pathology requiring urgent referral, and simple backache which requires no further investigation and should be referred to manual therapy, including osteopathy and chiropractic (CSAG, 1994).

In summary, interpretation of symptoms as a sign of pathology has provided the basis for the massive achievements of scientific biomedicine. However, perseverance with an indexical interpretation in the absence of an identified physical cause or improvement may cause difficulties for both patient and practitioner, exacerbating the problem and perpetuating intrinsically insoluble problem presentations. Current guidelines for LBP correspondingly define clear limits to the quest for pathology.

**Pain as an icon: pain is the problem not a sign of the problem**

Priel et al (1991) suggest that following continued lack of improvement and failure to identify a cause pain may be redefined as an icon, understood as the problem in itself rather than a sign of underlying physical or psychological pathology. The icon is defined as a sign which has the quality of the object it denotes, or is in some way the same as the object it denotes (Pierce, 1965). The pain is no longer understood as signifying anything beyond itself, which removes the rationale for diagnosis and treatment of underlying pathology.

The icon interpretation is formalized in the term "chronic pain syndrome", which describes similarities in patterns of affective, cognitive and behavioural adjustment despite differences in the causes and location of pain. Iconic reinterpretation of pain has been described in a grounded theory study, as "a work of deciphering that must explain a set of social, behavioural, psychological and physical manifestations as part of a single category, the chronic pain syndrome" (Baszanger, 1997, p19). This concept embodies a general consensus that whether or not psychological disturbance can cause pain, it is frequently a consequence of chronic pain (Gupta, 1986). Pain is diagnosed as chronic when
it persists beyond the usual course of a disease or normal healing time for an injury (Turner & Chapman, 1982), or fails to respond to normal forms of medical intervention (Kotarba, 1983). Chronic pain and disability often become dissociated from the original physical problem, self-sustaining and intractable, presenting "one of the most difficult challenges to health care" (Waddell, 1998, p33).

The absence of a demonstrable physical cause, and accumulated evidence of a robust association between chronic pain and psychosocial factors has resulted in increasing utilisation of the conceptual and therapeutic resources of psychology. Psychosocial factors are typically conceptualised in cognitive behavioural terms, as potentially mediating influences on the relationship between pain and disability, which are amenable to therapeutic intervention. Behaviour therapy and cognitive therapy have made a major contribution to understanding and management of pain which is interpreted as an icon within conventional medicine.

The behavioural approach: from causes of pain to consequences of illness behaviour
The behavioural approach is associated with a shift of focus away from the physical causes of pain experience, to the social and environmental consequences of pain expression, disability and illness behaviour. This is described as a catch-all term to describe how people react to being ill, try to get better, and cope with the consequences of illness (Mechanic, 1986). Some illness behaviours are classified as psychiatric syndromes e.g. hypochondria, or described as maladaptive, dysfunctional, abnormal (Pilowsky & Chapman, 1977), medically incongruent (Reesor & Craig, 1988) or inappropriate sick role behaviour (Parsons, 1951), usually defined as being out of proportion to the physical disease (Waddell et al, 1989) and reinforced by advantages of the sick role (Parsons, 1951; Mechanic, 1978).

Acute pain behaviour (e.g. withdrawal) has been viewed as a reflexive response to tissue damage, which identifies for others the hurt person's situation, and allows them to offer care, or escape similar hurt. If pain persists, these reflexive expressions of distress habituate rapidly, and chronic pain behaviour is seen as a culturally learned social display dependent on the individuals perception of their best interest (Craig and Patrick, 1983), such as need for support, availability of compensation or avoidance of unwanted activities (Fordyce, 1986).
The behavioural approach has drawn attention to the role of interpersonal and socio-cultural influences on chronic pain disability. Prolonged engagement in pain-centred relationships in domestic, social, occupational and other contexts may reinforce pain behaviour and intensify pain experience by focusing attention on discomfort. Opportunities for alternative sources of engagement and activity may be restricted as a pain-centred lifestyle becomes established and increasingly difficult to shift, leading to deconditioning, dependence, decreased self-efficacy and self-esteem, and dependence.

The cognitive approach: appraisal, control and meaning
The cognitive model of emotional disorder has been extended to explain dysfunctional illness behaviour in terms of inaccurate and unhelpful patient beliefs about their illness, self, others and the world (e.g. Williams, 1997). Cognitive theories and methods complement behavioural approaches by taking account of meaning in mediating pain experience and coping effectiveness.

The concept of cognitive appraisal relates individual differences in emotional response to a situation to the perceived significance of that situation for their well-being, values, commitments, and other sources of meaning in life (Lazarus, 1984, p138). Chronic pain patients report pain and associated limitations as the most important stressor in their lives (Turner et al, 1987), and the consequences of pain are influenced by cognitive appraisal and coping (Wallston et al, 1978; Rosensteil & Keefe, 1983; Flor & Turk, 1989; Main et al, 1991).

Patients’ understanding of pain and the diagnostic process has been implicated in the development of chronic pain disability (DeGood & Shutty, 1992; Waddell, 1992, p524).

Interpretation of pain as a sign of potentially harmful disease or damage may be reinforced by diagnostic testing (Porter & Gorman, 1989; Salkovskis & Warwick, 1986). This reinforces disease detection and symptom monitoring (Van Zuren & Dooper, 1999), which are associated with negative affect (Millar & Millar, 1993); medical fearfulness (Muris & Van Zuuren, 1992), increased pain (Pennebaker, 1982) and fearful avoidance of activity (Waddell et al, 1993). This self-perpetuating process has been formalized in the Monitoring Process Model (Miller et al, 1996).
The concept of control has played a central role in psychological theories about patient understanding and management of pain. The locus of control construct (Rotter, 1966) has been applied to belief in personal control over health and illness generally (Wallston et al, 1978) and specific conditions including pain (Main & Waddell, 1991; Skevington, 1996). The general finding of extensive research is that there is a tendency for patients who experience some sense of control over pain to cope better and be less disabled (Harkapaa et al, 1991, 1992; Toomey et al, 1991; Deyo et al, 1992; Brown & Nicassio, 1987; Turner et al, 1987; Dolce et al, 1986). Conversely, perception of low personal control over pain have been associated with distress, depression, helplessness, use of a more restricted range of coping strategies and poor treatment outcome (Crisson & Keefe, 1988; Harkapaa, et al, 1991, Harkapaa, 1992; Jarvikoski et al, 1986; Kreitler et al, 1987; Jensen et al, 1991), emotional disturbance and helplessness (Crisson & Keefe, 1988) impaired social interaction (Pastor et al, 1993) and catastrophising (Harkapaa et al, 1996). Patients without a physical diagnosis report lower levels of perceived control and self-efficacy than those with a physical diagnosis (Reesor & Craig, 1988), and higher levels of chance/fate locus of control scores (Pastor et al, 1993).

There is scope for debate about whether perceived control increases pain tolerance (Thompson, 1981); decreases pain, which is "increasingly considered to be a consequence of self control and self regulation" (Ogden, 1996, p228); or reflects the actual intensity and controllability of pain (Pastor et al, 1993; Logan et al, 1991; Wallston, 1989; A. ffleck et al, 1987).

In summary, cognitive approaches have drawn attention to the association between appraisal, coping and pain disability. Sense of control has been identified as an important aspect of patients' understanding. The nature and direction of the causal relationship between physical and psychosocial factors is a focus of debate.

Pain management
The iconic interpretation directs therapeutic effort towards pain management rather than cure. This involves changing the cognitive and motivational components of pain while the sensory component remains intact. Therapeutic aims include pain control, rehabilitation, increased activity, continuation of work, reduction of distress and depression, and enhanced self-responsibility and quality of life (Williams, 1994; CSAG, 1994).
requires patients to accept that searching for a cause or cure is unlikely to be successful, and that the aim of pain relief should be replaced with rehabilitation (Matarazzo, 1980). Common interventions include agreement of goals, operant activity programs, family and marital intervention to reduce reinforcement of ill behaviour and encourage appropriate behaviour, liaison between agencies, relaxation and problem solving (Benjamin, 1994). Cognitive behavioural interventions are used to challenge inappropriate pain-related cognitions and coping strategies, and to promote active reengagement with life (e.g. Williams, 1994), though they are less often used to address depression directly (Sullivan et al, 1992). Pain management can be implemented at different levels of intensity, from single primary care health professionals, e.g. GP or manual therapist in acute cases, to multidisciplinary pain management programs specialising in chronic pain disability.

Limitations of the icon interpretation
The main limitations of treatment based on iconic interpretation are the risk of drug dependence to relieve pain, apparent meaninglessness, and the reduced role of the body.

In the medical context, iconic interpretation directs treatment towards symptomatic relief, though pharmacological interventions offer only limited or temporary relief, prescription may further strain the therapeutic relationship (Priel et al, 1991; Fordyce, 1976), and lead to drug dependence and habituation (King & Strain, 1989; Crook, 1986; Crook, Weir & Tunks, 1989).

Pain management programs have been described as based on a construction of pain as "either meaningless or correctly meaningful only when it is not socially disruptive" (Kugelman, 1998, p197) and accused of attempting to silence pain (Kugelman, 1998, p201). Concerns have been expressed that acceptance of uncertainty may transform pain into an incoherent and meaningless experience of suffering (Priel et al, 1991, p67). Apparent meaninglessness has been identified as one of the most frightening aspects of physical symptoms, associated with despair and isolation (Coulehan, 1988), and ineffective attempts to avoid pain (Ramsay 1979; Bresler & Turbo, 1979). Patients without a medically diagnosable cause of pain are more distressed (Peyrot et al 1993), and report lower levels of perceived control and self-efficacy (Reesor & Craig, 1988), and higher levels of chance/fate locus of control scores (Pastor et al, 1993).
Uncertainty was identified as the central theme in a qualitative study of 9 distressed women who suffered from chronic pain (Osborn & Smith, 1998). Patients were described as strongly motivated to explain their situation and preoccupied by the pain they could not account for, despite frequent contact with the health services. In the absence of any explanation, they felt unable to establish any basis for taking therapeutic action, retaining a sense of control, or establishing the legitimacy of their illness or themselves. The lack of explanation was associated with a perception that their claim to be in pain may not be believed, and participants expressed a continual need to justify their pain as "real", i.e., not psychogenic (Osborn & Smith, 1998, p73). Similarly, Keefe has described the two most useful questions identified in his distinguished career as a pain researcher as "what do you think caused the pain?" and "what do you think will happen in the future?". He suggests those without a diagnosis or explanation seem to suffer from the unpredictable nature of their pain, often feeling helpless, out of control, and struggling with difficult issues concerning the legitimacy of their pain (Keefe, 1999, p168).

The rationale for pain management clinics and other treatments not based on indexical problem interpretation is explicitly biopsychosocial. However, eligibility is based on exclusion of the biomedical body which can be defined and potentially cured using technology. This is reflected in restriction of the medical practitioner's role to screening for treatable pathology and subsequent reassurance that pain is not harmful (Hazard, 1995, p2345), and criticism that pain clinics tend to minimize physiological factors and emphasize psychiatric disorder (Sullivan, 1993). As the objective body is the domain of biomedical success, its diminished role may be implicated in descriptions of the biopsychosocial approach as "a flaccid slogan" (Sullivan, 1998, p254) which is taught academically but in practice is "less opposed than tolerated, often with indifference or institutional cynicism" (Morris, 1998, p242). This point has been forcefully made by Kugelman (1998, p201), who claims that "in the new biopsychosocial medicine which manages lives rather than cures diseases, 'fix' has become a four letter word". In the words of a chronic pain sufferer:

"When you don’t know what you’ve got, you can hardly expect a headline telling you they’ve fixed it. We have very few medical mysteries any more. I’d really rather not be one of them" (Anon, 1997, p11).
In summary, iconic interpretation of pain is based on acceptance that the cause is unknown and that continuing to search for a cause is unhelpful. Treatment aims are redirected towards effective coping and enhancing quality of life in spite of pain. Potential disadvantages include the reduced role of the body, and the risk of allocating responsibility for coping with potentially meaningless suffering to the patient.

**Pain as a nomothetic symbol: the psychogenic hypothesis**

Priel et al (1991) suggest that the semiotic model offers the possibility of interpreting pain as a symbol, meaning that the signifying connection between the signifier (pain) and the signified (underlying reason or cause), is not a natural one, and the meaning of the symbol is inseparable from the act of interpretation (Pierce, 1965). The symbolic interpretation of pain in conventional medicine normally takes the form of psychological reinterpretation. This discrete shift from a physical to a psychosocial frame of reference brings to an end the quest for a physical diagnosis, while minimising the difficulties of accounting for the relationships between psychosocial and physical factors. Psychological attribution of unexplained symptoms has a long history in medicine (Angell, 1985), and has been reflected in the attempt to establish a categorical distinction between indexical or physical pain caused by demonstrable pathology, and symbolic or non-organic pain, referred to as functional, psychogenic, medically incongruent or somatisation, which is explicable in terms of psychosocial factors (e.g. Leavitt et al, 1980; Jensen, 1988). This Cartesian dichotomy is reflected in the view that the role of psychology is to explain biomedically inexplicable pain (Skevington, 1996, p66/7). The theory that pain is caused by psychological factors is referred to as the psychogenic hypothesis. This has been formulated in terms of different psychological theories, including psychiatric, psychodynamic and life events.

**Depression as a cause of pain**

The theory that pain is caused by demonstrable psychopathology has proved incompatible with evidence that the relationship between pain and depression is specific to particular clinical populations (Magni et al, 1990; Chapman, et al, 1979); that depression does not necessarily precede pain (Feuerstein et al, 1987; Polatin et al, 1993; Leine & Guido, 1993), and is not specifically associated with absence of demonstrable pathology (Leavitt et al, 1980), and that depression is qualitatively different in patients with and without chronic pain (Pincus et al, 1995). 59
Life events and chronic pain
The psychogenic hypothesis has been framed in terms of a causal relationship between life events and pain without an identified physical cause. This strategy has proved effective in differentiating between functional abdominal pain, associated with increased recent life events, and appendicitis, which has a definite organic pathology and is not associated with recent life events (Creed et al, 1988) though the relationship between life events and CLBP is less clear.

CLBP patients have been found to have higher levels of life events than expected (Rose, 1975) or compared with healthy controls (Feuerstein et al, 1985), and negative life events have been associated with depression and social maladjustment (Smith et al, 1985), though number of life events with transient distress have been inversely related to persistence of pain (Jensen, 1988). Depressed CLBP patients have been found to report significantly higher life event scores (Atkinson et al, 1988), though no significant differences have been found between those with and without an identified physical cause (Crauford et al, 1990; Jensen, 1988; Leavitt et al, 1980). Overall, increased life events in pain patients are associated with psychological disturbance and do not distinguish between those with and without a physical diagnosis.

Psychological reattribution
Reinterpretation of pain as an index of psychological disturbance provides a rationale for treatment based on changing the patient’s representation of pain. A distinctive feature of this strategy is that the diagnosis also constitutes the intervention.

Anecdotal evidence suggests that informal psychological reattribution is not uncommon (e.g. Gordon, 1996, p37) and was perceived to be a common response by GPs to musculoskeletal pain, which osteopathic patients perceived as "delegitimating" (Levine, 1994). There are a number of more systematic case studies of recovery from physical symptoms following psychoanalysis (e.g. McDougall, 1989; Cardinal, 1975). A range of formal treatment protocols for psychological reinterpretation of medically unexplained symptoms such as chronic pain, have been developed on the basis of psychiatric (e.g. Goldberg, 1992), psychodynamic (e.g. Guthrie, 1992) and cognitive behavioural (e.g. Salkovskis, 1992; Sharp et al, 1992) approaches.

Psychological reattribution has been proposed as a biopsychosocial treatment applicable to "medically unexplained symptoms", though virtual exclusion of the body is
indicated by explicit identification of "medically unexplained" with "nonorganic" symptoms (Creed et al, 1992), and the exclusion of two patients from one study following identification of a physical cause for symptoms (Guthrie, 1992). This construction of treatment seems to be based on a sophisticated variant on the Cartesian task of distinguishing between "psychogenic" and "somatogenic" pain, though the distinction is framed in terms of "suitability for psychological reattribution" (Goldberg, 1992) or representation of the problem as "health anxiety" (Salkovskis, 1992).

Somatisation: misinterpretation of psychological problems

The psychogenic hypothesis has been formalized in the diagnosis of somatoform pain disorder. The primary pathological process is understood in psychological terms, so the subcategory of somatoform pain disorder is differentiated by the nature of physical symptoms but not by pathological process.

The diagnosis of somatoform pain disorder was introduced in DSM-III (1980) as a less stigmatised substitute for the previous "psychogenic pain disorder" (Williams & Spitzer, 1982) in which "the person is presumed to be in pain because he wants it or needs it" (Melzack & Wall, 1996, p30). DSM-III criteria include preoccupation with pain, absent or insubstantial organic pathology and etiological involvement of psychological factors. This has been revised in DSM-IV (1994) to pain disorder characterized by preoccupation with pain; distress or impairment caused by pain; and psychological factors are judged to have an important role in onset and maintenance.

Somatisation has been described as the most common, or normal form for presentation of emotional distress in primary care (Murphy, 1989; Porter & Gorman, 1989; Goldberg & Bridges 1988; Bridges and Goldberg, 1985), and cross-culturally (Kleinmann & Kleinmann, 1985). A study of 590 new illness episodes in primary care found 5% presented with overtly psychological problems, compared with 19% who were diagnosed as somatising (Bridges & Goldberg, 1987). Other researchers have estimated that somatisation accounts for 50% of primary care patients (Roberts, 1994; DeGruy et al, 1987). Most patients described as somatising do not fulfil DSM criteria (Bass & Murphy, 1996), though somatoform pain disorder was diagnosed in 31% of 10,589 cases referred to a multidisciplinary pain clinic (Kuch & Evans, 1993), and it has been estimated that 80% of CLBP cases are "psychogenic" (Dekkers, 1998).
The defining characteristic of somatisation is the presentation of psychological problems in the form of physical symptoms, though reformulations of the concept over recent decades reflect developments in psychological theory. Somatisation has been seen as "the expression of personal and social distress in the idiom of bodily complaints" (Porter & Gorman, 1989), which describes "how patients come to seek medical help for bodily symptoms misattributed by them to organic disease" (Goldberg & Bridges, 1988). This may allow those who are hostile or unsympathetic to emotional disturbance to occupy the sick role without incurring blame or responsibility for their predicament (Goldberg and Bridges, 1988), and provide a socially adaptive strategy for dealing with potentially unacceptable or unwanted feelings, while avoiding stigma of mental illness (Kleinman & Kleinman, 1985).

Somatisation has been explained from a behavioural perspective in terms of reinforcement associated with the sick role and illness behaviour (e.g. Parsons, 1951; Mechanic, 1962; Fordyce, 1976); from a cognitive perspective in terms of misinterpretation of physical symptoms (e.g. Salkovskis, 1992); from a psychodynamic perspective as a meaningful preverbal expression of emotion (e.g., Alexander, 1950; McDougall, 1989); and as a result of repressed emotions and memories leading to autonomic dysregulation and symptom formation (Wickramasekera et al, 1996). Somatisation has been described as an expression of emotional pain (e.g. Engel, 1959; Kleinman & Kleinman, 1985), referred to as masked depression (Lesse, 1983; Blumer & Heilbron, 1982) or atypical depression (Davidson et al, 1985; Krisnan et al, 1985; Dworkin & Gitlin, 1991), which is not necessarily accompanied by subjective distress.

The distinction between somatised and organic pain is challenged by evidence that somatisation does not seem to differentiate between chronic pain patients with and without a physical diagnosis (Cassisi et al, 1993; Osterweiss et al, 1987). The theory that somatisation is an expression of psychological distress is difficult to evaluate empirically, and provides no clear criterion for distinguishing between non-depressed patients who are or are not suffering from somatisation. This difficulty has impeded systematic research (Sullivan et al, 1992).

**Psychological interpretation and the patients perspective**

Psychological interpretation of pain has been described as symbolic (e.g. Shands, 1970; Szasz, 1971), though almost all formulations of the psychogenic hypothesis involve
standardized and non-collaborative interpretation of pain by the practitioner on the basis
particular psychological theories. Shafer (1999) has attributed the virtual exclusion of
individualising concept formation from psychiatry to the predominance of nomothetic
methodology in the natural and clinical sciences. This focuses attention on general laws
or principles, and characteristics common to individuals within a category. In the clinical
context, the nomothetic approach requires the practitioner to assume responsibility for
deciphering the relationship between pain and the signified meaning on the basis of
specialist knowledge of relevant criteria. As a result, there may be little structural
difference between interpretation of pain as a sign of psychological or physical
pathology. For example, Priel et al (1991) describe a case study in which the medical
practitioner’s attempt to tell the patient his pain had psychological causes seems to
assume a "linear and rather general relationship between signifier and signified" (Priel et
al, 1991, p69). In a hermeneutic analysis of the medical treatment of a patient with CLBP,
Dekkers (1998) notes a direct analogy between the psychiatrists' interpretation of pain as
an unconscious expression of feelings of failure, and physical diagnosis constructed from
examination of the body. This interpretation was presented as incongruent with the
patient's current physical understanding, and inaccessible to the possibility of
understanding, as any exploratory process could risk leading the patient to "develop a
neurosis and derange completely". Dekkers observes that the "remarkable opposition
between the narratives of patient and psychiatrist" is an inversion of the common contrast
between the doctor’s medical technical narrative and patients’ subjective experience. He
concludes that the patient’s inability to communicate at this level left the search for
meaning to the psychiatrist as "the only reader of the most fundamental text". These
examples indicate that the patient may make little contribution to deciphering the
psychological meaning of pain.

Limitations of the symbolic approach
Somatisation denotes misclassification of a psychological problem as a physical problem.
The parallel term "psychologising" has been proposed as a description of the over-emphasis
of psychological factors in illnesses which are generally considered to have a predominantly
physiological and/or biochemical aetiology" (Goudsmit & Gadd, 1991, p449). The central
feature of this critique is the use of psychological theories as a default explanation for
symptoms which have not been explained on the basis of demonstrable physical pathology (Bass & Murphy, 1996; Williams, 1994; Goudsmitt & Gadd, 1991), and the potential risk of failing to identify physical illness (Goudsmitt & Gadd, 1991; Treasure et al, 1987). The problem has been attributed to a misperception of cause and effect, so the psychological sequelae of physical illness are interpreted as the cause of the problem (Lennane & Lennane, 1973).

The practitioners’ search for psychopathology or attempt to distinguish between normal and abnormal pain behaviour can result in patient-stereotyping, mutual suspicion, disruption of the therapeutic relationship and defensiveness in patients without a physical diagnosis, who are highly sensitized to practitioners' suspicion that they are malingering (Skevington, 1996, p70). This response is understandable given the implicit moralism in psychological explanation (Guggenbuhl-Craig, 1988) and the tendency for practitioners to respond more judgementally to patients suspected of malingering (Leavitt, 1985). Patients’ perception of the threat of denial or delegitimation may actually reinforce pain behaviour, in the attempt to "establish the credentials of the illness and to secure appropriate treatment" (Watts, 1982, p 143). This may paradoxically perpetuate the problem because "if you have to prove you are ill, you can't get well" (Hadler, 1996).

Medical practitioners have also expressed dissatisfaction with the "insufficient, pejorative and theoretically inadequate" psychogenic explanations of unexplained symptoms (Mayou, 1991, p534). Somatoform pain disorder has been described as a diagnostic problem rather than a discrete syndrome (Bass & Murphy 1996, p124). Together with related descriptions of functional somatic, worried well, and medically unexplained symptoms, somatisation has been received considerable attention in the medical literature (Porter & Gorman, 1989), and has been described as medicine's "unsolved problem" (Lipowski, 1987), one of its "blind spots" (Quill, 1985) and "most vexing problems" (Dreher, 1996).

The limitations of dualism in conventional medical explanation of pain
The semiotic distinction between indexical, iconic and symbolic signs has provided a means of classifying types of pain explanation within conventional medicine. Reductionist definition of objects in terms of properties is reflected in a dualist construction of the person, which complicates the task of accounting for interrelationships between physical
and psychosocial factors. Dualism is reflected in a tendency towards polarisation between physical (indexical) or psychological (symbolic) explanation of pain. Iconic interpretation is based on acceptance of uncertainty about the cause and focus on psychosocial resources in coping with the problem. Psychosocial aspects of pain have been conceptualised in psychiatric, psychodynamic, and cognitive behavioural terms, and there is debate about whether the relationship between physical and psychosocial factors is best understood in terms of causality, co-occurrence or more recently mediation.

This polarisation was informally referred to in the pain clinics studied by Baszanger (1997) as "something" i.e., pain which could be interpreted as a sign of physical pathology, and "nothing", denoting the "inorganic side of pain". Psychosocial factors were not invoked to explain pain due to "something", but were central to interpretation of pain due to "nothing".

As the treatment process normally begins with an indexical interpretation, the practitioner is confronted with the dilemma of choosing between psychological interpretation which risks "acrimonious and embarrassing confrontation" (Goldberg & Bridges, 1987) or "giving the patient the benefit of the doubt and assuming the problem is organic" (Toone, 1990). Diagnostic testing and specialist referral may be partly motivated by the desire to avoid an "unwanted psychological diagnosis" (Priel et al, 1991), and the organisational structure of service provision may perpetuate a "career" of hospital attendances, admissions and investigations, as patients are often reluctant to return from specialist care to their GP without a physical diagnosis to "prove" that the symptom is not psychological (Goldberg & Bridges, 1988).

The limitations of dualism for understanding and management of chronic pain are increasingly recognized (e.g., Mayou, 1991). In view of the risks of persevering with an indexical interpretation, the difficulty of distinguishing between physical and psychological pain, and lack of evidence that this distinction corresponds to differences in pain experience, description or behaviour, dualism has been judged an unhelpful approach to understanding pain (Sternbach, 1974, p20). Practitioners have been recommended to "rule in" psychosocial assessment in all cases, rather than considering psychological issues only when physical causes have been excluded (Leavitt et al, 1980). These developments have paved the way for a shift from a biomedical approach, which "maintains that all illness can
be explained on the basis of aberrant somatic processes" (Taylor, 1995, p12) to a biopsychosocial approach (Engel, 1977; 1997) in which "the challenge is to understand the relationship between pain and disability, which is neither linear nor causal, but dynamic and multidimensional" (Waddell, 1987). The biopsychosocial approach to understanding pain is part of a broader questioning of the scope of linear models of causality for understanding health, illness or chronic disease (Hyyppa, 1991, p63), and is a focus of innovation in conventional medicine. How this translates into pain interpretation is currently unclear.

In conclusion, there is some evidence of a shift away from reductionism and dualism, and towards more holistic approaches to explaining pain in conventional medicine. This indicates a broader basis for comparison with osteopathy than prototypical biomedical diagnosis and treatment based on indexical interpretation of pain.

Pain as an idiographic symbol: individualized meaning

The aim of idiographic methodology is to represent the particular, unique characteristics which differentiate a particular phenomenon from others. This contrasts with interpretation of pain as a nomothetic symbol in that the signified meaning is deciphered by exploration within the patient-practitioner dyad. Priel et al (1991) recommend that interpretation of pain as an idiographic symbol facilitates recognition that no one can take the pain away, and opens the possibility of curing pain, suffering and disability by personal change. However, the claim that this is the most productive therapeutic strategy for chronic pain has not been empirically evaluated.

Idiographic interpretation in conventional medicine

Idiographic interpretation plays little role in the formal structure of explanation in the medical and psychological sciences (Shafer, 1999), and has not been explicitly advocated as a basis for explaining chronic pain in conventional medicine. However, some theorists have suggested that idiographic explanation is a fundamental component of medical practice, which is currently under-represented in the formal structure of explanation and training. This has been described as "practical wisdom" (e.g., Hunter, 1996), which is central to conventional medical claims to holism (e.g., Baum, 1987; West, 1984).
There is corresponding evidence of a tacitly symbolic approach in medical practice. Though medication prescription is the normal response to distressed primary care patients (Whitehouse, 1987) and recommended treatment for depression in chronic pain patients (Sullivan et al, 1992), this has been described as a pragmatic necessity rather than the treatment of choice. Talking to the patient has been described as the most effective prophylaxis against development of chronic pain (Gildenberg & De Vaul, 1985, p45), and practitioners have been advised to try and identify the true causes of presenting complaints in anxious or depressed patients (Gerrard & Riddell, 1988), and to actively enquire into the stress history and situation of LBP patients without crossing the boundary into counselling (Waddell, 1998, p178). Current guidelines for LBP identify 51 psychosocial "yellow flags" including attitudes, behaviours, emotions; family relationships and work issues in order to determine "what can be done to help this person experience less distress and disability" (CSAG, 1994, p327). These recommendations indicate an implicitly idiographic process in which understanding of the individual problem is used as a guide to intervention.

Similarly, a range of treatment strategies described by conventional practitioners have been used to encourage patients to accept pain as a potentially meaningful aspect of experience. These include explicit invitation to listen to the pain "as a speech your body is delivering about a subject of vital importance to you" (Brand & Yancey, 1993); encouraging mindfulness of pain experience and action instead of fighting against pain (Kabat-Zinn, 1994, 1991, 1982; Kallinke, 1995, p63; Levine, 1973); conversing with insights or images during visualisation or relaxation (Rossman, 1987), and functional analysis, using an experimental approach to identify influences on pain, and evaluate the effects of changing these factors (Brand & Yancey, 1993). From an epistemological perspective, Shafer (1999) has argued that nomothetic and idiographic methodologies are logically complementary and both are required in order to apply general principles to the individual case. Idiographic interpretation may therefore be tacitly rather than formally represented in conventional medicine.

**Idiographic explanation in CM**
The task of describing the structure of clinical explanation in CM and holistic medicine is complicated by lack of a consensual definition of holism or how it should be practised
(Dossey, 1984). However, a number of recurring themes in the literature indicate an explicitly idiographic approach.

**Symptoms as signs on the patients path**

Independent of differences between disciplines, CM explanation is characterized by a unified theory of disease in which "specific symptoms are seen as the most obvious manifestation of a general imbalance or dysfunction affecting the whole system" (Vincent & Furnham, 1997, p21). Disease or illness may even be interpreted as a sign of health, in that the person has shifted from a previously unsustainable level of organisation to a new more adaptive level (Jobst, 1997), and "in all cases,. . . the symptoms are used as tools or guides to the nature of the patient's imbalance" (Fulder, 1984, p21). This has been described in terms of the need for patients to enter into a dialogue with illness, understood as a signal that changes in lifestyle must be made (Launso, 1994).

This therapeutic process of facilitating self-direction has been described using the metaphor of the patient being stuck, like water dammed up by a brick, and the practitioner’s role as removing the brick and giving permission for the water to flow, rather than running ahead telling the water where to go (Taylor, 1994). Illness has been seen as a teacher on the individual’s spiritual journey, as well as a physical misfortune and a psychological challenge (Gordon, 1996, p18), which may be seen as part of life rather than a meaningless intrusion into life:

"If we discard the usual medical model that there’s something 'wrong' with us and it should be ablated with a drug, or cut out with a knife, and instead regard illness as an integral part of the growth process, we will have a clearer notion of its value... Disease and learning are part of life" (Harrison, 1984, p266).

The representation of problems or symptoms as meaningful within the context of the unique person and their life journey recurs at different levels of description, from the physical to the spiritual. A key facet of the practitioner’s role is to decipher the meaning of symptoms on the basis of their own disciplinary frame of reference and the patient’s experience, in order to facilitate patient’s progress on their own "healing journey". Healing is not equated with curing, so this journey may or may not involve restoration of previous functioning or transformative change leading to higher levels of functioning.
The unique person: privileging the patients account
CM discourse emphasizes individual uniqueness, or the way in which patients differ as well as what they have in common. In addition to discipline specific theories which are required to conceptualise these similarities and differences, and provide a basis for application of existing knowledge to the individual, uniqueness seems to be accommodated by grounding treatment in the patients experience (Power, 1991; Launso, 1994). This is central to "relationship centred care" advocated by the Pew Fetzer Task Force:

"the corollary to this (holistic) understanding of health is the construct of illness, which places the patient's experience - not the organ system or pathophysiological state - at the centre of what it means to be healthy or sick. As such, illness is an integral experience and can only be artificially reflected into biological, psychological, social, and spiritual dimensions of experience" (Tresolini, 1994, p15).

The Task Force propose that a key element of this approach is the practitioner's effort to understand the meaning of health and illness for the particular patient, in order to address the multiple manifestations and causes of illness within the patient and to promote the well-being of the whole person.

The centrality of the patient's understanding has been expressed in terms of the need to look within rather than to external services and technologies for solutions to problems (Graham, 1990), and "return directly to the self-directing person as the primary source of knowing" (Heron & Reason, 1984, p87). Similarly, Jung's view that the practitioner "can scarcely know what is wanted better than do nature and the will to live of the sick person" (1933/1989) is commonly cited in the CM literature (e.g. Barasch, 1994, p29).

The potential for congruent representation in treatment based on the patient's experience contrasts with the definition of somatisation in terms of incongruence between patient and practitioner explanation of the problem.

The unique "self-gardening" practitioner
The whole person principle applies to practitioners as well as patients, who are not defined exclusively by discipline any more than patients by diagnosis. This involves both respect for the individuality and humanity of the practitioner (Remen, 1998, p21), and the requirement for self-care, as the practitioner's ability to help the patient is seen as dependent on their own health and well-being (Pietroni, 1986; Launso, 1994). This was
described by the Heron and Reason co-operative inquiry group as "self-gardening", which involves mindfulness of behaviour, relationships and lifestyle, commitment to self-development, and social awareness (Reason, 1988, p110). Self-gardening was seen as essential to confident and competent holistic practice, and interdependent with the principle of the patient as a potentially self-healing agent.

Kirk (1998a) has argued that the distinctive aspect of osteopathy is not so much the formal knowledge base, but the explicit individualism of practice, such that no two osteopaths practice in the same way. This is a feature of BSO training, which "promotes no particular model preferring instead to give a wide range of information to students, allowing them to interpret this data in their own individualistic and osteopathic way" (Kirk, 1998a, p5). The limits on interpretation are defined by extensive clinical practice, in which groups of students observe, treat and discuss management under close supervision from experienced tutors.

Self-healing and the intelligent body
Power (1991, p195) found CM emphasis on uniqueness was sometimes associated with self-determination and the intelligence of the body. The CM concept of the self-healing body reflects a contemporary formulation of the Vis medicatrix naturae, or healing power of nature. This principle, together with psychological accounts based on imagination or expectation, has provided a means of explaining treatment response since Hippocratic times (Grunbaum, 1985).

Within CM, different facets of the self are seen as both potential problem and resource (Gordon, 1996, p17), so that perception of control over health includes belief in the self-healing abilities of the body, rather than the ability of the intentional self to effectively deploy psychosocial resources in coping with the dysfunctional body. Construction of the body as intentional and potentially self-healing is reflected in Still's original osteopathic approach. Still resisted any attempt to identify osteopathy with specific techniques, and there are no practical or anatomical accounts of what he actually did in any particular case. However, his strategy has been summarized as a process of feeling for what is wrong; for what is wanting to happen, for what is stopping it happening and for how to remove those obstacles and allow it to happen. Intervention is described as attempting to remove
obstacles to what is wanting to happen and withdrawing to allow intrinsic processes to take over (Latey, 1990, p16).

**Spirit**
The term spiritual is widely used to denote concern with the traditionally philosophical or religious questions about value, purpose and meaning in the person's understanding of their relationship to the world. It has been argued that the inclusion of "spirit" in addition to body and mind differentiates CM most clearly from conventional medicine (Gordon, 1996; Hodges & Schofield, 1995; Levine, 1994; Campbell, 1984). Concern with the spiritual aspect of treatment seems most evident in the holistic medical literature in the context of serious or life-threatening conditions (e.g. Remen, 1996; Lerner, 1994).

Reason's co-operative inquiry group (1988) identified a range of ways in which spirituality was applied in holistic medical practice, including use of meditation and silent prayer in preparation for, and during consultations; use of implicitly or explicitly spiritual invocations in greetings and farewells; enabling patients to identify, own and talk about the spiritual dimensions of their lives; making available "spiritual spaces" e.g., using ceremony or questions, and making explicit spontaneous spiritual openings through some kind of intervention. The group concluded "such 'spaces' are very much more common than a secular viewpoint assumes, and that practitioners could usefully train themselves to notice and use them" (Reason, 1988, p117).

In some cases spirituality is described as a shift beyond instrumentality "from an individual isolated making-things-happen kind of consciousness to a connection on the deepest level with the largest possible reality" (Remen, 1996, p271). In other cases there is an explicitly pragmatic attitude, e.g., Benson notes that when asked to choose a personally meaningful phrase to repeat during meditation, most patients choose a phrase with spiritual or religious content. He argues that whether or not God exists, belief in God is biologically good for people in relieving the existential anxiety associated with knowledge of suffering, sickness and death (Benson, 1994).

The challenge of accommodating the positive association between mental health and religious belief within the practice of psychiatrists and psychologists, who are typically less religious than their patients, has been seriously considered in relation to mental health service provision (Neeleman & Persaud, 1995). By contrast, compared to conventional
medical practitioners, holistic medical practitioners are significantly more likely to describe religious or spiritual issues as very important in their lives, and in their views of health and illness (Goldstein et al, 1988).

Mind body and spirit in context: the ecological view
The central theme of CM and holistic medicine discourse is the whole person, associated with the view that the human organism is a multidimensional being, possessing body, mind and spirit, all inextricably connected, each part affecting the whole and the whole being greater than the sum of its parts (Launso, 1994). Power (1991) concluded from a content analysis of the literature that the ecological conceptualisation of the relationship between body and mind is central to CM and holistic medicine, and that simply taking account of both in the absence of any ecological account of their relationships to each other and the environment is outside of holistic medicine. This has been described as a modern version of the ancient belief that health depends on harmonious equilibrium between mind, body and environment (St George, 1994).

Relationships between body, mind and spirit are often described using a horticultural metaphor, in which the body is represented "as a garden" and the aim of health care is to "cultivate health with the doctor and patient in partnership to improve ecological conditions" (Beinfield & Korngold, 1995 p7). The biomedical view is often described by contrast using a military metaphor, in which the body is represented as "like a machine which can be dismantled and reduced into constituent parts" and medicine as a "war on disease with the doctor as general, disease as enemy, patient as occupied territory" (Beinfield & Korngold, 1995, p7), though the limitations of the military metaphor have been recognized within conventional medicine (Annas, 1995).

The ecological framework emphasizes the role of functions or processes in achieving balance and equilibrium within constantly changing dynamic systems. Though the origins of osteopathy predate ecology, the emphasis on inter-relationship was central to its founder Still's understanding of "mind" as the balance between the individual, nature, and God (Latey, 1990, p16). The ecological metaphor reflects the holistic emphasis on inter-relationship between mind and body.

Limitations of idiographic explanation
A major limitations of idiographic interpretation is the difficulty of defining clear boundaries to the scope for interpretation or intervention. The absence of defined limits is
associated with concerns that despite emphasis on self-responsibility, CM may be part of the increasing specialisation and medicalisation of life, risking dependence on experts to solve life problems, and decreasing autonomy and resilience (Illich, 1976). The prevalence of biomedically indeterminate conditions and negative affectivity (Watson & Pennebaker, 1989), and the holistic orientation may "draw more emotional and physical malaise into the medical arena than orthodox medicine" (Vincent & Furnham, 1997, p272), and reinforce an unhelpful indexical interpretation of changes in physical experience as problems in need of treatment (Zusman, 1997). Concerns have been expressed that psychological explanation carries an implication of blame and guilt (Morse, 1985; Sontag, 1979; Guggenbuhl-Craig, 1988), and that CM emphasis on self-responsibility may lead patients to view illness as personal failure leading to self-condemnation (Wikler, 1985); enable practitioners to avoid responsibility by blaming patients for treatment failures (Woodhouse, 1995, p65); be used to justify cost-cutting measures in the guise of removing a "dependency culture"; and deflect attention away from the role of social factors in health and illness (McKee, 1988, p775). Research into the possible risks of emphasis on personal responsibility has been advocated as a priority for CM (Vincent & Furnham, 1997, p273).

**Summary: pain interpretation in conventional and complementary medicine**

In summary, the semiotic distinction between indexical, iconic and symbolic signs has provided an organising framework for comparison of the structure of interpretation within CM and conventional medicine. Dualism associated with the reductionist explanatory framework has been identified in a tendency to polarize indexical and iconic or symbolic interpretation in conventional medicine. Prototypical biomedical diagnosis and treatment is based on an indexical interpretation, and is frequently implied as the standard against which CM and osteopathy must be compared (Pincus, 1997; Ernst, 1996; Gruman, 1995). Indexical interpretation plays a clearly defined but limited role in conventional medical explanation of chronic pain, and inclusion of iconic and symbolic explanation provides a broader basis for comparison. However, idiographic explanation may be a tacit feature of conventional medical practice, compatible with the integrative theoretical framework of the GCM, and emerging biopsychosocial initiatives.

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The holistic explanatory framework of CM indicates an idiographic approach to interpretation, but the extent to which this is implemented in practice has not been evaluated. This analysis provides a basis for comparison with osteopathy, which shares common features with both CM and conventional medicine.

**Holism and reductionism in osteopathy**

The historical debate between holistic and reductionist approaches in osteopathy has gained momentum since statutory registration in 1993, and formal registration of osteopaths in 2000. This is reflected in a diversity of views about whether there is - or should be - a shared definition of the profession, and if so "how much philosophy, physiology, mechanics and psychology should be incorporated into it"; and whether concepts and assumptions should be based on interpretation of the writings of Still, or continually developed (Nathan, 1993, p9).

Latey has interpreted Still's original definition of osteopathy as presenting the discipline with the challenge of identifying and describing the intrinsic self-correcting principles of the human organism. He identified three traditions of response to the challenge: vitalism, associated with idealistic, energetic and "alternative" concepts; mechanism, which broadly corresponds to reductionism; and generalism, which broadly corresponds to holism. The vitalist school interpreted Still's emphasis on circulation and the "nerve force", and Littlejohn's emphasis on cerebro-spinal fluid, as a life force contained by the inert matter of the body. Vitalism is widely seen as an approach, which played a role in the history of ideas but with little contemporary relevance.

**Pain as an index in osteopathy: blaming bones**

During the first half of the twentieth century, physical reductionism provided the basis for the golden age of medicine, and was widely adopted in osteopathy (Latey, 1991b, p16). This restricted attention to the osteopathic lesion, which was believed to be the structural cause of illness and key to cure. The quest for physical explanation culminated in the implicit identification of vertebral joint symmetry and health. Osteopath's conceptualisation of practice has been described as "little different from our most naïve patient's...a bone has come out of place and is giving rise to symptoms, or causing the illness - perhaps by obstructing the circulation or pressing on a nerve" (Latey, 1991b, p14).
The conceptual and empirical limitations of the quest for the "holy grail of the lesion" (Hadler, 1996) have been increasingly recognized since the 1950's. Osteopathic research did not establish a causal relationship between musculoskeletal distortion and organic illness, and on Latey's account the hypothesis has been convincingly falsified so that "blaming everything on bones is no longer a supportable position" (Latey, 1991b, p15).

Contemporary osteopathy is a more sophisticated but still an intrinsically physical discipline. The body is commonly represented as a machine-like object with shared features such as levers, pivots, hinges, ball-and-sockets which are expected to respond in predictable ways to the application of physical forces (Nathan, 1993). Biomechanical discourse remains predominant both within osteopathy, and in the rationale for the use of manipulation by other disciplines (e.g., Farrell & Jensen, 1992; Ben-Sorek & Davis, 1988). Biomechanics provides a broader frame of reference for understanding the body than biomedical pathology, so osteopathy may be able to explain biomedically indeterminate problems such as chronic pain in physical terms. However, the scope and limitations of structural explanation in osteopathic theory and practice are currently unclear. This may partly reflect difficulties in standardising assessment criteria, which is a prerequisite for empirical evaluation of structural hypotheses.

In summary, the possibility of explaining chronic pain disability in terms of simple structural causes has not been empirically established in osteopathy. The biomechanical approach suggests an indexical interpretation of pain, analogous to the biomedical interpretation of pain as an index of pathology.

Pain as a symbol in osteopathy: the generalist approach
The generalist or holistic approach retained the breadth of Still's original definition, summarized as a concern with "mind, matter and motion" (Latey, 1990 p14), focusing attention on the inter-relationships between the person and environment. Littlejohn took a "distinctly osteopathic" approach to psychology, proposing that mental processes were dependent on complex feedback between sensory and motor responses, and developed "educative" patterns in response to environmental interactions. He developed an "interlocking field" theory in which structure/functional malalignments could be "found
in the environmental, mental or dietary fields", running in parallel with and linked to bodily disturbances (Latey, 1991a, p8).

The holistic approach was formulated in the early 1900s, but had little impact on the profession throughout most of the twentieth century. This relative lack of progress was partly due to the medicalisation of osteopathy in America; relatively small numbers of osteopaths in other countries, estimated at 500 in the UK in the 1970's (Standen, 1992), and the predominance of physical reductionism which "rounded up and tidied away most of the worthwhile questions posed by Still's original brief" (Latey, 1991b, p14). More fundamentally, Latey's account suggests lack of progress was also linked to the conceptual and methodological difficulties associated with holism. Firstly, no coherent strategy for studying links between complex multivariate systems could be identified. This is the recurring problem of how to conceptualise and manage complexity. Secondly, there was some concern within the profession that this route may have lead to a non-osteopathic eclecticism. Disciplinary boundaries present a substantive challenge for CM, holistic medicine and relationship-centred care, which cannot be achieved by adding on a psychosocial component to the biomedical. Even in multidisciplinary teams "each member must recognize and act upon the emotional, social, physical and spiritual aspects of well-being and illness" (Tresolini, 1994, p26). The question of how to define disciplinary boundaries is therefore not specific to osteopathy, and is conceptually related to the intrinsic difficulty within the holistic paradigm of drawing a non-arbitrary boundary around any particular system.

The challenge of developing a more adequate understanding was confronted amid considerable debate and controversy at the BSO during the 1970's. This resulted in a more holistic approach, which has been described as reinforcing continuity with Still's original aims (Latey, 1991b). Central features of the revised approach include hierarchical extension of basic concepts such as lesion, function, health and the body; increased attention to the interdependent relationships between systems rather than their intrinsic properties; and development of the "pathological grid" as a conceptual tool for representing these relationships (Latey, 1991b, p17).
The osteopathic lesion
The concept of a lesion provides the basis for clinical decision-making, treatment rationale, and communication with patients and other professionals. In recognition of the often fruitless quest for the specific musculoskeletal lesion, the concept of "lesion" was elaborated at different levels of description, from biomechanical to the whole person in context.

Though there is no absolute distinction between different types of lesion, Latey (1991(a), p18) provides examples of six ordered categories, each of which include a number of subcategories (Box 2.1). This represents a vertical approach to problem interpretation, in the form of a hierarchy of increasingly complex descriptions of the person. Problems which cannot be effectively understood or managed at the lowest level of physical description may prove comprehensible at a higher level of description. Higher levels of description are seen as dependent on but not reducible to lower levels of description e.g. the meaning of a book is dependent on the individual letters that constitute the text, but cannot be derived from study of the letters. This strategy is consistent with the holistic explanatory framework grounded in the concept of the whole person, which focuses attention on the relationship between levels of description of the person. By contrast, horizontal diagnostic classification focuses attention on properties of each category, and may be implicated in the tendency to respond to the absence of a physical cause of pain by endorsing a psychological cause, construed as a qualitatively different but parallel form of explanation.

Box 2.1 Hierarchical extension of the concept of lesion  Latey, 1991, p18
- the specific joint lesion
- somatic dysfunction involving larger scale biomechanical functional units in conflict or opposing demands and directions
- somatico-visceral and viscero-somatic dysfunction's involving cyclical feedback patterns
- functional disturbances of fluid or pulsatile motility e.g. breathing and involuntary movement patterns
- compensatory failure involving large scale breakdown, whole body lesion complexes including postural, ergonomic, sporting, exercise, physiological and nutritional
- large pathogenic pattern of related factors, including mental, environmental, subjective, social emotional, whole person in context, current and history of group interactions, mind matter and emotion.
In summary, the elaborated concept of the osteopathic lesion can in principle represent problems at different levels of description, from a discrete physical lesion to interactive relationships within the person/environment system.

**The osteopathic concept of function**

Within the early reductionist formulation of osteopathy, the principle that "structure governs function" was interpreted in terms of the relationship between structural symmetry and health. This interpretation proved inaccurate, and within osteopathy the body is now understood to be normally and fundamentally asymmetrical. Attempts to develop and evaluate the principle that structure governs function also raised conceptual problems as the two concepts proved difficult to define independently. (Latey, 1991(a), p7), e.g. failure in dietary, emotional, psychological, social, occupational or environmental-ecological functions could disable the structural self-correcting function.

In recognition of these conceptual and empirical limitations, the concept of function was developed in terms of the interdependence between systems, and is understood to be "only meaningful when describing the arrangement of one part in relation to another or others" (Tyreman, 1992, p10). This is reflected in functional description of problems in terms of imbalance between systems, including posture and gravity, occupation, age, ergonomic and other stressors (Latey, 1991b, p17).

Function can be analysed at different levels of description, e.g. muscle functions include causing two bones to approximate, acting as an antagonist, allowing control of movement, heating blood and expressing feelings (Tyreman, 1995, p4/5). The level at which the muscle system is most usefully defined depends on the context and purpose of assessment, from the in situ muscle with blood and nerve supply, to the interdependence of muscles, ligaments and discs, to the person's need to use a saw or attract women (Nathan, 1993, p36). Part of the uniqueness of each patient-practitioner dyad is conceptualized in terms of where to draw the boundary around the system of concern, and negotiation of this boundary is one of the tasks of treatment. This individual, functional approach to problem representation is understood to be holistic, independent of where the boundary around a system is drawn. Changes in osteopathic understanding of structure and function reflect a shift from the more spatial reductionist construction of separate,
independent entities to the more temporal construction of processes that are partly constituted by their inter-relationships.

**Osteopathic assessment: the pathological grid**

"As we escaped more and more from the idea of lesions as first causes of illness, we had to see them as resultants of the possible interaction of many factors. We began to see the patient as a part of a much broader field of possibilities" (Latey, 1991b, p18).

At the BSO, relationships between different facets of the person and their environment are conceptualized within the organising framework of general systems theory (von Bertalanffy, 1968) and translated into clinical assessment using range of diagnostic tools, including "the pathological grid". The grid is constituted by a vertical axis of physical structures, and a horizontal axis of normal and pathological functions, which is used to assess and monitor relationships between structure and function. It is used to structure understanding of the relevant congenital, predisposing, contributory, precipitating and maintaining factors, based on simple clinical questions e.g. "What is happening to what? What seemed to start it off? Why is this happening? What was the build up of factors before symptoms started? What is likely to happen with or without treatment? what minimal structuro-functional intervention will best dissolve obstacles to health?" (Latey, 1991, p18). The layered grids constitute a "combined perspective" on the structuro-functional interactions implicated in the temporal development of the problem.

The world hypotheses corresponding to different levels of description (Dewey & Bentley, 1946; Pepper, 1942) are reflected in the pathological grid, which progresses from "the search for an entity, a thing, towards an understanding of what happens to what". The grid is not used to provide a categorical problem interpretation, but as part of an ongoing assessment which alternates between "zeroing in" on particular areas and broadening out to integrate and fine tune understanding of the patient (Latey, 1991b, p18). This constant switching of focus between different levels of description has been described as "part of the richness of diagnosis in a holistic, individualistic sense" (Ferguson, 1990, p1).

In summary, within osteopathy, the interpretive challenge of chronic pain was confronted by hierarchical extension of the basic concepts rather than introduction of qualitatively distinct psychological theories and concepts. Complex cases are represented at
different levels of description using the same basic concepts, so there is no substantive discontinuity between problems which can or cannot be explained in exclusively physical terms. The pathological grid and combined perspective provide a framework for idiographic problem representation, which structures clinical decision making and is continually revised on the basis of experience. The framework accommodates both the osteopathic emphasis on structuro-functional relationships, and the scope for explicit formulation and testing of individual holistic hypotheses. The interpretive challenge of chronic pain is reflected in the task of developing a comprehensive understanding, in the absence of specialist knowledge represented by different disciplines in multi-professional teams.

The research focus
The question of how to respond productively to the research crisis is part of a wider ongoing debate between biomechanical and holistic approaches in osteopathy. Biomechanical accounts of osteopathy imply an indexical interpretation of pain, and typically do not refer to psychosocial factors. Clinical assessment tools for representing person/environment relationships provide a theoretical basis for claims to holism, and imply a symbolic interpretation of pain which can accommodate both physical and psychosocial factors. This is potentially important in the context of recognized limitations of dualism in understanding chronic pain. However, there is no evidence that this approach is implemented in osteopathic practice.

The way in which osteopaths explain pain has important implications for response to the research crisis, in terms of both evaluation strategy and appropriate comparison with conventional treatment. Problem formulation provides a rationale for intervention and outcome evaluation, and research which is not based on osteopathically meaningful definitions of problem, process and outcome increases the risk of a Type II error i.e., failing to obtain evidence for an effect which is actually present, and is unlikely to be perceived as valid within the discipline, or contribute towards development of internal knowledge and a research based culture.

Concerns have been expressed that the requirements for specialist research based knowledge and a university driven syllabus may undermine the distinctive features of osteopathy, so that, paradoxically, acceptance by conventional medicine presents the
discipline with its greatest challenge (Kirk, 1998b). It has been suggested that the profession is moving towards the medical model, despite the wishes of the "silent majority" and the risk of restricting osteopathy to purely musculoskeletal disorders" (White, 1997, p14), and that the most important question facing the profession is whether or not to adopt the medical model (Tyreman, 1997).

This debate could be informed by empirical evidence about whether osteopathic practice is more adequately characterized as reductionist, which has been associated with a tendency to polarize explanation into either physical or psychosocial; or as holistic, which has been associated with a tendency to include psychosocial factors in addition to physical factors. The research focus of the current study can therefore be described as the way in which osteopaths understand and manage the physical and psychosocial aspects of pain, and the consequences for patients. Findings could provide a basis for assessing the validity of published evaluation research, identifying relevant comparison approaches within conventional medicine, and proposals for future responses to the research crisis.
CHAPTER 3

FACET THEORY AND METHODOLOGY

The broad thesis developed in chapter 1 was that reductionist and holistic explanatory frameworks embody different assumptions about the object of enquiry, and about the nature of the person. Reductionist approaches are grounded in a dualist model which defines mind and body in reciprocal and mutually exclusive terms. Holistic approaches are grounded in a concept of the whole person, which has been theoretically less well articulated than the dualist alternative. From the perspective of epistemological pragmatism (Turner, 1992), reductionism and holism can be seen as complementary levels of description, depending on whether any particular phenomenon could be most adequately understood and managed by analysis into component parts (or what it is made of), or by exploration of its role in the wider system (or what it is part of). On the principle that every phenomenon should be explained in the simplest possible terms, but no simpler, the scope for holistic explanation is restricted to those phenomena which have not been effectively understood or managed in terms of lower level processes. This description applies to the current understanding of biomedically indeterminate chronic pain.

This difference between explanatory frameworks may be associated with corresponding differences in the representation and management of complex conditions. The scope and usefulness of reductionist and holistic explanatory frameworks can be translated into a substantive field of enquiry about the nature and consequences of different ways of understanding and managing relationships between psychosocial and physical factors in patients presenting with chronic pain.

The research focus of this thesis concerns relationships between physical and psychosocial factors in the therapeutic process constituted by the osteopath, the patient and the treatment. This locates the research squarely "in the real world", presenting the challenge of "seeking to say something sensible about a complex, relatively poorly controlled and generally 'messy' situation" (Robson, 1993, p4). This type of research is associated with an emphasis on predicting effects rather than finding causes; looking for robust results rather than assessing the statistical significance of relationships between variables and the use of multiple methods rather than single methods (Robson, 1993, p11). A research methodology
was required to provide the conceptual and statistical tools to translate this focus into a series of empirically answerable questions. The following requirements were identified.

- A flexible organising framework for the design of a related series of empirical studies and analysis of results.
- A means of accommodating the holistic representation of objects of enquiry in terms of their relationships rather than their intrinsic properties. This is the basis of the distinction between holistic and reductionist explanatory frameworks.
- Minimal assumptions about the nature of the subject matter, in order to minimise the risk of a Type 2 error
- A means of translating empirical findings into the development of theory and recommendations for future research.

A number of possible research methodologies were considered.

**Qualitative methods**

Qualitative methods are increasingly used in psychology generally (e.g. Richardson, 1996; Smith, Harre & Langenhove, 1995), and health psychology specifically (e.g. Murray & Chamberlain, 1999), and have been explicitly proposed as a non-dualist integrated approach to the study of physical and psychosocial aspects of health and illness (Yardley, 1999). This strategy provides a means of addressing the "patient-as-person", and avoiding construction of psychological factors as variables that "can be entered alongside others within the biomedical paradigm" (Radley, 1999, p17/18). Qualitative methods therefore offer a range of methodological resources that are compatible with the idiographic explanation and can accommodate holistic definition of objects in terms of relationships.

Qualitative methods were not used as the primary research methodology in the current series of studies because the literature reviewed has provided the basis for a broadly quantitative definition of holism i.e. inclusion of psychosocial factors in addition to physical; and research focus i.e. the extent to which osteopathy can be considered holistic in relation to this definition. The aim was to describe the structure of explanation in order to contextualise osteopathy within the multidisciplinary map of pain management, and to consider implications for published and future research. Qualitative
methods were used to provide a more detailed account of the content or meaning generated within this structure by osteopaths and patients.

Quantitative methods
Quantitative methodologies provide a wide range of sophisticated procedures for definition, quantification, and assessment of relationships between variables. This approach is appropriate for research areas in which variables can be operationally defined in the form of potentially reliable and valid instruments (Black, 1999). Extraneous or confounding variables can then be excluded in order to rigorously evaluate relationships between variables specified in general nomothetic theories and principles. Quantitative methods were appropriate for the current study, in that the focus is on general principles associated with the structure of explanation, which have been defined in broadly quantitative terms. However, the focus of concern is with holistic and reductionist explanatory frameworks, which are distinguished by the answers they give to the question "how are parts of a complex whole related to each other"? The way in which this question is answered has practical implications for choice of methodology, as the way in which numbers are used implies something about the measurement space in which these numbers are ordered and separated (Eiser, 1994, p156); and different assumptions about the relationships between parts are associated with different approaches to multivariate data analysis, research design and theory construction.

From a reductionist perspective, the independence of parts can be assumed a priori; component parts are not changed by their inter-relationships, so understanding of a complex whole can be reconstituted from detailed knowledge of the properties of the parts studied in isolation. This assumption forms the basis of much conventional quantitative research methodology and statistical analysis. Measurement space is interpreted as a notional line, which is understood by analogy with a geometrical line. Different points along this line are equated with different numerical measures just as the intervals between markings on a ruler can be equated with different physical lengths. The stability and probability of all points on this line are equal, and scores are interpreted as having an absolute meaning, defined in terms of the construct measured by the scale (Eiser, 1994, p154). Multivariate analysis is used to evaluate interactions, which are construed as changing the value but not the nature of the variables involved e.g. analysis
of variance evaluates the interaction which occurs when an independent variable has
different effects on a dependent variable at different levels of another independent
variable (Kerlinger, 1986, p230).

The representation of variables as discrete passive entities prone to be affected by
outside forces reflected in statements such as "a affects b" has been described as rooted in
the mechanical and biomedical models of earlier centuries (Shye, 1994, p2). In relation to
attitude research, Eiser (1994, p156) has proposed that this type of reasoning "rests on an
assumption which, in other contexts, would be seen as indefensible (or at least outdated):
that space is unaffected by the forces acting on it and within it".

The advantage of defining measurement space in terms of this "exceptionally well
mannered line" (Eiser, 1994, p154) is that measures of psychological variables can be
subjected to the same basic arithmetical operations as physical distances: variable scores
can be added to form scales, differences between groups or individuals can be quantified
and probabilities calculated. One consequence of the interpretation of interaction in terms
of linear causal relationships between discrete variables has been a proliferation of
measures construed as operationalising particular constructs, e.g. self-efficacy, locus of
control, and attributional style, which are used to explore variation between individuals.
The limitations of this strategy are that measuring instruments such as questionnaires
embody particular theories about the domain of concern, which have been established on
the basis of research within a paradigm of theoretical commitments. For example;
cognitive, behavioural, psychiatric and psychodynamic approaches to understanding pain
operationalise concepts in very different ways, and questionnaires typically provide a
more fine grained measure of a specialised area than required by the current focus on
physical and psychosocial factors. Further, operational definition of variables in terms of
particular noncomparable measures can lead to difficulty in obtaining a coherent
overview of the research area.

Quantitative methodology based on a linear concept of measurement space cannot
accommodate interacting variables without assuming independence. In relation to the
current study, how physical and psychosocial factors are construed and managed within
osteopathy, and whether these factors are most accurately described as independent or

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interactive, linear or multidimensional, are substantive questions which cannot be answered on the basis of available evidence.

The methodological requirements described above are adequately fulfilled by facet theory, which has been advocated as a potentially robust approach to describing similarities and differences between and within CM and conventional medicine within the same frame of reference (Canter, 1987).

Facet Theory: A methodology for studying complex systems

"One of the perennial problems in man's intellectual history has been finding the most appropriate way to study any complex system or entity" (Phillips, p5, 1976).

Facet theory is a "meta-theory" or theory about scientific theory development, developed by Louis Guttman in the 1950's with the aim of facilitating scientific progress in psychology (Donald, 1995, p116). This approach is compatible with the holistic view that component parts of a complex system may be constituted partly by their inter-relationships, so that studying the parts in isolation may produce artefacts and limit understanding. The comparative failure to translate holistic theory into empirical research is not specific to CM, and has been attributed to the lack of a coherent research methodology capable of analysing interactions within complex systems (Phillips, 1976). Shye et al (1994, p98) have proposed that facet theory and methodology may meet this need, and enable "simultaneous consideration of a universe of variables and inter-relationships among system components or variables; facilitating the identification of structures and processes within a given system, and ... assessment of the quality of functioning". Facet theory is particularly appropriate for exploration of a domain which is not yet well represented in the empirical literature, as it provides an integrated approach to research design, data collection and analysis, and theory development. This methodology was used to translate the research focus into an answerable series of research questions, and as an organising framework for the current series of studies.

The core of facet theory is contained in Guttman's definition of theory as:

"a hypothesis of a correspondence between a definitional system for a universe of observations and an aspect of the empirical structure of those observations, together with a rationale for such an hypothesis" (Gratch, 1973).
Scientific progress is seen as dependent on the continual refinement of the goodness of fit between theory and data, so mathematical and statistical analysis of data corresponds closely with substantive theory development. A central feature of this approach is the need to distinguish clearly between definition of the concept or domain to be investigated; theory about that domain, and empirical variables in terms of which that domain can be investigated.

The first stage of the research process is to define the domain by specifying its major conceptual constituents, described as "facets". A facet has been defined as "a set of objects - concepts, people and so on - that plays the role of a component set of a Cartesian set" (Shye et al, 1994, p23). This has been succinctly described by Brown: "what this means in practice is the labelling of a conceptual categorisation underlying a group of observations as a facet" (Brown, 1985, p22). There are three types of facet: background, content and range, which will be described in relation to their role in the current study.

Background facets
Background facets describe the context of the study, or population parameters, which are usually considered in order to evaluate individual or situational differences in relation to the domain. In the current research, the main background facet was osteopathic practitioner or patient status of the respondent, though the relationship of age and gender to the domain was also evaluated.

Content facets
The content facets describe the substantive domain of interest, and were derived from the literature, observation and consultation. The area of concern is referred to as a content universe or domain in which variables are construed a priori as closely related to other variables from the same domain (Shye et al, 1994). In areas characterised by a proliferation of terms and measures, domain facets can be identified by conceptual analysis of questionnaire items.

The main content facets identified in the current series of studies were osteopathic treatment and the mind-body relationship.

The range facet
The range facet describes the range of possible responses that can be given to the domain facets, for example the response scale in questionnaire studies. When the range for each observation is ordered (e.g. from less to more) and ordered in the same direction (i.e. has
the same meaning) it can be described as a common range. As the common range is
defined in terms of the meaning of responses, rather than the particular response range
used, items scored with identical responses (very much agree - disagree) may have very
different common ranges, reflecting different meanings. Conversely, items scored with
different responses or units of measurement may have the same meaning and therefore
share a common range. Shye (1994, p33) gives the example of the common range "big"
when used to describe a child, which may refer to many different variables including
height, weight and ability to cope with a challenging situation, and be measured in
correspondingly different units of analysis e.g. centimetres, years, kilograms,
impressionistic accounts of ability to dress, and performance on an arithmetic test. In the
current series of studies, the common range was the extent to which physical and
psychosocial factors were associated with osteopathic treatment.

Elements within facets
Each facet consists of a number of values or variables, referred to as elements, which
jointly describe all of the variation within that facet. Ideally, the elements should be
exhaustive and mutually exclusive, as for example "male" and "female" are mutually
exclusive elements which exhaust the possibilities of the "gender" facet.

Elements may be ordered, e.g. desk, office, building within the environmental
scale facet in relation to workplace (Donald, 1995, p122) or unordered, e.g. recreation,
family, security, health, finance, education, religion, work, information and
communication elements of the life area facet in relation to well-being (Guttman & Levy,
1975).

In practice, there is often an indefinite range of potential elements, or levels of
analysis within any facet depending on the purpose of the assessment, and it may not be
possible to develop an exhaustive list of elements, e.g. "time span" could be represented in
elements based on different units of measurement from seconds to years, depending on
the level of detail required by the theory. Defining the most appropriate metric or unit of
measurement for any given domain in relation to a particular purpose is seen as a
substantive part of theory development.

Measurement space
Each element is understood as a point in the conceptual space defined by the facet, so no
single variable can represent the entire concept, and any set of elements is seen as a sample
taken from the potentially indefinite range represented in the content domain. The content domain can be defined in terms of the totality of its facets; and the facets in terms of the totality of their elements, just as a space may be defined in terms of its constituent points. The domain can be studied in terms of its constituent conceptual components in much the same way as a continent can be explored in terms of its geographical regions. Shye (1994, p2) suggests that the construction of facets in terms of continuous space or field interactions, characterised by the relationships between networks of variables from the content universe, represents a significant contribution to scientific imagery.

Measurement space is interpreted in continuous multidimensional terms, and the dimensionality of the measurement space appropriate to any particular domain depends on the empirical nature of that domain. In other words, the validity of any mathematical procedure depends on correspondence between the way the numbers operate using that procedure, and the actual variability within the domain. Linearity is a special case of multidimensionality, so the linearity of any particular construct is an hypothesis to be tested rather than an assumption which can be made a priori. The term "scale" is restricted to content domains which meet the criteria for linearity defined by the "Guttman scale". In such cases, the degree of similarity or dissimilarity between items is such that they can be arranged in a line, or simplex structure in facet terminology, and this structure is empirically replicated. All items on a Guttman scale will resemble the adjacent items more closely than all other items, so it will be possible to correctly deduce from any individual's score on that scale which individuals have scored less than, the same as, or more than that individual. If, and only if, the scale hypothesis is supported can the range of arithmetic operations based on the assumption of linearity be used, e.g. a single score can provide a valid measure of the attribute, and quantitative comparisons can be made between individuals or groups. Unfortunately, such perfect straight lines seem to be as rare, though not unknown, in relation to psychological characteristics as they are in any other natural structure (Eiser, 1994, p157).

The "mind-body" facet represented in the current mapping sentence (Box 3.1) was analysed into six basic elements:

1. Physical: all direct reference to the body.
2. Behavioural: all direct reference to action.
3. Cognitive: all direct reference to meaning, understanding and explanation.
4. Affective: all direct reference to emotion, feeling, or quality of experience.
5. Spiritual: all direct reference to the word "spiritual".
6. Other: all references to aspects of the self not represented in other elements.

The elements of this facet were not wholly satisfactory, as the assumption that these elements can be distinguished implies a particular model of the self which may be incompatible with "the whole person" model. Despite this reservation, the elements were retained on the grounds that they represent a relatively well established classification in psychology and in the facet theory literature; no suitable alternative could be identified; the same difficulty may arise with any attempt to deconstruct "the person", and the data analysis used would contribute towards evaluation of their empirical validity.

The "osteopathic treatment" facet was analysed into three basic elements:
- Problem formulation (i.e. explanation of why the patient is seeking or perceived as needing help);
- Treatment process (i.e. all occurrences within the consultation, and construction of those occurrences).
- Outcome (i.e. all changes in the patient outside the consultation attributed to the treatment process).

The elements of this facet were seen as relatively unproblematic at this level of analysis, e.g. in the current study, "intervention" could be defined in terms of the practitioners discipline, the methods used, patient-practitioner interactions; or patient and practitioner accounts of the treatment process.

The mapping sentence

"(the mapping sentence) provides a co-ordinate system for making observations, comparable to the space time co-ordinate system in physics" (Roskam, 1989, p3)

The background, domain and content facets are combined in the form of a mapping sentence, which provides a succinct ordinary language description of the research area. Research is seen as an iterative process in which the mapping sentence defines a logical space of possibilities, within which theories or hypotheses can be formulated,
observations made, and the relationships between them assessed. Empirical findings can then be used to reformulate theory within the structure of possibilities defined by the mapping sentence, or to reformulate the mapping sentence itself, therefore redefining the content domain.

Mapping sentences provide one potential means of resolving the problem of fragmentation associated with operational definition of constructs in terms of particular measurement instruments, and may constitute a flexible mechanism for cumulative theory development. Canter (1985, p267) points out that, in general, the fewer and more abstract the domain facets the more broad and superordinate the mapping sentence. Conversely, increasing the number of facets, and of elements within facets is associated with more domain specific mapping sentences. The following superordinate mapping sentence was constructed as an organising framework within which the research focus could be converted into a series of answerable questions:

the extent to which [respondent] perceives [modality of the self] to be associated with [treatment process] [extent] (box 3.1).

<table>
<thead>
<tr>
<th>Box 3.1 Mapping sentence of research structure</th>
</tr>
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<tbody>
<tr>
<td>The extent to which</td>
</tr>
<tr>
<td><strong>Facet A:</strong> respondent perceives</td>
</tr>
<tr>
<td>[A1 Osteopathic practitioners; A2 Osteopathic patients]</td>
</tr>
<tr>
<td><strong>Facet B:</strong> modality to be associated with</td>
</tr>
<tr>
<td>[B1 Physical; B2 Behavioural; B3 Cognitive; B4 Affective; B5 Spiritual; B6 Other]</td>
</tr>
<tr>
<td><strong>Facet C:</strong> treatment process</td>
</tr>
<tr>
<td>[C1 Problem formulation; C2 Intervention; C3 Outcome]</td>
</tr>
<tr>
<td><strong>Facet D:</strong> extent [D1 very much; Dn not at all]</td>
</tr>
</tbody>
</table>

**Structuples**

The mapping sentence is translated into research design and empirical observation using the concept of a "structuple", technically defined as "an element of a Cartesian set" (Shye, 1978, p9). The structuple represents a profile obtained by combining one (and only one) element from each (and all) of the content facets in the mapping sentence. In principle, by generating all possible structuples it would be possible to exhaustively define all possible hypotheses and observations relevant to that domain.
The current mapping sentence has three contents facets with 2, 5 and 3 elements respectively. This generates $2 \times 5 \times 3 = 30$ unique structuples. The structuple based on A1B1C1 in this mapping sentence would be: the extent to which (A1) osteopathic practitioners perceive (B1) physical factors to be associated with (C1) problem formulation (D) extent: [1-5]. The semantically awkward structuple derived from the syntactic clarity of the mapping sentence can be rephrased in ordinary language provided the conceptual content is retained, e.g. the extent to which osteopaths explain presenting problems in terms of physical factors.

Data analysis
Facet theory is normally, though not exclusively, used in conjunction with multidimensional scaling procedures, such as smallest space analysis and proximities analysis. The data matrix is generated in the usual way, with rows constituted by individuals from the population, columns by the content facets and cell scores from the common range. By transposing the matrix so that individuals generate columns and content facets rows, the relationship between individuals or groups can be explored.

The ratings given to each structuple are not added up unless they form a Guttman scale, and multidimensional scaling procedures are used to map out the relative position of structuple points to each other within the domain defined by the mapping sentence.

The multidimensional scaling analysis used in the current studies was ALSCAL Proximities analysis (SPSS-7). The analysis is based on relationships between items, not numerical values. The first stage of the procedure involves calculation of a distance or dissimilarities measure from numeric data. The difference between two items is calculated as the square root of the sum of the squared differences in values for each variable, producing a square symmetric distance matrix. This distance matrix is analysed to estimate the location of each item in multidimensional space. The items are represented by points on a plot, such that the rank order of the distances between the points is the inverse of the rank order between them: the greater the distance between any two points, the lower the correlation between them. In other words, multidimensional scaling procedures provide:

"a geometric representation of the different variables as points in Euclidean space. The distance between pairs of points in the space correspond to the correlation of the
variables. Hence, 2 points are closer if the correlation between the corresponding variables is higher" (Shapira, 1976, p137).

All quantitative data analysis in the current study was carried out using SPSS-7.

Dimensionality
"However complex a state of affairs may be, we can represent it as a singular point in conceptual space. We can handle extra complexity by adding dimensions to the space and we can allow for a multitude of dimensions beyond those we can visualise at one go. If physicists feel comfortable about representing the entire state of the universe as a single point in phase space, surely we can represent an attitude by a single index, that is, as a single point, provided our attitude space has an adequate number of dimensions" (Eiser, 1994, p 160).

Multidimensional scaling (MDS) procedures map the data points into a space of the lowest possible dimensionality. In the case of items which constitute a Guttman scale, this space is unidimensional or linear. This is extended to two, three or more dimensions depending on the complexity of the data. The "goodness of fit" between the data and the MDS plot is measured using a stress coefficient: the lower the coefficient, the better fit between data and MDS representation. A high stress coefficient indicates the need for a higher dimensional solution.

The mathematical task of seeking the configuration with minimum stress has been compared to finding the lowest point in a rolling terrain of hills and valleys (Kruskal & Wish, 1978, p27). Each point on the terrain can be described by 3 co-ordinates: altitude, and two location co-ordinates, North/ South and East/West. The location co-ordinates are analogous to all the co-ordinates of all the points of the configuration. The altitude is analogous to the objective function or stress coefficient. Seeking the configuration with minimum stress corresponds to seeking the lowest point on the terrain while blindfolded, as it is not possible to get any overview of the stress function. The search needs some starting point, and this is often random, analogous to dropping a blindfolded parachutist onto the terrain at night. The next stage is to proceed downhill from the starting point by steps until a point is reached at which no direction is downhill. If the terrain is smooth, regular and bowl shaped, this spot will be the lowest point or "global minimum". If there are some irregularities in the terrain, this may be the global minimum, or it may be the
bottom of a local irregularity, the "local minimum". There is a risk that the local minimum is very different from the global minimum, in which case the parachutist is not near the lowest point, and the MDS configuration may be uninterpretable. This is likely to be reflected in a high stress coefficient. Consideration of the stress, and the next higher dimensional and lower dimensional solutions may indicate that a particular MDS configuration reflects a local minimum which differs substantially from the global minimum.

There is a range of different procedures available for calculating stress, or "the objective function", though the results of these different procedures are not substantially different for most purposes (Kruskal & Wish, 1978, p26). The "S-Stress formula 1" associated with ACSCAL Proximities used in the current series of studies is widely used, and included in SPSS-7. This measure ranges from 0 indicating perfect fit to 1 indicating lack of fit. S-Stress represents the square root of the differences between the optimally transformed data and the squared distance, as a proportion of the total sum of squares. Stress convergence level was set at .001, meaning that when change between iterations produced less than .001 change in S-Stress, iterations ceased. The generally accepted cut off point for acceptable stress levels is .15 (Brown, 1985, p26).

Interpretation of MDS plots
Each data point is interpreted as one of an indefinite number of observational variables associated with the domain, the meaning of which is interpreted in terms of the known combination of facet elements it embodies. The structural relationships between data points are interpreted as mapping the topography of the concept.

The plots are partitioned into spatial regions by the researcher. A region is an area of space on the plot which contains conceptually similar items, i.e. those which share an element from a particular facet. The rationale is based on the principle of contiguity, which states that items which are more similar conceptually will be more highly related empirically. The empirical validity of a facet, and the elements within a facet, are evaluated in relation to the regional partitioning of the space. Items derived from a valid facet will be distributed in a discrete region of the space that does not overlap with other regions. For example, all other things being equal, an item representing structuple A1B1 would be expected to be closer in the space to A1B2 than A2B2.
The second important aspect of partitioning is the shape of the regions. A quantitative order is represented by parallel partition lines across the space, and a qualitative order by a circular distribution of regions around the space.

Access to the arithmetical possibilities associated with linearity is restricted to content domains which conform to the requirements of the Guttman scale. In the absence of a single decision criterion equivalent to probability level, the task is to develop a theoretical interpretation of the structural relationships between data points represented on the two or more dimensional MDS plot. Theories about facets and their inter-relationships are formulated in terms of geometrical structural models resulting from the interaction between facets, e.g. simplex (line), circumplex (circle), radex (concentric circles) and conex (three dimensional cone shape).

The facet approach to data interpretation has been criticised for providing considerable scope for subjective interpretation on the part of the researcher. This concern has been addressed by development of principles guiding regional interpretation of MDS plots (e.g. Lingoes et al, 1979), and by the central role of replicability. However, there is some risk of over-interpretation i.e. inferring complex spatial models from limited data, though this is likely to be falsified by failure to replicate in different data sets. Conversely, in the absence of a clear decision criterion equivalent to probability levels with which to interpret the data, there is a risk of generating incoherent MDS plots from which no conclusions can be drawn apart from the need to revise the mapping sentence, or the relationship between the mapping sentence and observations.

**Replication and robustness**
The reliability and validity of results are evaluated in terms of replicability and robustness. A reliable structure should be sufficiently robust to recur in data sets obtained from comparable populations, or using different questionnaire items or observations to measure the relevant facets. This is consistent with the "continuous space" view of facets as including the whole range of elements and observations rather than being defined exclusively in terms of any particular subset of elements. A reliable finding is identified as that which recurs despite differences in sample and measurement technique.
Identifying subgroups in response profiles: cluster analysis

In order to identify patterns of individual variation in relation to the structures identified using proximities analysis, K-means cluster analysis was carried out on the same sets of variables.

This procedure attempts to cluster cases into a specified number of relatively homogenous groups on the basis of the selected variables. The program estimates initial cluster centres on the basis of an initial pass through the data file, and then uses an algorithm to iteratively assign each case to a particular cluster. The program provides options for updating the cluster centre after addition of each case, or after each iteration, which was selected for all the current studies. The process iterates until the solution reaches the convergence criterion, which represents a proportion of the minimum distance between initial cluster centres. The default criterion of .02 was used in the current studies, which means that iteration ceases when a complete iteration does not move any of the cluster centres by a distance of more than 2% of the smallest distance between any of the initial cluster centres. The convergence criterion can in principle be set at any value from 0 to 1. Final cluster centres are then calculated, representing the average score on each variable for each cluster. Each case is then assigned to a particular cluster, and a variable created based on cluster membership of each case.

The program also calculates the distance of each case from the cluster centre. This information was not used in the current studies, as this level of detail in individual case analysis was beyond the research requirements. Missing data were handled by list-wise exclusion of cases, which means that cases are excluded from the analysis if there are any missing values on the clustering variables. The option for pair-wise exclusion, which assigns cases on the basis of non-missing variable values was not used, as estimation of cluster membership independent of missing data may have introduced too much noise into cluster groupings, and reduced comparability with the proximities analysis.

One feature of K-means cluster analysis is that there is no algorithm to determine the optimal number of clusters for any data set, so the number of clusters is pre-selected. In the current studies, the choice of cluster numbers was determined by consideration of the meaning of clusters by comparison of cluster centre item ratings; and the numbers of cases in each cluster. For example, if a two cluster solution was obtained in which 5 cases were
assigned to one cluster and 65 to another, a three cluster solution would be carried out. Similarly, if a two cluster solution revealed only quantitative differences between cluster centres, so that the mean of all items is higher in one cluster than the other, a three cluster solution was carried out to determine whether qualitative differences emerged.

**The significance of items in differentiating between clusters: analysis of variance**

One way analysis of variance was used to evaluate the relative significance of each variable in differentiating between clusters. It cannot be used as a test of the null hypothesis that there is no difference between clusters as the K-means cluster algorithm assigns cases in order to maximise item profile differences between clusters. Pearson's product moment correlations were used where required to provide a measure of association between variables; and paired sample t-tests were used to evaluate pre-post treatment change.

In summary, facet theory was used to define the overall framework for the research studies carried out. The mapping sentence described the relationship between studies, and the internal structure of each study. The two main facets have been identified as the self and the osteopathic treatment process, from patient choice, pain explanation and intervention to outcome. The general hypothesis derived from the holistic explanatory framework is that physical elements will predominate in all domains and not differentiate between individuals, and that psychosocial elements may be included in addition to, but not in place of, physical elements.

**Facet methodology and osteopathy**

Holism has been claimed as the philosophical basis for CM, and for osteopathic principles which seem to offer a non-dualist approach to understanding relationships between physical and psychosocial aspects of pain. Holism is compatible with emerging biopsychosocial initiatives in conventional medicine, but has made little or no contribution to the research literature. Facet theory and methodology provides a means of articulating and evaluating osteopathic theory which can accommodate both holistic and reductionist formulations. The mapping sentence is not operationally defined in terms of particular measures, and provides a flexible framework which can be adapted to different research purposes using qualitative or quantitative methodologies. For example, it can be used to design research studies, generate questionnaires, content analyse written material or verbal transcripts, or meta-analyse findings from different research studies. It can also be used at different levels of
description, from exploration of broad patterns of relationships between facets, to detailed exploration of particular combinations of elements. This flexibility facilitates the development of cumulative research, which may contribute towards both the internal demand for a legitimized knowledge base and establishment of a research based culture; and valid responses to external demands for evidence.

The research studies
The studies carried out and described in chapters 4-6 can be described in terms of particular structuples derived from the superordinate mapping sentence. The central concern was with mind-body relationships, so facet B representing modalities of the self, and the common range facet were included in all studies. Facet A (osteopath or patient) and facet C (treatment process) were combined in the first study and considered separately in the subsequent four studies.

- Study 1, chapter 4: How do osteopaths explain pain, and does pain explanation influence treatment process and outcome? (A1-2; B1-5; C1-3)
- Study 2, chapter 5a: What methods do osteopaths use? (A1; B1-5; C2)
- Study 3, chapter 5b: How do osteopaths think their treatment helps patients? (A1; B1-5; C3)
- Study 4, chapter 6: How do patients expect osteopathic treatment to help? (A2; B1-5; C2-3)
- Study 5, chapter 6: How do patients think osteopathic treatment has helped? (A2; B1-5; C2-3)
CHAPTER 4
EXPLANATION, TREATMENT PROCESS AND OUTCOME IN OSTEOPATHY

Introduction
Problem description is normally the first stage of the treatment process, and controlled trials require that the patient population is homogenous with respect to the presenting problem. Most trials of manipulation have been focused on low back pain, and authors of meta-analyses have recommended that future trials should be limited to promising subgroups. The task of defining these subgroups is complicated by recognition that pain is a biopsychosocial problem, lack of evidence of a correspondence between biomedical and osteopathic description of problems, and idiographic assessment methods in osteopathy. The strategy adopted in the current study was to identify subgroups in the naturally occurring patient population on the basis of osteopaths' ratings of the role of physical and psychosocial factors, and to explore differences between subgroups in treatment process and outcome. Findings are discussed in relation to identification of subgroups for future trials.

Identifying homogenous subgroups
The primary task in evaluation research and clinical practice is to describe the presenting problem. The reductionist approach to understanding by analysis into component parts is reflected a progressive narrowing of problem definition in trials of manipulation from back pain to non-specific acute LBP, (e.g. Pringle & Tyreman, 1993; DiFabio 1992; Twomey, 1992; MacDonald & Bell, 1990; Curtis, 1988; Ongley et al, 1987; Hadler et al, 1987). Trials have been criticized for failing to take account of individual differences (Curtis, 1988) such as the distinction between subacute and chronic pain, and authors of meta-analyses have recommended that future trials should restrict patient selection to more homogenous and promising subgroups (Koes, 1996; Shekelle et al, 1992).

The task of implementing recommendations for identification of subgroups is problematic because the judgement that a patient group is homogenous can only be made with reference to criteria developed within a particular explanatory framework. In order to identify valid subgroups which have interdisciplinary relevance, these criteria must have some meaning within osteopathy and conventional medicine.
Biomedical description of subgroups

Trials which define homogenous patient populations in biomedical terms play a central role in defining the role of manual therapy within the NHS, and establishing referral criteria. This approach is also widely used by manual therapists, e.g., Peters et al (1994) describe diagnoses of 153 patients attending a musculoskeletal clinic in terms of 10 medical diagnostic categories including osteoarthritis, root entrapment syndrome and prolapsed intervertebral disc (n=29); and non-specific diagnoses (n=125), including specific joint dysfunction, pain arising from ligament, spinal somatic dysfunction and stress related pain (n=5).

The extent to which exclusively biomedical criteria are accepted as providing an adequate description of many chronic pain patients is open to question. Non-specific LBP is defined by location and the absence of a biomedical pathological cause, which has been excluded by diagnostic triage (CSAG, 1994). Recognition of the limitations of dualism, and widespread acceptance of the GCM has led to a biopsychosocial understanding of pain, in which there is no simple isomorphic relationship between tissue damage, sensory arousal and experienced pain. Defining subgroups on the basis of exclusively physical criteria may not reduce the variance between individuals in psychosocial aspects of pain, and may have limited validity in the context of current biopsychosocial understanding in conventional medicine.

There is no clear a priori rationale for assuming a correspondence between biomedical, osteopathic or chiropractic problem definition. Biomedically homogenous patient populations may be heterogeneous within an osteopathic frame of reference, and vice versa. Whether or not variance in osteopathic understanding and management is smaller within any particular biomedically defined subgroup than between that particular subgroup and the rest of the osteopathic patient population is an empirical question. The validity of defining subgroups in terms of exclusively biomedical criteria is therefore open to question in both conventional medicine and osteopathy.

Osteopathic description of subgroups

Definition of subgroups in osteopathic terms would increase validity, though this possibility has received relatively little attention in the research literature. Many trials
have been carried out by conventional researchers with limited knowledge of CM; few have
taken into account the conceptual and therapeutic models of CM, stratified for CM diagnoses
that do not correspond to biomedical nosology, and even fewer have attempted to evaluate
suitability for CM (Kaptchuk et al, 1996). This has been attributed to limited opportunities
for collaboration between academic and CM disciplines (COST B4, 1995).

The task of defining osteopathically homogenous subgroups presents a number of
methodological problems. Description of a discrete physical lesion seems most
straightforward, though repeated attempts to identify the structural basis of CLBP have
proved unsuccessful (Seal, 1995; Deyo, 1991; Waddell, 1992). Use of standard assessment
protocols for LBP in conventional medicine was found to reduce observer error for
history taking, but not for physical examination (Nelson et al, 1979; Waddell et al, 1982)
which showed only 30% agreement on anatomical pain location (Waddell et al, 1982).
The low reliability of physical examination may be compounded by the difficulty of
translating interactive, process orientated and partially nonverbal osteopathic
understanding into categorical definitions, and the multiplicity of assessment techniques,
50 of which were included in one classification of osteopathic diagnostic tests (Dinnar et
al, 1980). These methodological problems may insulate structural hypotheses from the
possibility of falsification, so despite recognition of their inadequate evidential basis, the
majority of osteopathic literature is framed in terms of biomechanical terminology e.g.
restoring bony alignment (Twomey, 1992; Smelskyj, 1990).

More fundamentally, there is scope for debate about whether criteria could be
most usefully formulated in exclusively physical (e.g. Gibson et al, 1984) or
biopsychosocial terms (e.g. Nathan, 1993). Osteopathic assessment methods such as the
pathological grid (Latey, 1991) seem to provide a structured approach to understanding
which is not necessarily based on reliable, consensual problem definition. In combination
with the claim to accommodate the individual uniqueness of patient and practitioner
(Kirk, 1998), this indicates an idiographic symbolic, rather than indexical, approach to
understanding. The substantive difficulty of reconciling nomothetic problem definition
required by scientific research with idiographic clinical assessment has been implicated
in the virtual exclusion of idiographic assessment from the formal structure of explanation in the medical and psychological sciences (Shafer, 1999).

The methodological difficulties described could in principle be overcome by development of consensual osteopathic problem descriptions and reliable assessment criteria. Some additional account of the relationship between osteopathic and conventional problem descriptions would be required in order to establish interdisciplinary relevance.

### Both osteopathic and conventional definition of subgroups

One proposed strategy to maximize validity of trials in both CM and conventional medicine is to restrict eligibility criteria to subgroups which are homogenous within both frames of reference (Wiegant et al, 1993). This strategy has not been implemented and could restrict the eligible patient population to extremely small numbers, but could potentially contribute towards both external legitimization, and internal generation of knowledge.

#### A common criterion: exclusion of treatable pathology

One criterion which is potentially valid within both conventional medicine and osteopathy is exclusion of treatable biomedical pathology.

It is difficult to establish clear and objective criteria to define subgroups within the population of patients presenting with biomedically indeterminate pain, as the contribution of physical and psychosocial factors, and the relationship between them is unclear. This description is not unique to manual therapy patients, and has been identified as a common characteristic of problems which patients selectively present to CM. On the basis of a literature review, Kaptchuk et al (1996) conclude that the CM industry is founded on pain-related conditions, chronic illness, somatising disorders and minor ailments, all of which have been described as ill-defined, deeply connected to changes in subjective awareness, perception and self-monitoring; and most difficult to adapt to controlled trials, requiring bigger sample sizes, "most muddled measurements" and providing a more tenuous basis for reproducibility and generalisation (Kaptchuk et al, 1996, p49/ 50). A recent proposal for legislative change in the definition of malpractice is correspondingly based on the distinction between conventional medical treatment of pathology, and CM facilitation of health (Green, 1999, p84).
The exclusion of biomedical pathology is also central to proposed descriptions of the legitimate range of application for osteopathy. The complementary relationship between osteopathy and biomedicine is formalised in a simple and widely used continuum of severity of presenting problems, which is used to evaluate the need for further testing, urgency, time requirement, and referral to conventional medicine (Latey, 1991b, p18/19). The least severe "A" patient has ample reserves of health and presents with minor self-limiting problems which normally diminish or are adapted to without consulting a health care practitioner. The "B" patient is likely to recover with minimal intervention and advice, independent of the efficacy of specific methods (Ferguson, 1990, p4) which may reinforce practitioners uncritical acceptance of their own belief systems and methods (Latey, 1991b, p19). The "C" patient presents with multi-layered and often ill-defined areas of chronic problems, and such limited health resources that progress is likely to be time consuming and demanding. The most severe "D" patient presents with an illness which is "fixed in form, identifiable from the medical textbook" and requires conventional medical treatment. The scope for osteopathy is defined in terms of B patients, with the aim of preventing chronicity, and C patients, who require "a diagnostic approach that includes both subjective and objective, and is flexible and broad enough to include many factors" (Ferguson, 1990, p3). In such cases, "it is the functional links between mind and body which when clarified help both patient and practitioner understand at least some of what is going on" (Ferguson, 1990, p4).

The process of screening for pathology, or identifying "D" patients, has been described in a grounded theory study of osteopathic care:

"I know it seems to be a bit medically orientated but I think being able to figure out, from their symptoms, if there is actually a primary musculo-skeletal problem or whether there is underlying pathology I think is vitally important" (Barnes, 2000).

Some participants described the ongoing parallel processes of osteopathic assessment and screening for pathology as mildly incongruent but essential to osteopathy.

Biomedically indeterminate conditions are therefore selectively presented to CM by patients, central to proposed legal definitions of the scope for CM and descriptions of the range of application for osteopathy. Absence of a demonstrable physical cause is also central
to the definition of nonspecific LBP referred to manual therapists, and eligibility for iconic or symbolic reinterpretation of pain in conventional medicine. This criterion therefore has some validity within medical, CM and osteopathic frames of reference.

Pain interpretation and treatment process
The way in which a problem is interpreted is clinically important to the extent that it informs treatment related decision-making. There is currently no evidence that osteopathic assessment procedures are used in practice to generate idiographic or holistic interpretation of pain, or that differences in pain interpretation correspond to differences in treatment process. Related research has been carried out in physiotherapy, and suggests that psychosocial interpretation of pain may have little influence on clinical decision-making or treatment process.

Physiotherapists have been encouraged to take account of cognitive, behavioural and affective aspects of chronic pain, and a number of recommendations have been made to enhance effective management (e.g., Harding & Williams, 1995; Klaber Moffett & Richardson, 1995). Psychosocial problems are judged to be relevant in approximately one third of patients consulting physiotherapists, either as a cause or consequence of pain (Verhaak 1995; Kerssens & Curfs, 1993), though a study of 17,012 physiotherapy consultations found that treatment goals and interventions for patients perceived as having psychosocial problems were predominantly physical e.g. regulation of muscle tone by massage (Dekker et al, 1995). The authors attribute these findings to a lack of consensus about how patients with psychosocial problems are, or should be managed, and debate about the legitimacy of extending the physiotherapists remit beyond the somatic problems they had been trained to deal with. This debate also extends to osteopathy, which is equally characterised by a physical treatment orientation.

Comparable findings have been obtained from a study of medical rehabilitation, which found practitioner endorsement of the principle of helping patients to achieve independence did not translate into shared problem assessment (Glueckauf, 1993). Similarly, less than half of 109 physical therapy patients considered decisions had been jointly made with the practitioner (Payton et al, 1998), and all CM practitioners
interviewed by Sharma emphasised the need to share information but described treatment decisions as practitioner-led (Sharma, 1989).

Osteopathy and chiropractic have been accused by conventional practitioners of restricted physical focus, and failure to take adequate account of the psychosocial aspects of chronic pain. Concerns have been expressed about the risk of inadvertently replicating the problems associated with exclusively physical interpretation of pain, which have been recognised in conventional medicine. Zusman (1997), a professor of physiotherapy, has argued that CLBP disability developed partly from the quest for a treatable physical cause. The absence of a physical cause has been used to justify placebo treatments such as manipulation, which paradoxically reinforce the erroneous belief in a physical cause that led to the problem initially. Latey (1991) also suggests that attribution of complex problems to simple physical causes invites equally simplistic solutions in the form of specific manipulative techniques, such as the high velocity thrust. He acknowledges that specific techniques may be effective for a narrow range of minor musculoskeletal or orthopaedic syndromes; have excellent placebo and palliative value; and reassure patient and practitioner that there are "quick fix" answers to complex problems, leading to high patient demand, practitioner confidence and lucrative practice. However, he argues that over-emphasis on a specific method can result in failure to address the limitations and risks of treatment; inability to help complex problems; an unduly tenacious and unproductive approach to manipulation, and dogmatism (Latey, 1991).

In summary, there is little evidence about how osteopaths interpret pain, or the relationship between pain interpretation and treatment process. There is some evidence that recognition of psychosocial factors or endorsement of patient centred attitudes does not translate into clinical practice, and concerns have been expressed that osteopaths and chiropractors fail to take account of the psychosocial aspects of chronic pain.

**The research strategy**

The task of implementing recommendations for identification of homogenous subgroups is complicated by lack of a consensual explanatory framework within which groups can be defined. Exclusion of biomedical pathology has emerged as a common criterion for manual therapy in both conventional medicine and osteopathy. However, complex biomedically
indeterminate problems would be specifically excluded by research strategies focused on well-defined and technically soluble problems. There is currently no evidence about the way in which osteopaths understand and manage pain in routine practice, and concerns have been expressed about failure to address psychosocial aspects of pain.

The current study was therefore designed to evaluate the nature and consequences of osteopathic interpretation of pain in the naturally occurring patient population. The aim was to identify subgroups on the basis of osteopaths' interpretation of the physical and psychosocial aspects of pain, and compare treatment process and outcome between groups.

Results could contribute towards development of an empirically grounded map of the range of interpretive possibilities within osteopathy. This map could provide a framework for contextualising findings from research into particular patient subgroups, and contribute towards identification of osteopathically valid subgroups for future research.

The following research questions were identified.

1. How do practitioners differentiate between patients on the basis of physical and psychosocial aspects of pain?

   This question was addressed by asking practitioners to rate the role of physical and psychosocial factors for each patient in the sample. Data were analysed using proximities analysis to identify structural relationships between items. The stability of the structure was evaluated by comparison of pre- and post-treatment ratings. In order to determine whether subgroups could be identified within the patient sample, a K-means cluster analysis of practitioner ratings of physical and psychosocial factors was carried out. The mapping sentence provided an organising framework for interpretation of the meaning of these subgroups.

2. Is there a relationship between practitioner and patient explanation of the pain?

   The correlation between practitioner and patient explanation of pain was calculated using paired comparison t tests. The relationship between subgroups and patient explanation and self-reported health status was explored using one way analysis of variance, with cluster group as the independent variable. Patient self-reported health status was included as an indication of the validity of practitioner explanations.
3. Is there a relationship between pain explanation and treatment process?

There is little evidence available about routine osteopathic treatment, and concerns have been expressed that holistic orientation does not translate into clinical practice. Treatment process was evaluated by asking practitioners to rate clinical intentions before treatment, and which clinical intentions had been used post treatment. Treatment process in the sample as a whole was evaluated using descriptive statistics. Differences in treatment process between groups were evaluated using one way analysis of variance, with cluster group as the independent variable.

4. Is there a relationship between pain explanation and outcome?

Treatment outcome in the sample as a whole was calculated by subtracting post treatment from pre treatment ratings of health status. Patients' and practitioners' subjective ratings of outcome were obtained post treatment. Between-group differences in outcome were evaluated using one-way analysis of variance, with cluster group as the independent variable.

Measures

A set of questionnaires was compiled to evaluate patients' and practitioners' explanation of pain and subjective evaluation of treatment outcome (appendix 4.1). Where possible these were constructed within the definitional framework of the mapping sentence.

1. Background information from patients

Basic demographic information was obtained in order to evaluate correspondence with identified subgroups. This included age, gender, occupation, place of birth, pain site, duration, number of practitioners consulted, expected pain outcome in 3 months, and number of treatments.

2. The Pain Interpretation Index (PAIN)

The PAIN was developed for the purposes of the current study to address the primary research question: what is the relationship between physical and psychosocial facets of osteopathic interpretation and management of pain across the naturally occurring patient population.
In terms of the mapping sentence, the population is osteopaths and patients (A1; A2). Questionnaire items were generated from structuples obtained by combining elements from facet B (modality) with facet C1 (problem formulation). A parallel set of items evaluating perceived influences on outcome was generated by combining all elements from facet B (modality) with facet C3 (outcome). Facet D was defined by the 5 point rating scale (Box 4.1.)

**Box 4.1 Mapping sentence for the PAIN**
The extent to which respondent (A1 practitioner; A2 patient) attributes pain cause (C1) and recovery (C3) to facet of self (B1-6): extent (D 1-5).

<table>
<thead>
<tr>
<th>Pain cause item</th>
<th>Structuple</th>
<th>Influence on recovery</th>
<th>Structuple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical disease</td>
<td>C1B1</td>
<td>Processes within body</td>
<td>C3B1</td>
</tr>
<tr>
<td>Physical injury</td>
<td>C1B1</td>
<td>Treatment</td>
<td>C3B1</td>
</tr>
<tr>
<td>Work</td>
<td>C1B2</td>
<td>Pain-coping</td>
<td>C3B2</td>
</tr>
<tr>
<td>Bad luck or chance</td>
<td>C1B3</td>
<td>Luck</td>
<td>C3B3</td>
</tr>
<tr>
<td>Sign something wrong with life</td>
<td>C1B3</td>
<td>Understanding cause</td>
<td>C3B3</td>
</tr>
<tr>
<td>Has a personal meaning</td>
<td>C1B3</td>
<td>Stress-coping</td>
<td>C3B4</td>
</tr>
<tr>
<td>Emotional stress</td>
<td>C1B4</td>
<td>Change in situation</td>
<td>C3B6</td>
</tr>
<tr>
<td>Spiritual meaning</td>
<td>C1B5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situation</td>
<td>C1B6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A generic question was included, asking respondents to rate the extent to which they felt they understood what was causing the pain. Open-ended questions were included for comments about any other factors which may have caused pain or influenced recovery.

- The semiotic distinction between indexical, iconic and symbolic pain interpretation can be broadly translated into the mapping sentence.
- Indexical interpretation is associated with predominantly physical problem interpretation and intervention. This translates into high ratings of B1 (physical) and low ratings of B2-5 (psychosocial) in relation to problem interpretation and influences on outcome (C1, C3).
- Iconic interpretation is defined in terms of uncertainty about causes of the problem. This translates into low ratings on all causes (C1; B1-6).
- Symbolic interpretation is defined in terms of psychosocial (B2-5) explanation and influences on recovery (C1,C3).
The Pain Attribution Index (PAIN) was developed as an index of physical and psychosocial aspects of pain explanations and recovery expectations, with parallel formats for patients and practitioners both pre and post-treatment. Ordinary language descriptions of physical and psychosocial factors commonly associated with pain were used so that items could in principle be applied to any of the range of health professions involved in pain management. In relation to the pathological grid, practitioners' attribution to work or stress corresponds to high level description of lesions; exclusively physical attribution corresponds to low level description. The primary aim was to explore variations in the structure of pain interpretation across the osteopathic patient population, and the relationship between pain interpretation, treatment process and outcome. If an interpretable structure could be identified, this could provide a basis for subsequent comparison between disciplines.

Section one asked respondents to rate the extent to which they understood what was causing the pain; the extent to which they believed that the pain was caused by disease, injury, work, stress, the situation or luck, was a sign of something wrong in the patient's life, and was personally meaningful. At pre-treatment, section two asked respondents to rate the extent to which they believed recovery would depend on bodily processes, treatment, pain and stress coping, situational change, luck or understanding the cause of pain. Practitioners were also asked to rate the extent to which they believed recovery would depend on patient management. At post-treatment, section one was repeated, and section two questions about recovery were framed as the extent to which the respondent believed any change which had occurred was due to the same range of factors.

3. The Treatment Aims Questionnaire (TAQ)
The Treatment Aims Questionnaire (TAQ) was developed as a measure of the treatment process. The TAQ includes six items based on Heron's six category intervention system (1990), which is claimed to be a comprehensive classification of the possible intentions a professional may have in relation to a client (Box 4.2). Heron is a major influence on the development of holistic medicine in the UK. He developed the six category system as a means of teaching communication skills to medical practitioners, though it is claimed to be applicable to all professionals sharing the goal of enhancing the autonomy of the patient or client, independent of discipline or theoretical orientation. The system includes three
authoritative interventions, in which the practitioner assumes responsibility and control, and three facilitative interventions, in which the practitioner aims to enhance self-direction and responsibility. Professional competence is associated with ability to use of a wide range of interventions effectively, and move between authoritative exercise of control, to collaborative sharing of control, to empowering the patient to take control.

**Box 4.2 Heron's Six Category System**

**Authoritative intentions**
- Prescriptive: to change behaviour outside the practitioner-client relationship
- Informative: to provide information, knowledge or understanding
- Confrontation: to raise awareness of self-limiting actions or attitudes

**Facilitative interventions**
- Cathartic: to facilitate emotional release
- Catalytic: to elicit self discovery, self directed living, learning and problem solving
- Supportive: to affirm the worth and value of the client, their qualities, actions or attitudes.

There are a number of related measures of communication style based on observation or content analysis of verbal transcripts of consultations. However, verbal measures may have limited application to body-based therapies such as osteopathy, and observational measures have been criticised for using a non-intentional approach (Johanson et al, 1998). The six category system is based on aims rather than methods, as these provide the criteria by which the success of any intervention can be evaluated, and are more comprehensive in that any particular method can be used to accomplish a number of different intentions. Practitioners' goals have been identified as one of the central features of patient-practitioner communication, together with patient autonomy and practitioner obligations to the patient (Emanuel & Emanuel, 1992). Questionnaire measures of three functions of medical interview, i.e., data gathering, patient education and relationship building have been used to study of communication patterns in the medical consultation (e.g., Roter et al, 1997). Heron's approach was chosen as a more appropriate framework because it includes a broader and theoretically comprehensive range of intentions. Data gathering is part of the diagnostic process rather than treatment intention; patient education is
included within "aim to provide information or understanding"; and relationship building in support, which aims to enhance the self-esteem of the patient.

Heron's approach is taught at the BSO at undergraduate and postgraduate level, and has been widely accepted as valid and relevant within the school. It provides a practical framework for skills training, and facilitates translation of research findings into improved practice. Many osteopaths have commented that Heron's model applies equally to physical and verbal intervention, and there is some analogy between authoritative and facilitative approaches, and Randall's (1992) distinction between "father" and "mother" interventions in osteopathy.

A series of items was included to evaluate the target of treatment. These included the physical causes of pain (indexical interpretation); the physical effects of pain and the pain itself (iconic interpretation); and physical tension and stress or distress (symbolic interpretation). The 13 items of the TAQ were rated on a 5-point scale from "not at all" to "very much". At initial consultation, practitioners were asked to rate the extent to which they intended to use each item in their treatment of the individual patient. At follow up, practitioners were asked to rate the extent to which they had actually used each item in their treatment of the individual patient.

4. Treatment Outcome: SF-36 health status

Patient's self-reported health status was measured using the SF-36, which is a well standardised measure of generic health concepts relevant across age, disease and treatment groups (Medical Outcomes Trust (MOT), 1993). It includes eight subscales measuring different aspects of physical and psychological health. Subscale and total scores are ordered on a scale from 1 to 100, with higher scores indicating better functioning. The SF-36 has been developed by the MOT as part of an initiative towards a "technology of patient experience" (Elwood, 1988) based on large scale routine outcome measurement, in order to provide a feedback mechanism to service providers and purchasers.

The empirical validity of the SF-36 has been demonstrated in a number of studies. McHorney et al (1992) found SF-36 profiles differentiate well between patients suffering from serious medical illness, minor medical illness, healthy volunteers, psychiatric patients and patients with both psychiatric and medical illness. Factor analytic studies have shown
strong associations between three SF-36 subscales (physical functioning, role-physical and bodily pain) and other measures of physical health; and between the "mental health" and "role- emotional" subscales and other measures of psychological status in both healthy samples (Ware, 1994) and those with chronic illness (McHorney, Ware & Raczek, 1993). General health, vitality and social functioning have been found to load on both physical and psychological components (Ware, 1994; McHorney, Ware & Raczek, 1993). There is also adequate evidence of reliability, with alpha co-efficients for items in each scale ranging from .69 for social function in healthy volunteers, to .92 for physical function in a sample who had consulted a GP during the past week (Wright et al, 1992). Permission to use the SF-36 for the current study was granted by Dr Toffler, President of MOT, Boston MA.

5. Treatment outcome: subjective evaluation
Subjective evaluation of treatment outcome was assessed by asking patients and practitioners at follow up to rate the extent to which treatment had helped to relieve pain; helped the patient cope with pain; and helped to relieve stress. Items were rated on a 5 point scale ranging from "not at all" to "very much".

The provisional research protocol involved distribution of parallel questionnaires to patients and practitioners at initial consultation and three month follow up.

Background to the study
The study was carried out at a fairly new, purpose built inner city GP practice, with 17,000 registered patients, which had recently contracted two osteopaths, a physiotherapist, a Shiatsu practitioner and a counsellor. The original aim was to include all manual therapy disciplines in the study, and the protocol was refined on the basis of consultation with all manual therapists, though the physiotherapist was unable to participate as a result of prior research commitments and the Shiatsu practitioner tended to see a small number of patients. The protocol was subsequently presented to practice GP's at a regular lunchtime seminar, attended by members of the local FHSA. There was a tradition of research at the practice, and as manual medicine was a new service development, the proposal was generally welcomed. Some concerns were expressed about potential problems with completing the questionnaires, as the practice was located in an area of high socio-economic deprivation, and included a significant proportion of people for whom English was not a first language, or
who had literacy problems. There was also a feeling that it would be more respectful and increase compliance if participants were offered an interview. This was agreed, and the practice offered to make available an office for the interviews during the period of the study. The practice GPs gave consent to the study, contingent on obtaining ethical approval from both the University of Surrey and the British School of Osteopathy Ethical Committees.

A senior GP in the practice offered to act as co-ordinator of the practice-related aspects of the study. Following the meeting, the research protocol was revised, and sent to the GP co-ordinator for approval. When this was received, ethical permission for the study was granted by the Ethical Committees of the University of Surrey, and the British School of Osteopathy.

Three students contributed to the data collection: Maria Dickenson, a health psychology MSc student at the University of Surrey interviewed approximately 25 patients; Michael Humphreys and Richard Tomlin, undergraduate students at the BSO interviewed approximately 10 patients each, and Michael Humphreys conducted telephone follow up interviews with approximately 30 patients. Each student used small and different subsets of the data to answer different research questions in the dissertation submitted as part of their course requirements. These students were under the authors supervision, which included interview training to standardise data collection. The remaining 105 initial patient interviews, postal follow up and telephone interviews were carried out by the author.

Procedure
All patients referred to osteopathy or Shiatsu during the six month period of the study were telephoned by the medical receptionist prior to their appointment. This was not an unusual procedure at the practice. Patients were informed that they were eligible for participation in a questionnaire study of manual treatment being carried out at the practice, and invited to attend for their appointment an hour early to meet with the researcher if they were interested in participating. The receptionist made clear that the patient was free to choose whether or not to participate, and their choice would have no influence on the treatment they received from the practice. It was explained that the researcher would provide more information about the study and answer any questions before asking whether or not they wished to participate. For those who were not interested, the routine appointment was confirmed, and patients were
thanked for their time. An appointment list was drawn of all patients who had agreed to speak to the researcher about the study.

On attending, each patient was approached by the researcher and asked whether they would prefer to discuss the study in the public waiting room or a private office. The study was then explained, questions answered and patients who agreed to participate were asked to complete a consent form, and provided with a copy. Patients were then asked whether they preferred to complete the questionnaires independently and hand them in to the researcher, or in an interview. The researcher asked each question verbatim, explained where necessary and recorded the response. Where patients seemed interested in discussing the questions in relation to their own situation, permission was asked to write down what they said in order to obtain a better understanding. In order to avoid disrupting treatment, in cases where the osteopath was ready to see the patient before the interview was complete, they would telephone the research office, and the interview would be terminated. Patients were not asked to return after treatment to continue with the interview. At the end of the interview, patients were asked whether they would be willing to be contacted by telephone if they had not completed and returned the postal follow up questionnaires. A telephone number was recorded for those who agreed.

The follow up questionnaires and freepost envelopes were posted to each participant together with a standard letter in a handwritten envelope, approximately 3 months (range 8-20 weeks) after initial consultation. Those who had not responded to postal follow up after one month, had provided a telephone number and agreed to be contacted in this way were contacted by telephone where possible, and asked an abbreviated set of questions.

Practitioners were informed which patients had agreed to participate in the study, and were asked to complete the initial questionnaire after the first consultation. These were returned to the researcher on a weekly basis. They were asked to complete the parallel follow up questionnaire on completion of treatment. After the study period, a list of missing questionnaires was provided and practitioners completed these for patients who were still in treatment.
Sample characteristics

Practitioners
The participating osteopaths were both trained at the BSO, and had begun work at the practice some months before the study. One was male, with five years post-qualification experience, and the other was female with three years post-qualification experience. The Shiatsu practitioner was female and had been qualified for three years.

Patients: demographic and clinical characteristics
Of approximately 175 eligible patients, 150 (85.7%) agreed to participate. In many cases, patients said that they were willing to participate because they were pleased that osteopathy or Shiatsu was now being offered on the NHS at the practice. All except one person completed the initial questionnaires at interview. The thirteen patients recruited from the Shiatsu practitioner have been included in the subsequent analyses, as the measures were equally applicable to both disciplines; there were no significant differences in patient characteristics; and the focus of concern was on the relationships between pain explanation, process and outcome rather than individual practitioners.

Age and gender distribution

<table>
<thead>
<tr>
<th>AGE</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>12</td>
<td>8.0%</td>
</tr>
<tr>
<td>26-40</td>
<td>58</td>
<td>38.7%</td>
</tr>
<tr>
<td>41-60</td>
<td>57</td>
<td>38.0%</td>
</tr>
<tr>
<td>Over 60</td>
<td>22</td>
<td>14.7%</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>

The age distribution of the current sample (table 4.1) is comparable to that of a manual therapy clinic in primary care (Peters et al, 1994): the majority of participants were of working age.

The gender distribution of the current sample is representative of the practice case load (personal communication), but more heavily skewed towards women than private CM patient populations; 113 patients were female (75.3%), 36 (24.0%) male and data were missing in one case (0.7%). Thomas et al (1991) found women outnumber men by two to one, which matches CM practitioners estimates (Fulder & Monroe 1985).
Occupation
The sample was roughly equally divided between those who described themselves as unemployed, manual worker, non-manual worker, and other, including students and the retired (table 4.2). The relatively high level of unemployment reflects the social and economic problems of inner city areas (Smith & Stiff, 1985).

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>41</td>
<td>(27.3%)</td>
</tr>
<tr>
<td>Retired</td>
<td>16</td>
<td>(10.7%)</td>
</tr>
<tr>
<td>Student</td>
<td>10</td>
<td>(6.7%)</td>
</tr>
<tr>
<td>Manual</td>
<td>34</td>
<td>(22.7%)</td>
</tr>
<tr>
<td>Non manual</td>
<td>33</td>
<td>(22.0%)</td>
</tr>
<tr>
<td>Missing</td>
<td>16</td>
<td>(10.7%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>150</td>
<td>(100%)</td>
</tr>
</tbody>
</table>

Place of birth
The practice was located in a multicultural region, with slightly over half born in the UK and almost one third in the West Indies (table 4.3). This distribution is representative of the osteopaths' routine case load (personal communication) in this practice.

<table>
<thead>
<tr>
<th>PLACE OF BIRTH</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>81</td>
<td>(53.6%)</td>
</tr>
<tr>
<td>Europe</td>
<td>12</td>
<td>(7.9%)</td>
</tr>
<tr>
<td>West Indies</td>
<td>45</td>
<td>(29.8%)</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>(4.6%)</td>
</tr>
<tr>
<td>Missing</td>
<td>6</td>
<td>(4.0%)</td>
</tr>
</tbody>
</table>

Treatment history
By contrast with private CM patients, very few of the current sample report a history of multiple consultations for the presenting symptoms. Eighty participants (53%) had only consulted their GP about the problem, and 62 (41.1%) had consulted only one or two other practitioners, in most cases within the NHS. Only 8 (5.3%) had consulted four or more practitioners, compared to over 50% in previous studies (Booker & Canter, 1987).

Pain location
All patients were referred for musculoskeletal problems. In both Peters et al (1994) study of 154 referrals to the musculoskeletal clinic and the current study, back pain patients comprise roughly one third of referrals. Fifty-six (37.3%) patients reported suffering primarily from
back pain; 17% (n=26) report specific upper or lower limb pain; 15% (n=23) multiple pain, and 8% (n=12) head or neck pain.

**Pain duration**
The sample is approximately equally divided between patients who have been in pain less than one year (51%, n=77), and over one year (49%, n=73). One quarter describe acute pain of less than three months, and 6% of less than one month duration. This contrasts with a previous study of referrals to manual medicine, in which 35.8% presented with pain of less than one months duration (Peters et al, 1994), and current CSAG guidelines (1994) which recommend manual therapy during the acute stages of non-specific LBP. This skew towards chronic pain is partly a reflection of the recent introduction of osteopathy to the practice. The proportion of chronic pain patients referred has since decreased as a result of reduced backlog of difficult cases, and implementation of CSAG guidelines (personal communication).

**Treatment received**
Table 4.4 shows that 7 patients failed to attend their first appointment; approximately half completed treatment during the course of the study, and one third within four appointments. This seems to be fairly representative of osteopathic service provision on the NHS (Peters et al, 1994; Pringle & Tyreman, 1993) The "continuing" category includes those not yet discharged because they were offered longer term follow up.

**Table 4.4 Treatment history**

<table>
<thead>
<tr>
<th>Times seen</th>
<th>Did not attend</th>
<th>Completed</th>
<th>Continuing</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once only</td>
<td>7 (4.6%)*</td>
<td>14 (9.3%)</td>
<td>-</td>
<td>21 (14.0%)</td>
</tr>
<tr>
<td>2-4 times</td>
<td>10 (6.6%)</td>
<td>45 (30.0%)</td>
<td>7 (4.6%)</td>
<td>62 (41.3%)</td>
</tr>
<tr>
<td>Over 4 times</td>
<td>2 (1.3%)</td>
<td>20 (13.3%)</td>
<td>39 (26.0%)</td>
<td>61 (40.6%)</td>
</tr>
</tbody>
</table>
| **TOTAL**    | **19 (12.6%)** | **79 (52.6%)** | **46 (30.6%)** |** **

* i.e. did not attend first appointment. Missing data 6 (4%)

Seven patients were offered a subsequent appointment but did not attend, and in 14 cases treatment was terminated after one session. This included pain free patients who were given advice about prevention, and referrals back to the GP for treatment of physical or psychosocial problems.
Treatment referral
Of 19 patients who did not attend an appointment throughout the duration of the study, 9 were referred to another practitioner, either a different sex manual therapist (2) or another discipline (7), and in 2 cases, the practitioner stated that they intended to refer the patient (to orthopaedics and counselling). In total, 11 (57%) of patients who did not attend at some point in treatment were either referred or would have been referred to another practitioner, compared with 33 (22%) in the sample as a whole. This is consistent with evidence of an association between absence of referral to other specialists and patient satisfaction in conventional medicine (Bensing et al, 1996).

A total of 37 referrals were made to other professionals, including counselling/psychotherapy (n=13); GP (n=12); dietician (n=4); welfare worker (n=2); Asian Outreach Program (n=1); physiotherapy (n=1); No Panic group (n=1); solicitor/legal advice (n=1); chiropody (n=1); gynaecology (n=1) orthopaedics (n=1) and a rehabilitation program (n=1). The 37 referrals involved 33 (22%) patients, as 4 were referred to two practitioners.

Of the GP referrals, 4 were for a separate physical problem (back spots, possible prostrate problem, kidney investigations, axillary lump) and 8 were for the presenting problem, usually in combination with psychological problems and lack of improvement.

SF-36 Health Status
Scale scores of the current sample and normative data are reported in table 4.5. Subscales, current sample means, and most similar normative group are described below. Table 4.5 indicate relatively little differentiation on some scales between patient groups, e.g., patients suffering from chronic illness report slightly better general health than primary care patients, suggesting limited sensitivity to potentially relevant differences between groups.

Social functioning (Soc)
This scale evaluates the extent to which either physical or emotional problems have interfered with normal social activities over the past week. The current sample is comparable to primary care patients, and those suffering from psychiatric illness, or psychiatric and serious medical illness combined.
Emotional role function (Emot)
This scale measures the extent to which emotional problems have interfered with work or other activities over the past week. The current sample is comparable to the primary care sample and psychiatric patients with serious medical illness.

Mental health (Ment)
This scale evaluates emotional state using both positive items such as feeling calm and happy, and negative items such as feeling nervous and downhearted. Self-reported mental health in the current sample is comparable to primary care patients.

Vitality (vit)
This scale asks patients to rate how much of the time they feel full of life, energetic, tired or worn out. The current sample report similar vitality to primary care patients.

Pain
Pain is measured in terms of pain intensity, and pain interference with work or other normal activities. The current sample report higher pain levels than all other groups.

General health perceptions (Hlth)
Health perceptions are assessed by asking patients to rate their general health, and the extent to which they agree with statements such as "I seem to get sick a little easier than other people", and "I expect my health to get worse". The current sample are comparable to patients suffering chronic illness.

Physical function (Phys)
This scale measures ability to carry out routine activities such as running, carrying groceries, climbing stairs or walking. The current sample is intermediate between the primary care sample, and patients with serious medical illness.

Physical role function (Rolp)
This scale measures the extent to which physical health has interfered with work or other activities over the previous week. The current sample is intermediate between patients suffering from serious medical illness and the primary care sample.
Table 4.5 SF-36 subscales: current sample at initial consultation and normative data

<table>
<thead>
<tr>
<th>Sample</th>
<th>Social</th>
<th>Emot</th>
<th>Ment</th>
<th>Vit</th>
<th>Pain</th>
<th>H'lth</th>
<th>Phys</th>
<th>Rolp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor medical n=576(^1)</td>
<td>91.6</td>
<td>84.2</td>
<td>82.4</td>
<td>62.0</td>
<td>76.0</td>
<td>67.0</td>
<td>80.5</td>
<td>70.2</td>
</tr>
<tr>
<td>Healthy vols n=8883(^2)</td>
<td>88.0</td>
<td>82.9</td>
<td>73.8</td>
<td>61.6</td>
<td>81.5</td>
<td>73.5</td>
<td>88.4</td>
<td>85.8</td>
</tr>
<tr>
<td>No chronic ill n=6301(^2)</td>
<td>85.6</td>
<td>91.4</td>
<td>75.4</td>
<td>64.0</td>
<td>86.3</td>
<td>78.8</td>
<td>92.5</td>
<td>91.3</td>
</tr>
<tr>
<td>Serious medical n=144(^1)</td>
<td>80.0</td>
<td>76.1</td>
<td>77.5</td>
<td>47.7</td>
<td>65.1</td>
<td>49.1</td>
<td>57.5</td>
<td>43.9</td>
</tr>
<tr>
<td>Chronic ill. n=2489(^2)</td>
<td>76.3</td>
<td>71.9</td>
<td>69.9</td>
<td>54.0</td>
<td>69.8</td>
<td>60.8</td>
<td>78.3</td>
<td>80.2</td>
</tr>
<tr>
<td>Psy &amp; ser med n=43(^1)</td>
<td>65.1</td>
<td>52.7</td>
<td>56.9</td>
<td>37.0</td>
<td>50.2</td>
<td>39.9</td>
<td>46.3</td>
<td>23.8</td>
</tr>
<tr>
<td>Psychiatric n=153(^1)</td>
<td>64.5</td>
<td>40.7</td>
<td>52.7</td>
<td>52.7</td>
<td>63.3</td>
<td>57.9</td>
<td>80.6</td>
<td>55.5</td>
</tr>
<tr>
<td>Primary care n=265(^3)</td>
<td>60.8</td>
<td>56.6</td>
<td>62.2</td>
<td>44.2</td>
<td>51.6</td>
<td>56.9</td>
<td>68.2</td>
<td>43.2</td>
</tr>
<tr>
<td>CURRENT n=150</td>
<td>63.2</td>
<td>53.5</td>
<td>62.8</td>
<td>44.6</td>
<td>38.7</td>
<td>61.5</td>
<td>62.4</td>
<td>38.0</td>
</tr>
</tbody>
</table>

2 Wright, Harwood & Coulter (1992.) Report neither sd nor standard error
3 Patterson (1996)

A proximities analysis was carried out on SF-36 subscale scores reported in table 29 to provide a graphic representation of the relationship between the current and normative samples (fig 4.1). S.Stress .020; RSQ.997 . Item co-ordinates are presented in appendix 4.2.

The location of each group in the space is determined by the correlations between all scores for all groups. This plot shows that the overall SF-36 profile of the current sample most closely resembles those of psychiatric and primary care patients.
In summary, at initial consultation, patients in the current sample report high levels of physical and psychological disability in addition to pain. This is consistent with robust evidence of a relationship between chronic pain and psychological disturbance, particularly depression (eg Gupta, 1986; Magni, 1987; Romano & Turner, 1985; Katon et al, 1985; Katon et al, 1984; Krisnan et al, 1985; Sternbach 1974).

The psychosocial SF-36 scale means and standard deviations are very similar to those of the heterogeneous primary care sample consulting GPs or CM practitioners (Patterson, 1996). Physical scales are consistently lower than the primary care patients indicating the current sample report lower levels of physical health. Given high standard deviations obtained on SF-36 scales apart from pain, mean ratings provide only a general indication of high levels pain and relatively poor physical and psychological health compared to normative data. The sample is also diverse in terms of pain location, duration, and demographic characteristics.
Results

The four research questions identified correspond to different but related aspects of osteopathic treatment. The results section is therefore integrated with discussion of each section, and conclusions summarised in the final section.

Section 1: pain explanation

The PAIN was developed to address the question: how do osteopaths differentiate between patients on the basis of physical and psychosocial aspects of pain.

Parallel versions of the Pain Attribution Index (PAIN) were administered to practitioners and patients at initial consultation and follow up, providing four comparable data sets. Numbers of respondents are shown in table 4.6, which includes total questionnaires returned and does not exclude those with some missing data. The high numbers of non-responders to follow-up may have been influenced by the practice location in an area of social deprivation, with high levels of temporary accommodation and a mobile population.

Table 4.6 Questionnaire respondents at initial consultation and follow up

<table>
<thead>
<tr>
<th>RESPONDENT</th>
<th>Time 1 n</th>
<th>Time 2 n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practitioner</td>
<td>132 (88%)</td>
<td>125 (83%)</td>
</tr>
<tr>
<td>Patient</td>
<td>150 (100%)</td>
<td>66 (44%)</td>
</tr>
</tbody>
</table>

Physical and psychosocial factors in practitioners explanation of pain

Practitioners' interpretation of relationships between physical and psychosocial factors was assessed using proximities analysis to evaluate the structure of relationships between items at initial consultation (fig 4.2) and follow up (fig 4.3). Item co-ordinates are reported in appendix 4.2. Pain attributions (Facet C1) have been coloured in purple, and expected influences on outcome (fig 4.2) and outcome attributions (fig 4.3) in blue (Facet C3).

Replication of structural relationships in different data sets is the primary means of establishing reliability and validity within facet methodology (Guttman, 1982). Comparison of the proximities plots obtained at initial consultation (fig 4.2) and follow up (fig 4.3) indicates that the structure of relationships between items is relatively robust. The following similarities were noted in both plots.

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Physical items are distributed across the top and psychosocial items towards the bottom of the space. This provides some support for the empirical validity of facet B modality of the self in practitioners' understanding of pain. Injury and disease attributions (C1B1) were widely separated, indicating distinct and different aspects of physical understanding. Patients presenting with medical disease are described as 'D' patients in the osteopathic continuum of severity, requiring medical referral (Latey, 1991). In the current sample, all patients were already in the care of the referring GP; in some cases disease was independent of the presenting problem, and disease attributions did not exclude patients from treatment. However, the close association between "disease" and "luck", and their location in the space opposite "understand" suggests these patients were more difficult to understand and manage osteopathically. This finding is consistent with the proposal that presence of biomedical disease i.e. cases in which symptoms can be translated into signs of pathology, are beyond or at least at the periphery of the osteopathic range of application. The interface with conventional medicine was reflected in the relatively isolated location of disease attributions.

Expected influences on outcome are more closely clustered than pain attributions. The influence of the body, osteopathy, understanding the problem, patient management and coping with pain located between work and injury attributions, and situation/sign of something wrong in life. The close relationship between these items, in combination with the proximity of "understanding the problem" suggests this region is central to osteopathic treatment. The two outlying influences on recovery are luck, associated with disease; and patient coping with stress, associated with attributions to stress and sign of something wrong with life. This region seems to define the interface between osteopathy and psychotherapy (Feuerstein & Beattie, 1995).

The vertical distribution of items across the space suggests an additional dimension of understanding, anchored at one end by "understand what caused the pain", in the centre by expectation that recovery depends on understanding the cause, and at the other extreme by luck, which implies an absence of understanding. The interface with conventional medicine is represented in the disease-luck region of the space; and the interface with psychotherapy in the emotional stress attribution and coping region.
The plots are different in that practitioners' expectation that recovery will depend on change in situation is centrally located adjacent to "recovery depends on understanding cause" at initial consultation (fig 4.2). At post-treatment (fig 4.3), attribution of change to the situation is much more closely associated with psychosocial items, adjacent to 'pain is a sign of something wrong in life', and attribution of change to stress coping.

Means and correlations between practitioners' initial and post-treatment ratings on the PAIN are reported in appendix 4.3. The stability of structural relationships between items from initial consultation to post-treatment does not reflect an equivalent stability in pain and recovery expectations and attributions in individual cases. There was relatively little change in practitioners' mean ratings from initial consultation to follow up, and pain attributions were modestly but significantly correlated, with the exceptions of luck and personal meaningfulness. There were no significant correlations between initial expectations of influences on outcome, and subsequent outcome attributions.

In summary, the structure of relationships between PAIN items was broadly described in terms of a physical to psychosocial dimension, and a continuum of understanding. Structural relationships between items were stable over time, suggesting the frame of reference within which practitioners conceptualise problems is fairly robust. Within this frame of reference, attributions made in individual cases did vary over time. There was least change in stress related items, and most change in initial expectations and subsequent attributions for outcome.
Fig 4.2 Practitioner explanations of pain and recovery: time 1

2 dimensional proximities analysis: Euclidean distance model

n=127 patients assessed by 3 practitioners

Fig 4.3 Practitioner explanations of pain and recovery: time 2

2 dimensional proximities analysis: Euclidean distance model

n=115 patients assessed by 3 practitioners
Cluster analysis of practitioners' pain explanations

The primary research question concerns the way in which practitioners differentiate between patients on the basis of physical and psychosocial factors.

In order to evaluate whether the sample could be divided into subgroups on the basis of practitioners' pain and recovery expectations at initial consultation, a K-means cluster analysis was carried out.

The two cluster solution identified one group of 64, in which the pain was significantly more likely to be attributed to luck (p=.000) and recovery to the body (p=.000). In the second group of 62, practitioners were significantly more likely to attribute pain to stress (p=.000), sign of something wrong in life (p=.000), the situation (p=.000); and more likely to attribute recovery to stress coping (p=.000), and change in situation (p=.000). There were no between group differences in attributions of pain to disease, injury or work; or attributions of recovery to treatment, pain coping, luck, or patient management. This solution suggests a distinction based on the perceived role of psychosocial factors, which was independent of physical pain attributions.

A three cluster solution was carried out in order to determine whether a more differentiated picture emerged beyond the implicit "body-mind" dichotomy identified. The significance of items in differentiating between clusters was determined using one way analysis of variance (table 4.7). On the basis of comparative score profiles, the three cluster solution proved to be broadly interpretable in terms of the semiotic distinction between indexical (physical), iconic (uncertain cause) and symbolic (psychological) pain interpretations. However, the meaning of these groups seems distinctively different from conventional medical equivalents, in which both iconic and symbolic interpretation is associated with absent or uncertain physical cause. In the current cluster analysis, physical pain attributions (disease, work and injury) did not significantly differentiate between the three groups. Psychosocial attributions (stress; sign of something wrong with life; situation; luck; personal meaningfulness; understanding) and all aspects of outcome expectation did significantly differentiate between clusters. The distinction between groups was based on perceived absence (index), presence (symbol) or uncertainty (icon) about psychosocial factors in addition to physical pain attributions.
The cluster analysis demonstrates that practitioners differentiate between patients on the basis of psychosocial factors. There is no evidence that practitioners have a characteristic explanatory style that is applied to all patients. Within the definitional framework of the mapping sentence, this differentiation is holistic in that psychosocial factors are endorsed in addition to physical factors. This is compatible with the osteopathic concepts of lesion, function, structure and health, which can be hierarchically extended to accommodate complex problems. There was no evidence that psychosocial attribution is associated with reduced physical attribution, so findings are not consistent with dualist representation of pain in terms of either physical or psychosocial factors.

Unclassified cases
Of the 24 cases (16.0%) which could not be assigned to a cluster group, 18 were due to missing or incomplete practitioner data, including 4 patients who consulted the Shiatsu practitioner, and have not been included in subsequent analyses by clusters. Of these, one case is noteworthy because the osteopath attributed physical symptoms to psychosocial but not physical factors. This patient was referred directly back to the GP because there was "nothing to get your hands on" and the symptoms seemed better accounted for by anxiety. This seems to have been based on lack of physical focus rather than presence of psychosocial problems, which were commonly reported. This case demonstrates that osteopaths do make exclusively psychosocial attributions for physical symptoms, however rarely, and suggests that physical findings may play a role.

The three cluster solution corresponds broadly to the identified regional structures and has been mapped onto the proximities plots (figs 4.2 and 4.3). This correspondence is to be expected, as both analyses are based on the same data. However, the proximities plot is based on the relationship of each item to every other item. It therefore provides a more differentiated account of the overall structure of relationships between items.

The three items which did not differentiate between clusters (attributions to disease, work and injury) are distributed across the top of the plot. The index group is characterised by reduced psychosocial and luck attributions, and not by increased work and injury attributions so this region may be seen as the predominantly physical shared core which may or may not be associated with psychosocial factors or disease/luck. Attributions to injury and
work are most closely associated with understanding and attributions of recovery to osteopathic treatment.

**Table 4.7 Practitioners' pain explanations at initial consultation**

K-means cluster analysis: three cluster solution and analysis of variance.

<table>
<thead>
<tr>
<th>PAIN CAUSE</th>
<th>Icon</th>
<th>Symbol</th>
<th>Index</th>
<th>Clu MS</th>
<th>Error MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease</td>
<td>2.6</td>
<td>2.3</td>
<td>2.3</td>
<td>1.4</td>
<td>.7</td>
<td>1.9</td>
<td>.151</td>
</tr>
<tr>
<td>Injury</td>
<td>2.9</td>
<td>3.1</td>
<td>3.4</td>
<td>2.7</td>
<td>.8</td>
<td>3.9</td>
<td>.021</td>
</tr>
<tr>
<td>Work</td>
<td>3.4</td>
<td>3.5</td>
<td>3.5</td>
<td>0.1</td>
<td>.9</td>
<td>0.1</td>
<td>.838</td>
</tr>
<tr>
<td>Stress</td>
<td>3.4</td>
<td>4.0</td>
<td>2.2</td>
<td>35.7</td>
<td>.5</td>
<td>70.5</td>
<td>.000*</td>
</tr>
<tr>
<td>Sign</td>
<td>3.1</td>
<td>4.1</td>
<td>2.3</td>
<td>34.7</td>
<td>.3</td>
<td>91.8</td>
<td>.000*</td>
</tr>
<tr>
<td>Situation</td>
<td>3.4</td>
<td>4.2</td>
<td>2.9</td>
<td>19.1</td>
<td>.5</td>
<td>37.4</td>
<td>.000*</td>
</tr>
<tr>
<td>Luck</td>
<td>2.8</td>
<td>1.7</td>
<td>2.4</td>
<td>12.9</td>
<td>.5</td>
<td>25.7</td>
<td>.000*</td>
</tr>
<tr>
<td>Meaning</td>
<td>3.6</td>
<td>4.0</td>
<td>3.3</td>
<td>4.1</td>
<td>.5</td>
<td>7.3</td>
<td>.001*</td>
</tr>
<tr>
<td>Understand</td>
<td>3.2</td>
<td>3.8</td>
<td>3.9</td>
<td>5.2</td>
<td>.4</td>
<td>12.0</td>
<td>.000*</td>
</tr>
<tr>
<td><strong>RECOVERY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td>3.4</td>
<td>3.3</td>
<td>3.8</td>
<td>3.2</td>
<td>.3</td>
<td>10.6</td>
<td>.000*</td>
</tr>
<tr>
<td>Treatment</td>
<td>3.4</td>
<td>3.7</td>
<td>3.8</td>
<td>1.8</td>
<td>.3</td>
<td>5.0</td>
<td>.008</td>
</tr>
<tr>
<td>Pain cope</td>
<td>3.4</td>
<td>4.2</td>
<td>3.9</td>
<td>6.6</td>
<td>.4</td>
<td>15.7</td>
<td>.000*</td>
</tr>
<tr>
<td>Stress cope</td>
<td>3.3</td>
<td>4.1</td>
<td>2.2</td>
<td>42.6</td>
<td>.3</td>
<td>110.2</td>
<td>.000*</td>
</tr>
<tr>
<td>Situation</td>
<td>3.2</td>
<td>3.5</td>
<td>2.6</td>
<td>8.7</td>
<td>.4</td>
<td>21.3</td>
<td>.000*</td>
</tr>
<tr>
<td>Luck</td>
<td>2.9</td>
<td>1.9</td>
<td>2.1</td>
<td>11.1</td>
<td>.3</td>
<td>32.1</td>
<td>.000*</td>
</tr>
<tr>
<td>Understand</td>
<td>3.1</td>
<td>3.8</td>
<td>3.3</td>
<td>6.2</td>
<td>.3</td>
<td>18.7</td>
<td>.000*</td>
</tr>
<tr>
<td>Management</td>
<td>3.9</td>
<td>4.3</td>
<td>4.1</td>
<td>2.0</td>
<td>.3</td>
<td>5.3</td>
<td>.006</td>
</tr>
</tbody>
</table>

Bonferroni correction $p<.003$

The following description of cluster groups is based on items which significantly differentiate between all three groups (table 4.3), and mean ratings within and between groups. Case identification number is included in brackets after verbatim quotes.

**Icon: cluster description (n=36; 24.0%)**

This group was labelled icon on the basis of high ratings of practitioner uncertainty about the causes of pain. There is a tendency for practitioners' PAIN ratings to be closer to "3: neither agree nor disagree", significantly different from and intermediate between the other two groups. This pattern applies to attributions of pain to stress, the situation, a sign of something wrong with life and personal meaning, which are intermediate between the other groups. Practitioners were significantly more likely to attribute pain to luck, and least likely to say that they understood the cause of pain. Expectations that recovery depends on change in the situation; stress coping and physical processes are rated as intermediate between and significantly different from the other two groups. Expectations that recovery depends on luck
is also rated highest, and the influence on recovery of treatment, understanding pain cause, patient management and pain coping are rated lowest.

The overall pattern suggests the meaning of pain is unclear and there is relatively little perceived scope for understanding or change by either patient or practitioner. This is reflected in some practitioner comments on questionnaires:

*Leg pain 3 months, following reinjury. difficult to get a coherent picture of the problem. I really don't know- agenda very difficult to assess (21)*

*Back pain less than 3 months: it depends on being able to elicit a coherent case history. Very difficult, patient replies with 'I wouldn't know' or another question, difficult to make sense of. I prescribed general mobility exercises, but told patient I wasn't sure what was happening, felt difficult to engage patient effectively, seemed detached? Confused? (41)*

*Back pain 1 year: non specific cause though I do feel that I know what's hurting rather than why it all happened (139)*

Identification of this group demonstrates that for these practitioners, the clinical explanatory framework does not provide an *a priori* interpretation applicable to all patients. Iconic interpretation seems incompatible with the CM emphasis on the meaningfulness of symptoms (Vincent & Furnham, 1997, p21; Fulder, 1984, p21), though some degree of uncertainty seems inherent in any idiographic exploratory approach. Practitioners in the current sample find some patient problems harder to make sense of than others. This difficulty is not determined by perceived absence of physical causes, and some practitioner comments refer to the difficulty of obtaining a coherent account from the patient. Practitioner acknowledgement of uncertainty and reference to the patient's agenda or willingness to disclose is consistent with the CM emphasis on collaborative problem representation (Power, 1991; Tresolini et al, 1994). This process does not necessarily result in explanation or understanding at initial consultation. In the same way, the diagnostic quest does not necessarily lead to identification of pathology. In conventional medicine the icon category is reciprocally defined by the clarity and rigour of biomedical diagnosis, and associated with emphasis on psychosocial influences on recovery. The current icon group is characterised by a more general uncertainty, and not by the specific absence of a physical cause.
Symbol: cluster description (n=43; 28.7%)

This group was labelled symbolic on the basis of high ratings for psychosocial items. The symbolic group is characterised by highest attributions of pain to stress, sign of something wrong with life, situation and personal meaningfulness; and lowest attribution to luck. Practitioners understanding of pain is rated as significantly higher than the icon cluster.

Practitioners rate pain and stress coping, the situation and patient management as most likely to influence recovery; and luck as the least important influence on recovery. The proportion of patients in this group is comparable Dekker's finding (1995) that physiotherapists judged psychosocial factors to be relevant to approximately one third of cases. The overall pattern suggests that these patients are perceived as having psychosocial problems related to pain, which are associated with greater potential for recovery, understanding and more effective coping. This is reflected in the following practitioner comments.

*Multiple pains and arthritis over 5 years:* Continuation of recurrent musculoskeletal functional problems, and long history of depression, now focused on pending court case regarding son (3)

*Leg pain one year* (refugee): Patient may have been tortured, undergoing several life changes- new country, career change (148).

In some cases, practitioners comments suggest an ecological approach towards understanding the relationships between psychosocial and physical factors (Power, 1991). This contrasts with predominantly psychological approaches to symbolic problem representation e.g. in somatoform pain disorder, in which the body makes little contribution to understanding the problem and is not expected to substantially influence outcome (Sullivan, 1993).

*Arthritis, back pain more than 5 years:* At initial consultation agreed that many problems are to do with domestic violence and situation, comfort eating, weight gain .. back pain seems peripheral ..also obstructive airways disease (22)

*Tennis elbow 3 months:* underlying issue of ++ tension in neck & shoulder, inability to relax, paradoxical calm voice & high tension body. Patient recognises influence this is having (121)
Back pain over 5 years: Complicated- obsessional compulsive disorder hygiene and tidiness, poor body image. Recovery depends on what emerges in relation to stress and body and possibly OCD (38)

Back & shoulder pain over 3 years. Patient very uncomfortable with himself and appears to have a distorted image of his body. Patient seemed to have a lot of chronic emotional issues going on concerning body image and masculinity (107)

Index: cluster description (n=47; 31.3%)

This group was labelled index on the basis of low ratings on psychosocial items. All psychosocial PAIN items are given lowest ratings in this group, and practitioners understanding of what caused the pain is rated highest, though the mean difference from the high stress group is small. There was a non significant trend to highest injury attributions. The influence of physical processes and treatment on recovery is rated highest, and stress coping lowest. The expected influence of pain coping, understanding the cause, luck and patient management are intermediate between the other two groups.

Practitioners were less likely to include additional comments about patients included in this group. This may reflect practitioners' awareness that discipline specific physical descriptions would have been inaccessible to the researcher. In some cases, the indexical representation of pain seems to have been based on the practitioner's perception that psychosocial factors were unrelated to the pain, not necessarily that they were absent, e.g.

Low back and neck pain 10 years: Postural, mechanical problem ..patient would benefit from weight loss and reports being depressed. Is on long term psychiatric medication and attendance at day centre for psychiatric illness. Though in this case don't think this is that relevant other than medication making him a bit sleepy and leading to some muscle tightness. psychiatric history not important in this instance. Mechanical/ functional neck/back pain responded well to first treatment. Returned 1 month later retreated and OK (68)

Patient presentation of psychosocial problems seems to be associated with symbolic problem representation only if they are perceived as related to the physical problem. In this case, psychiatric problems are perceived as largely independent of pain, which is expected to respond to physical processes, treatment and the way in which the patient copes with pain.

A notable feature across all clusters is the parallel relationship between pain attributions and recovery expectations. Uncertainty about pain attribution in the icon group is associated with uncertainty about potential influences on recovery; psychosocial and physical
attributions are associated with the widest range of potential influences on recovery; and physical attribution with physical influences. This pattern demonstrates an intrinsic relationship between osteopaths interpretation of the problem and what can be done about it. From a common sense perspective this relationship seems so obvious as to be hardly worth stating. However, in conventional medicine concerns have been expressed that organisational pressures may lead to perseverance with the diagnostic quest independent of potential benefits for the patient, implications for clinical management, risk of over-diagnosis and failure to address the complexities of patients with multiple problems (Reuben, 1984). These pressures include specialisation, decreased time for patient-practitioner interaction; and a system of reimbursement for procedural services which "do something" to the patient, e.g. tests and interventions, but not for interpersonal skills, or taking time to listen to patients (Rosch & Kearney, 1985).

Comparison of demographic and clinical characteristics in cluster groups

A one way analysis of variance was carried out to evaluate the relationship between cluster group and pain location, duration, age and practitioner expectations at initial consultation. Results showed no significant difference between groups in practitioner consulted, age, pain chronicity, or pain location. There were 12/34 (35%) back pain patients in the icon group, 16/42 (38%) in the symbol group, and 19/47 (40%) in the index group. There were significant differences in practitioner expectation of treatment outcome between cluster groups (F=6.9, p=.001). Practitioners expect the most positive outcome in the index group (4.0 sd 0.7), worst in the icon group (3.2 sd 0.7), and intermediate in the symbol group (3.6 sd 0.8).

In summary, the cluster analysis of practitioners pain explanations and expected influences on recovery identified three subgroups which proved to be interpretable in terms of the semiotic distinction between indexical, iconic and symbolic interpretation. In the iconic group, practitioners were more likely to express uncertainty, and significantly more likely to attribute pain to luck. The symbol group was characterised by high ratings for psychosocial attributions and expected influences on recovery. The index group was characterised by low ratings for psychosocial attributions and expected influences on recovery. Practitioners rated understanding the problem in the index group as slightly higher.
than the symbol group, and considerably higher than the icon group. There were no between group differences in physical pain attributions. This pattern of results is consistent with the definition of holistic treatment as a "both physical and psychosocial" explanation and management, and the osteopathic approach to understanding psychosocial factors by extension of basic concepts of lesion, health, structure and function to accommodate person-environment interaction.

Section 2: Relationship between practitioner and patient explanations

The second research question concerns the relationship between practitioner and patient understanding of pain. The emphasis of some CM and holistic theorists on patient centred understanding suggests a potential for congruent understanding of the problem (e.g. Tressolini et al, 1994), particularly in relation to psychosocial factors which can only be known by the practitioner via direct or indirect patient disclosures. This was evaluated by correlating patient and practitioner explanations of pain at initial consultation. PAIN item means and patient-practitioner correlations at initial consultation are reported in table 4.8.

Table 4.8 Practitioner and patient pain explanations at initial consultation: means and (standard deviations)

<table>
<thead>
<tr>
<th>PAIN EXPLANATION</th>
<th>Practitioners</th>
<th>Patients</th>
<th>Corr</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease (n=131)</td>
<td>2.4 (0.8)</td>
<td>2.4 (1.4)</td>
<td>0.21</td>
<td>.017</td>
</tr>
<tr>
<td>Injury (n=129)</td>
<td>3.2 (0.8)</td>
<td>3.3 (1.5)</td>
<td>0.31</td>
<td>.000*</td>
</tr>
<tr>
<td>Work (n=126)</td>
<td>3.5 (0.9)</td>
<td>2.8 (1.4)</td>
<td>0.31</td>
<td>.000*</td>
</tr>
<tr>
<td>Stress (n=129)</td>
<td>3.2 (1.0)</td>
<td>2.4 (1.4)</td>
<td>0.53</td>
<td>.000*</td>
</tr>
<tr>
<td>Sign (n=128)</td>
<td>3.2 (0.9)</td>
<td>2.2 (1.3)</td>
<td>0.33</td>
<td>.000*</td>
</tr>
<tr>
<td>Situation (n=128)</td>
<td>3.5 (0.9)</td>
<td>2.2 (1.3)</td>
<td>0.34</td>
<td>.000*</td>
</tr>
<tr>
<td>Luck (n=124)</td>
<td>2.3 (0.8)</td>
<td>2.9 (1.3)</td>
<td>0.14</td>
<td>.114</td>
</tr>
<tr>
<td>Personal meaning (n=113)</td>
<td>3.6 (0.8)</td>
<td>2.2 (1.3)</td>
<td>0.16</td>
<td>.089</td>
</tr>
<tr>
<td>Understand cause (n=125)</td>
<td>3.7 (0.6)</td>
<td>2.8 (1.5)</td>
<td>0.01</td>
<td>.895</td>
</tr>
<tr>
<td>Recovery/ body (n=129)</td>
<td>3.5 (0.5)</td>
<td>3.4 (1.2)</td>
<td>0.06</td>
<td>.455</td>
</tr>
<tr>
<td>Recovery/ treatment (n=122)</td>
<td>3.5 (0.7)</td>
<td>4.2 (0.8)</td>
<td>0.18</td>
<td>.037</td>
</tr>
<tr>
<td>Recovery/ pain cope (n=127)</td>
<td>3.8 (0.7)</td>
<td>3.6 (1.2)</td>
<td>0.01</td>
<td>.891</td>
</tr>
<tr>
<td>Recovery/ stress cope (n=128)</td>
<td>3.2 (1.0)</td>
<td>2.9 (1.4)</td>
<td>0.33</td>
<td>.000*</td>
</tr>
<tr>
<td>Recovery/ situation (n=127)</td>
<td>3.1 (0.7)</td>
<td>2.5 (1.3)</td>
<td>0.20</td>
<td>.022</td>
</tr>
<tr>
<td>Recovery/ luck (n=112)</td>
<td>2.2 (0.7)</td>
<td>2.3 (1.2)</td>
<td>-0.05</td>
<td>.546</td>
</tr>
<tr>
<td>Recovery/ understand (n=121)</td>
<td>3.3 (0.7)</td>
<td>3.6 (1.2)</td>
<td>-0.00</td>
<td>.928</td>
</tr>
</tbody>
</table>

* Bonferroni correction p=.003
A substantial proportion of patients expressed uncertainty about the cause of pain at interview e.g. "got no answers" (36); "haven't got a clue" (76); "no idea what caused it" (18); "don't know why I am in pain, would really like to know myself" (109) and "cause is physical but not found yet" (70). A number of patients commented stress was a possible explanation to be considered (box 4.3)

**Box 4.3: Patient uncertainty about stress and pain**
- much illness is stress related. I don't see how it could be involved in this one, but I will entertain the possibility (76)
- I know I use illness to get a break sometimes. Sounds strange with a foot: psychological? no, its just a foot! Still it's an important question, I am very busy, under a lot of stress: is that related to the foot? (93)
- I am scientifically, mechanically minded, there is something wrong and I would like to know how to understand it. I believe in acceptance, living with awareness, finding a personal and spiritual meaning in pain, this would be much easier if I knew why, had a mechanical, physiological explanation (100)
- can't exclude anything until we know the cause.. It doesn't feel stress related but I know pain is stress related (71)

In some cases, questions about influences on recovery were difficult to answer because patients did not expect to recover. This is consistent with the high proportion of patients reporting chronic problems.

**Box 4.4: Patients lack of expectation of recovery**
- don't expect to get better no more (127)
- there's no treatment for back pain (35)
- people talk..once your back goes you've had it (101)
- forgot what it feels like to feel good.. don't expect it (103)
- its an old peoples thing.. don't think it will ever go, I just say 'this again' (62)
- only a blessing, a healing would help (141)
- it's just the make up of my body, just the way it is.. doctors have been so helpful and nice to talk to, tried everything - recovery would be a miracle (93)
- tomorrow's gone, I'm not going to get rid of it, there is no recovery. I'm not the same person, the disease (arthritis) has taken away my life (83)
- I don't know- it's up to you (48)

There were significant but modest correlations between patient and practitioner attributions to injury, work, stress, sign of something wrong in life, and the situation. Practitioners and practitioners' explanations were most stable and congruent in attributing pain to stress, and
outcome to stress-coping. The single patient whose physical problems were explained in psychological terms and referred back to the GP demonstrates the "remarkable opposition" between psychiatric and patient narratives noted by Dekkers (1998) in relation to psychogenic interpretation of pain. There was no evidence of this opposition in the remaining 150 patients who were considered suitable for osteopathic treatment. Practitioners in the current study were unlikely to interpret pain in psychological terms independent of patients understanding.

There were no significant correlations between practitioner and patient pain attributions to disease, luck and personal meaningfulness; self-rated understanding of the problem or recovery expectations. Of these, patients gave higher ratings to luck, and expectation that recovery would depend on treatment and understanding what had caused the pain. This pattern is consistent with Zusman's (1997) suggestion that patients are likely to interpret pain in physical terms, and expect outcome to depend on expert intervention. Practitioners rated all other explanations and recovery expectations more highly than patients. The discrepancy in ratings was most marked in relation to personal meaningfulness (practitioners 3.6; patients 2.2) and viewing the pain as a sign of something wrong in life (practitioners 2.8; patients 2.1), which indicate a more symbolic understanding. The modest correlations between patient and practitioner explanations of pain may reflect the commonly expressed uncertainty about what was wrong, and in some cases scepticism about the possibility of recovery. This is understandable given the high proportion of chronic problems in the current sample.

In summary, practitioners endorsed a wider range of non-physical causal explanations; perceived a wider range of potential influences on outcome, and rated pain as more personally meaningful than patients. There was more congruence between practitioner and patient pain attributions than recovery expectations. Highest congruence was associated with stress attributions and influences on outcome.

Comparison of patient explanation of pain in the three cluster groups
Cluster groups were identified on the basis of practitioner PAIN ratings. A one way analysis of variance, with cluster group as the independent variable, was carried out in order to determine whether there were any significant differences between clusters in patient PAIN
explanation and expectation of recovery ratings (appendix 4.3). Results showed higher patient attribution of pain to stress and recovery to stress-coping in the symbol group. There were no other differences between clusters in patient explanation of pain or recovery expectations. This may partly reflect the low endorsement of any pain attribution: most average scores were below 3 i.e. "disagree". With the exception of stress, there is no evidence of correspondence between patient PAIN ratings, and cluster groups based on practitioner PAIN ratings at initial consultation.

In summary, compared to patients, practitioners tended to make a wider range of non-physical pain attributions and were more likely to see pain as personally meaningful to the patient. Patients were more likely to attribute pain to luck; and to expect recovery to depend on treatment and understanding what had caused the pain. There was a correlation between patient and practitioner pain attributions, particularly in relation to stress, but no correlation in expected influences on outcome. There was no relationship between patient explanation of pain and cluster groups, apart from higher self-rated stress in the symbol group.

Cluster groups and SF-36 health status
The average SF-36 scores of the three clusters at initial presentation were compared to find out whether differences in practitioner interpretation of the pain were related to differences in patient reported health status. A one way analysis of variance was carried out to evaluate the relationship between cluster group and SF-36 subscale score, pain duration, age and practitioner expectations at initial consultation. Higher score indicates better functioning (table 4.9).

There were no significant differences between groups in terms of self-reported pain, physical role functioning, physical functioning and health transition (changes in health over the past week). This parallels the lack of between group differences in physical pain attributions. The groups were significantly differentiated in terms of psychological health status. There is a recurring pattern on vitality, mental health, emotional role functioning and total SF-36 score for the index group to report least problems, the symbol group to report most, and the icon group intermediate. The icon and symbol groups report considerably poorer social functioning and general health than the index group, though the between group difference is not statistically significant. The symbol group report significantly poorer mental
health, vitality, physical and emotional role function and physical functioning than the icon group.

Table 4.9 Cluster groups and SF-36 health profile at initial consultation: means and (standard deviations)
One way analysis of variance of 3 cluster solution: 2 degrees of freedom

<table>
<thead>
<tr>
<th>SF-36 Subscale</th>
<th>Icon (n=34)</th>
<th>Symbol (n=42)</th>
<th>Index (n=47)</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical function</td>
<td>70.1 (22.6)</td>
<td>61.6 (28.7)</td>
<td>61.5 (20.8)</td>
<td>1.4</td>
<td>.423</td>
</tr>
<tr>
<td>Role-physical</td>
<td>43.0 (40.8)</td>
<td>31.5 (40.5)</td>
<td>34.7 (38.5)</td>
<td>0.8</td>
<td>.247</td>
</tr>
<tr>
<td>Bodily pain</td>
<td>39.0 (11.7)</td>
<td>40.8 (10.0)</td>
<td>37.2 (15.2)</td>
<td>0.8</td>
<td>.421</td>
</tr>
<tr>
<td>General health</td>
<td>53.8 (25.6)</td>
<td>55.3 (25.6)</td>
<td>73.4 (20.0)</td>
<td>8.7</td>
<td>.000*</td>
</tr>
<tr>
<td>Vitality</td>
<td>44.2 (21.3)</td>
<td>34.0 (20.3)</td>
<td>53.8 (18.9)</td>
<td>10.5</td>
<td>.000*</td>
</tr>
<tr>
<td>Social function</td>
<td>55.2 (32.6)</td>
<td>55.8 (29.2)</td>
<td>72.2 (29.9)</td>
<td>4.7</td>
<td>.015</td>
</tr>
<tr>
<td>Role- emotional</td>
<td>53.7 (45.2)</td>
<td>31.7 (38.2)</td>
<td>68.8 (41.0)</td>
<td>8.7</td>
<td>.000*</td>
</tr>
<tr>
<td>Mental health</td>
<td>60.6 (18.5)</td>
<td>51.6 (18.6)</td>
<td>68.8 (16.5)</td>
<td>12.0</td>
<td>.000*</td>
</tr>
<tr>
<td>TOTAL SF-36</td>
<td>54.0 (15.5)</td>
<td>46.8 (15.8)</td>
<td>57.0 (13.1)</td>
<td>0.4</td>
<td>.009</td>
</tr>
</tbody>
</table>

Bonferroni correction p=<.004

Health status in cluster groups and normative data

SF-36 scores of cluster groups and normative data are shown in table 4.10, and the relationships between these samples mapped out in the proximities analysis (fig 4.4). S.Stress .058, RSQ .982; item co-ordinates are reported in appendix 4.2. The distribution of cluster groups indicates the heterogeneity of the sample relative to other groups. The location of cluster groups towards the left of the space reflects shared higher ratings of pain, and the vertical distribution reflects differences in general and psychological health.

The icon group is located next to the "psychiatric and serious medical illness" sample, which has the poorest SF-36 health profile of all groups. The icon group scores better on mental health, vitality, general health, physical function and physical role function. The symbol group is located near to the psychiatric illness sample, though all scores are poorer, except mental health and general health, which are roughly comparable. The index group is located nearest to the serious medical illness sample, though they report better general health and more pain.
Table 4.10 Health status of cluster groups and normative data: initial consultation

<table>
<thead>
<tr>
<th>Sample</th>
<th>Soc</th>
<th>Mnt</th>
<th>Vit</th>
<th>Pain</th>
<th>Hlth</th>
<th>Phys</th>
<th>Role</th>
<th>Emot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor medical</td>
<td>91.6</td>
<td>82.4</td>
<td>62.0</td>
<td>76.0</td>
<td>67.0</td>
<td>80.5</td>
<td>70.2</td>
<td>84.2</td>
</tr>
<tr>
<td>Healthy vols</td>
<td>88.0</td>
<td>73.8</td>
<td>61.6</td>
<td>81.5</td>
<td>73.5</td>
<td>88.4</td>
<td>85.8</td>
<td>82.9</td>
</tr>
<tr>
<td>No chronic ill</td>
<td>85.6</td>
<td>75.4</td>
<td>64.0</td>
<td>86.3</td>
<td>78.8</td>
<td>92.5</td>
<td>91.3</td>
<td>91.4</td>
</tr>
<tr>
<td>Serious med</td>
<td>80.0</td>
<td>77.5</td>
<td>47.7</td>
<td>65.1</td>
<td>49.1</td>
<td>57.5</td>
<td>43.9</td>
<td>76.1</td>
</tr>
<tr>
<td>Chronic ill</td>
<td>76.3</td>
<td>69.9</td>
<td>54.0</td>
<td>69.8</td>
<td>60.8</td>
<td>78.3</td>
<td>80.2</td>
<td>71.9</td>
</tr>
<tr>
<td>Psy &amp; ser med</td>
<td>65.1</td>
<td>56.9</td>
<td>37.0</td>
<td>50.2</td>
<td>39.9</td>
<td>46.3</td>
<td>23.8</td>
<td>52.7</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>64.5</td>
<td>52.7</td>
<td>52.7</td>
<td>63.3</td>
<td>57.9</td>
<td>80.6</td>
<td>55.5</td>
<td>40.7</td>
</tr>
<tr>
<td>Icon</td>
<td>55.7</td>
<td>61.9</td>
<td>45.0</td>
<td>29.7</td>
<td>53.8</td>
<td>69.3</td>
<td>43.2</td>
<td>52.5</td>
</tr>
<tr>
<td>Symbol</td>
<td>53.7</td>
<td>50.3</td>
<td>33.0</td>
<td>28.9</td>
<td>55.3</td>
<td>61.3</td>
<td>30.9</td>
<td>29.3</td>
</tr>
<tr>
<td>Index</td>
<td>75.0</td>
<td>71.7</td>
<td>54.6</td>
<td>25.3</td>
<td>73.4</td>
<td>61.9</td>
<td>33.8</td>
<td>71.9</td>
</tr>
</tbody>
</table>

In summary, practitioners' interpretation of pain and recovery corresponds to significant differences between groups in self-reported psychological, general and physical health status at initial consultation. It is noteworthy that apart from stress, there is no difference between
cluster groups in pain explanation or recovery expectations, yet the groups do report significantly different physical and psychosocial health. In other words, practitioners' understanding is less congruent with patient explanation of pain than patients' self-reported health. These results indicate that practitioners but not patients translate pain into a wider context of biopsychosocial understanding of health and illness. This pattern is consistent with the holistic approach to enquiry by asking "what is it part of?", and with patients perception that CM practitioners treat the whole person (Furnham, 1996).

Section 3 Treatment process: the Treatment Aims Questionnaire (TAQ)
The third research question concerns the relationship between practitioners' pain explanation and treatment process. Practitioners' treatment intentions at initial consultation, and retrospective report of treatment intentions used at follow up, were evaluated using the TAQ. This was developed on the basis of Heron's 6 category system, (1990) which is claimed to be a comprehensive model of the range of intentions a practitioner may have in enhancing the well-being and autonomy of the patient.

The most commonly reported treatment intentions at initial consultations were to encourage exercise or activity, to provide information or understanding; treat physical tension, confront self-limiting attitudes, and treat the physical effects of pain. The least commonly reported intentions were to encourage self-control and responsibility, and facilitate emotional release. All intentions were reported in some cases by all practitioners.

Pearson's correlations were used to evaluate the relationship between practitioners' ratings of treatment intentions after initial consultation, and ratings of which intentions had been used at follow up (table 4.11). Practitioners did not have access to initial questionnaires when completing follow up questionnaires. Results show a modest but reliable correlation. The least stable aims are the intention to treat the pain, and the physical effects of pain. This is consistent with feedback from practitioners that these items were unclear, and difficult to distinguish in practice. The intention to treat stress or distress, and the physical causes of pain are more likely to remain stable than other treatment aims.
The stability of relationships between treatment intentions is reflected in proximities analyses of structural relationships between intentions at initial consultation (fig 4.5. S.Stress = .081; RSQ = .968) and follow up (fig 4.6) S.Stress = .086; RSQ = .967). Item co-ordinates are reported in appendix 4.4.

Table 4.11 Practitioners' treatment intentions: initial consultation and follow up: means and (standard deviations)
Pearson's correlations; 2 tailed significance levels

<table>
<thead>
<tr>
<th>INTENTION</th>
<th>TIME</th>
<th>MEAN</th>
<th>Corr</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Encourage exercise or activity</td>
<td>Initial aim</td>
<td>4.4 (0.6)</td>
<td>.38</td>
<td>.000*</td>
</tr>
<tr>
<td>2 Provide information or understanding</td>
<td>Initial aim</td>
<td>4.3 (0.5)</td>
<td>.40</td>
<td>.000*</td>
</tr>
<tr>
<td>3 Treat physical tension</td>
<td>Initial aim</td>
<td>3.9 (0.9)</td>
<td>.43</td>
<td>.000*</td>
</tr>
<tr>
<td>4 Confront self limiting actions or attitudes</td>
<td>Initial aim</td>
<td>3.8 (0.9)</td>
<td>.32</td>
<td>.000*</td>
</tr>
<tr>
<td>5 Treat physical effects of pain</td>
<td>Initial aim</td>
<td>3.7 (0.8)</td>
<td>.22</td>
<td>.020</td>
</tr>
<tr>
<td>6 Treat the pain itself</td>
<td>Initial aim</td>
<td>3.2 (0.9)</td>
<td>.25</td>
<td>.007</td>
</tr>
<tr>
<td>7 Change patients response to pain</td>
<td>Initial aim</td>
<td>3.1 (1.3)</td>
<td>.48</td>
<td>.000*</td>
</tr>
<tr>
<td>8 Provide emotional support</td>
<td>Initial aim</td>
<td>3.0 (1.1)</td>
<td>.52</td>
<td>.000*</td>
</tr>
<tr>
<td>9 Treat physical cause of pain</td>
<td>Initial aim</td>
<td>2.8 (1.1)</td>
<td>.64</td>
<td>.000*</td>
</tr>
<tr>
<td>10 Change response to stress</td>
<td>Initial aim</td>
<td>2.6 (1.2)</td>
<td>.54</td>
<td>.000*</td>
</tr>
<tr>
<td>11 Treat stress or distress</td>
<td>Initial aim</td>
<td>2.5 (1.1)</td>
<td>.65</td>
<td>.000*</td>
</tr>
<tr>
<td>12 Encourage self control or responsibility</td>
<td>Initial aim</td>
<td>2.3 (1.1)</td>
<td>.52</td>
<td>.000*</td>
</tr>
<tr>
<td>13 Facilitate emotional release</td>
<td>Initial aim</td>
<td>2.1 (1.2)</td>
<td>.53</td>
<td>.000*</td>
</tr>
</tbody>
</table>

Bonferroni correction p=<.003
Fig 4.5 Practitioner treatment intentions initial consultation

2 dimensional proximities analysis: Euclidean distance model

n=126 patients rated by 3 practitioners

Fig 4.6 Treatment intentions used- follow up

2 dimensional proximities analysis: Euclidean distance model

n=116 patients assessed by 3 practitioners
Treatment intentions in cluster groups

In order to determine whether there was any correspondence between cluster groups based on practitioner PAIN explanation, and treatment process measured in terms of practitioners intentions using the TAQ, a one way analysis of variance was carried out (table 4.12).

There were no significant between group differences in the intention to treat pain or the physical effects of pain, encourage exercise or activity; provide information or understanding, confront self-limiting actions or attitudes (which were also the most commonly reported intentions), or enhance self-control and responsibility. Of these, understanding and treating the physical effects of pain were least associated with cluster group membership. There were significant between group differences in the intentions to treat the physical cause of pain, physical tension, stress, enhance pain and stress-coping, facilitate emotional release and provide support.

Table 4.12 Treatment intentions at initial consultation and cluster groups: means and (standard deviations)

One way analysis of variance: 2 degrees of freedom

<table>
<thead>
<tr>
<th>INTENTION</th>
<th>Icon</th>
<th>Symbol</th>
<th>Index</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat physical cause of pain</td>
<td>2.1 (1.1)</td>
<td>3.1 (0.9)</td>
<td>3.0 (1.2)</td>
<td>8.6</td>
<td>.000*</td>
</tr>
<tr>
<td>Treat physical effects of pain</td>
<td>3.6 (0.8)</td>
<td>3.9 (0.9)</td>
<td>3.8 (0.6)</td>
<td>1.6</td>
<td>.191</td>
</tr>
<tr>
<td>Treat pain</td>
<td>3.0 (0.9)</td>
<td>3.1 (0.8)</td>
<td>3.6 (0.8)</td>
<td>5.5</td>
<td>.005</td>
</tr>
<tr>
<td>Treat physical tension</td>
<td>3.8 (0.8)</td>
<td>4.3 (0.5)</td>
<td>3.6 (1.0)</td>
<td>9.2</td>
<td>.000*</td>
</tr>
<tr>
<td>Treat stress or distress</td>
<td>2.2 (0.8)</td>
<td>3.4 (0.9)</td>
<td>1.7 (0.9)</td>
<td>39.8</td>
<td>.000*</td>
</tr>
<tr>
<td>Encourage exercise/activity</td>
<td>4.1 (0.6)</td>
<td>4.4 (0.7)</td>
<td>4.5 (0.5)</td>
<td>4.8</td>
<td>.010</td>
</tr>
<tr>
<td>Change pain coping</td>
<td>2.8 (1.2)</td>
<td>3.9 (0.9)</td>
<td>2.5 (1.4)</td>
<td>16.0</td>
<td>.000*</td>
</tr>
<tr>
<td>Change stress cope</td>
<td>2.4 (0.8)</td>
<td>3.7 (0.9)</td>
<td>1.8 (1.0)</td>
<td>44.3</td>
<td>.000*</td>
</tr>
<tr>
<td>Information or understanding</td>
<td>4.2 (0.5)</td>
<td>4.4 (0.6)</td>
<td>4.2 (0.5)</td>
<td>1.9</td>
<td>.153</td>
</tr>
<tr>
<td>Confront actions/attitudes</td>
<td>3.7 (0.8)</td>
<td>4.1 (0.7)</td>
<td>3.5 (1.0)</td>
<td>4.1</td>
<td>.018</td>
</tr>
<tr>
<td>Catharsis/emotional release</td>
<td>1.9 (0.9)</td>
<td>2.7 (1.0)</td>
<td>1.3 (0.6)</td>
<td>25.6</td>
<td>.000*</td>
</tr>
<tr>
<td>Encourage self-control</td>
<td>2.6 (1.0)</td>
<td>2.2 (1.1)</td>
<td>1.9 (0.9)</td>
<td>5.4</td>
<td>.005</td>
</tr>
<tr>
<td>Emotional support</td>
<td>2.6 (0.9)</td>
<td>3.7 (0.9)</td>
<td>2.4 (0.9)</td>
<td>23.5</td>
<td>.000*</td>
</tr>
</tbody>
</table>

Bonferroni correction p=<.003

Icon: treatment intentions (n=36)
Practitioners were significantly less likely to intend to treat the physical causes of pain. This is consistent with the definition in terms of uncertainty about pain causes. Psychosocial treatment intentions, i.e., to treat physical tension, stress, enhance stress coping, confront, facilitate emotional release, and support, were intermediate between and significantly
different from the other two groups. There was a non significant trend to lowest intention to
treat pain and the physical effects of pain; and highest intention to enhance self-control and
responsibility, which was the single intention more commonly used in this group. This is
consistent with low practitioner ratings of understanding pain, and expected influence of
understanding cause on recovery in this group, reflected in the following practitioner
comments:

Repetitive strain injury more than 1 year. Patient has made up her mind re causation &
decided to change job I don't think I have succeeded in addressing this lady's problems
adequately (15)

Back pain 3 months and abdominal problems: talks psychosomatic but doesn't seem to
connect with his own body or situation.. didn't click.. ended up giving lecture on health,
stress, responsibility for own life, yoga etc. (25)

There is some analogy with pain management based on the icon interpretation, which aims to
enhance self-control and responsibility, though practitioners in the current study were least
optimistic about the scope for change in this group.

Symbol: treatment intentions (n=43)
The most notable feature of this group is the range of reported physical and psychological
treatment intentions. Practitioners were significantly more likely to treat the physical cause of
pain, tension, stress, aim to enhance pain and stress coping, facilitate emotional release and
provide support. This is consistent with the wide range of potential influences on recovery
reported by practitioners on the PAIN, and reflected in the following comments:

Back pain over 1 year. Patient had disc problem and surgery after last child ...fear of
treatment post surgery .. spoke of stress and multiple demands on her would feel much better
if changed job & developed more social contacts. Whether this would effect pain don't know,
but would effect her.. Recovery depends on patients flexibility in relation to 'new view' of low
back pain and symptoms (13)

Knee pain 6 months. Family history of serious knee problems, patient anxious about her own
knees, avoided activities which make it worse, given up exercise, put on weight.. more
anxious than clinically painful. Reassurance influenced outcome. Patient found it hard to
cope with stress in the past but is now fairly resolute and getting on with life (51)
Knee problem more than 10 years, shoulder pain 3 months, knee & shoulder problems separate - knee problem has personal meaning. Compounded by underlying anxiety about dislocation as a child. Old long standing apprehension from past knee injury. Reintroduced her to her knee with massage, relaxation & encouragement (80)

Back pain more than 10 years. Patient addressing personal problems & implementing change. Long term depression after death of daughter. Has never really adjusted. Attributed current unhappiness to pain. However with time realised much unhappiness due to relationship with husband & family - has sorted this out a bit & I think is feeling better - it hasn't been easy (74)

Back & leg pain >1 year. Practitioner (Initial) Depends on if I am going to engage pt, make relationship of some sort. May treat emotional distress in future. Difficult to engage, had to try v hard, with little joy- will review in time. (Follow up) Difficult to engage initially, did seem to have something on her mind. I did encourage her to chat a bit - mostly she responded in writing. I hope that I helped a lot but know that I might have been insensitive at times (70)

Index: treatment intentions (n=47)
Practitioners were most likely to treat the pain itself in this group, and least likely to adopt psychological intentions, including treat physical tension or stress, changing patients' response to pain or stress, confronting self limiting attitudes, facilitating self control or emotional release, and providing emotional support. The probability of encouraging exercise, treating the physical causes of pain and the pain itself was high in both the symbol and index groups. Relatively few comments were made about this group.

Low back & leg pain > 5 years/ chronic gastro intestinal condition: Explaining things to the patient helped a lot. Now realises there is a physical cause (29)

Shoulder pain 3 months Fit, martial arts, kick boxing etc. In job, but traveller at heart. Appreciated physicality of treatment- persistent problem, but did well I think (37)

Osteoporosis -> postural changes in low back -> back pain 1 year: Mechanical cause, good adherence to exercises, active patient, high motivation I think this lady did very well (108)

Regions corresponding to cluster groups have been labelled on the proximities plots (figs 4.5 and 4.6). The most notable feature of these plots is that the intention to enhance self-control and responsibility which is most associated with the icon group is relatively separate from other intentions, as the disease and luck attributions associated with this group occupied a distinct region of the space in proximities analyses of practitioners' pain
explanations (figs 4.2 and 4.3). Treatment process in the symbol group is based on a broad range of intentions in addition to those used in the index group. Treatment process in the icon group is intermediate between the two.

In summary, in the sample as a whole the most commonly reported treatment intentions were to encourage exercise or activity; provide information or understanding; release tension; confront self-limiting attitudes; and treat the physical effects of pain. These intentions to influence the behavioural, cognitive and physical facets of the person did not differentiate between cluster groups. The least common intention was to facilitate emotional release.

There were clear differences between groups in treatment process. The only intention more frequently reported in the icon group was to enhance self-control and responsibility. The uncertainty seems to be associated with the problem as a whole rather than distinct psychosocial and physical factors, as practitioners were also significantly less likely to treat the physical causes or effects of pain or the pain itself. The symbol group was treated using the broadest range of intentions, particularly to treat physical tension and distress, change patients' response to pain and stress, confront self-limiting attitudes, and provide emotional support. The intention to encourage exercise or activity was rated equal to the index group.

In the index group, practitioners were most likely to treat the pain itself, and least likely to adopt psychological intentions. Frequency of intention to encourage exercise, treating the physical causes of pain and the pain itself was equal to the high stress group.

The interpretable relationships between TAQ ratings and cluster groups demonstrates that pain explanation does correspond to meaningful differences practitioners treatment intentions, provides some support for the empirical validity of the PAIN. Results indicate that practitioners in the current sample did not address psychosocial problems in exclusively physical terms (cf. Zusman, 1997; Dekker, 1995), and utilised pain explanation as a guide to management (Jobst, 1996; Launo, 1994, Fulder, 1984).
Section 4 Pain interpretation and treatment outcome

The final research question concerns the relationship between pain explanation and treatment outcome. In the context of demands for evidence of effectiveness, this is perhaps the most important question. Postal follow up data were obtained from 67 (n=44%). Compared to follow up responders, non-responders were judged by practitioners as having experienced less pain relief as a result of treatment (p=.03). There were no significant differences in age, gender, chronicity, site of pain, SF-36 subscales and total score, or practitioner or patient expectations of treatment at initial consultation.

SF-36 subscales

Paired sample t tests on pre- and post-treatment SF-36 subscales and total score showed no significant improvement, though there was a non significant trend towards improved physical role function and vitality (table 4.13).

Table 4.13 SF-36 subscales pre and post treatment in the whole sample: means and (standard deviations)

<table>
<thead>
<tr>
<th>SF-36 Subscale</th>
<th>Pre</th>
<th>Post</th>
<th>Diff</th>
<th>t=</th>
<th>p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical function n= 56</td>
<td>67.2 (21.8)</td>
<td>68.8 (26.8)</td>
<td>1.6 (22.4)</td>
<td>0.5</td>
<td>.594</td>
</tr>
<tr>
<td>Role-physical n= 64</td>
<td>39.8 (40.2)</td>
<td>51.5 (43.6)</td>
<td>11.7 (46.7)</td>
<td>2.0</td>
<td>.049</td>
</tr>
<tr>
<td>Bodily pain n=64</td>
<td>39.2 (13.3)</td>
<td>43.2 (13.0)</td>
<td>3.9 (17.3)</td>
<td>1.7</td>
<td>.079</td>
</tr>
<tr>
<td>General health n=63</td>
<td>64.2 (22.2)</td>
<td>64.1 (25.7)</td>
<td>-0.1 (15.2)</td>
<td>0.0</td>
<td>.980</td>
</tr>
<tr>
<td>Vitality n=65</td>
<td>44.2 (21.6)</td>
<td>51.2 (21.9)</td>
<td>7.0 (23.0)</td>
<td>2.4</td>
<td>.017</td>
</tr>
<tr>
<td>Social functioning n= 64</td>
<td>63.8 (33.1)</td>
<td>71.2 (29.4)</td>
<td>7.4 (34.0)</td>
<td>1.7</td>
<td>.086</td>
</tr>
<tr>
<td>Role-emotional n=61</td>
<td>57.3 (45.9)</td>
<td>61.7 (40.2)</td>
<td>4.3 (58.2)</td>
<td>0.5</td>
<td>.560</td>
</tr>
<tr>
<td>Mental health n=61</td>
<td>64.2 (20.7)</td>
<td>64.9 (19.7)</td>
<td>0.6 (21.2)</td>
<td>0.2</td>
<td>.811</td>
</tr>
<tr>
<td>TOTAL SF-36</td>
<td>52.4 (15.3)</td>
<td>57.1 (15.9)</td>
<td>4.7 (16.2)</td>
<td>1.8</td>
<td>.073</td>
</tr>
</tbody>
</table>

Bonferroni correction p<.006
All scales scored from 0-100, with higher score indicating better functioning.

The validity of comparisons based on group means is called into question by the high standard deviations obtained. Similar figures were reported by Patterson (1996) who found no significant differences between pre and post treatment SF-36 subscale scores in a four week follow up of 193 patients consulting GP's and CM practitioners (table 4.14). Variation within the sample was considerably greater than variation between initial consultation and follow up.
Table 4.14 SF-36 Outcome: current sample and 193 primary care and CM patients

<table>
<thead>
<tr>
<th>SF-36 SUBSCALE</th>
<th>Mean diff (sd)</th>
<th>Mean diff (sd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary care/CM</td>
<td>Current study</td>
</tr>
<tr>
<td>Physical function n= 56</td>
<td>-0.5 (20.8)</td>
<td>1.6 (22.4)</td>
</tr>
<tr>
<td>Role-physical n= 64</td>
<td>4.2 (36.6)</td>
<td>11.7 (46.7)</td>
</tr>
<tr>
<td>Bodily pain n=64</td>
<td>5.8 (21.1)</td>
<td>3.9 (17.3)</td>
</tr>
<tr>
<td>General health n=63</td>
<td>0.1 (15.2)</td>
<td>-1.2 (12.2)</td>
</tr>
<tr>
<td>Vitality n=65</td>
<td>3.8 (18.6)</td>
<td>7.0 (23.0)</td>
</tr>
<tr>
<td>Social functioning n= 64</td>
<td>7.3 (26.0)</td>
<td>7.4 (34.0)</td>
</tr>
<tr>
<td>Role- emotional n=61</td>
<td>5.0 (38.5)</td>
<td>4.3 (58.2)</td>
</tr>
<tr>
<td>Mental health n=61</td>
<td>1.8 (16.6)</td>
<td>0.6 (21.2)</td>
</tr>
</tbody>
</table>

Positive difference = improvement.

SF-36 items pre and post treatment

Telephone follow up data, including a subset of SF-36 items, was obtained from 47 patients (31%) in addition to the 66 (44%) who responded to postal follow up making a total of 113 (75.3%) follow up rate. In cases where both postal and telephone responses to SF-36 items were available, the postal data were used. Pre- and post-treatment item scores were compared for the 113 patients for whom either postal or telephone follow up data were available using paired differences t tests (table 4.15).

Table 4.15 Pre-post SF-36 item comparisons: means and (standard deviations)
Paired differences 95% confidence limits, 2 tail significance.

<table>
<thead>
<tr>
<th>SF-36 ITEM</th>
<th>Range</th>
<th>Mean pre</th>
<th>Mean post</th>
<th>Mean diff</th>
<th>t=</th>
<th>p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF1 Current health (n=113)</td>
<td>1-5</td>
<td>2.8 (1.1)</td>
<td>3.0 (1.1)</td>
<td>-0.2 (1.0)</td>
<td>-1.8</td>
<td>.062</td>
</tr>
<tr>
<td>SF2 Health transition (n=112)</td>
<td>1-5</td>
<td>2.8 (0.6)</td>
<td>2.5 (0.9)</td>
<td>-0.3 (1.1)</td>
<td>2.8</td>
<td>.006</td>
</tr>
<tr>
<td>SF3c Carrying groceries (n=113)</td>
<td>1-3</td>
<td>1.9 (0.8)</td>
<td>2.1 (0.7)</td>
<td>0.2 (0.8)</td>
<td>-1.4</td>
<td>.164</td>
</tr>
<tr>
<td>SF3e climb 1 flight stairs (n=113)</td>
<td>1-3</td>
<td>2.5 (0.6)</td>
<td>2.5 (0.7)</td>
<td>0.0 (0.7)</td>
<td>-0.6</td>
<td>.549</td>
</tr>
<tr>
<td>SF3g walk &gt; 1 mile (n=113)</td>
<td>1-3</td>
<td>2.2 (0.8)</td>
<td>2.2 (0.8)</td>
<td>0.0 (0.8)</td>
<td>-0.8</td>
<td>.205</td>
</tr>
<tr>
<td>SF4b Accomplish less/ hlth (n=111)</td>
<td>1-2</td>
<td>1.3 (0.4)</td>
<td>1.5 (0.5)</td>
<td>0.2 (0.5)</td>
<td>-3.9</td>
<td>.000*</td>
</tr>
<tr>
<td>SF5b Accomplish less/ emot (n=108)</td>
<td>1-2</td>
<td>1.5 (0.5)</td>
<td>1.5 (0.5)</td>
<td>0.0 (0.6)</td>
<td>-0.7</td>
<td>.478</td>
</tr>
<tr>
<td>SF6 Hlth/emot interfere social (n=113)</td>
<td>1-6</td>
<td>2.3 (1.3)</td>
<td>2.1 (1.2)</td>
<td>0.2 (1.4)</td>
<td>1.4</td>
<td>.151</td>
</tr>
<tr>
<td>SF7 Pain last week (n=113)</td>
<td>1-6</td>
<td>4.0 (1.3)</td>
<td>3.1 (1.4)</td>
<td>0.9 (1.6)</td>
<td>5.9</td>
<td>.000*</td>
</tr>
<tr>
<td>SF9a Full of life past week (n=112)</td>
<td>1-6</td>
<td>4.0 (1.3)</td>
<td>3.6 (1.4)</td>
<td>-0.4 (1.5)</td>
<td>2.9</td>
<td>.004*</td>
</tr>
<tr>
<td>SF9g Downhearted past week (n=108)</td>
<td>1-6</td>
<td>4.1 (1.3)</td>
<td>4.1 (1.3)</td>
<td>0.0 (1.1)</td>
<td>-0.0</td>
<td>.949</td>
</tr>
</tbody>
</table>

Bonferroni correction p=.004

The results show significant improvements in "accomplish less due to physical health" (SF 5b), pain past week, and "full of life past week". Comparison of health now with previous
week (health transition) is significantly worse. This item is not used in calculation of SF-36 scores, but is included to contextualise findings in relation to recent health changes. Standard deviations are considerably higher than mean differences, indicating that variation within the sample is greater than variation between pre and post treatment.

Pre and post treatment SF-36 health status in cluster groups

Koes et al (1996) and Shekelle et al (1992) recommended that future research into the effectiveness of manipulation should attempt to reduce outcome variance by focusing on particular sub groups. Data were analysed by cluster groupings in order to determine whether this would account for any of the obtained variance in self-reported health status and response to treatment.

An analysis of variance was carried out to evaluate the relationship between cluster groups and SF-36 subscale outcome (table 4.16). Findings can only be interpreted with caution as possible indications of trends within groups in view of high standard deviations relative to mean differences, and small sample sizes. Results suggest that cluster groupings account for relatively little variance in outcome measured by SF-36 subscales. There is a nonsignificant tendency to between group differences in physical function ($F=4.24; p=.02$), with the icon group deteriorating, the symbol group improving most, and the index group marginally; and in vitality, with the symbol group improving most ($F=4.24, p=.01$).

Table 4.16 SF-36 subscales outcome (pre -post score) in cluster groups: means and (standard deviations)

One way analysis of variance; 2 degrees of freedom.

<table>
<thead>
<tr>
<th>SF-36 Subscale</th>
<th>Icon</th>
<th>Symbol</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>change score</td>
<td>n=17</td>
<td>n=17</td>
<td>n=20</td>
</tr>
<tr>
<td>Physical function</td>
<td>-10.3 (19.1)</td>
<td>12.1 (19.3)</td>
<td>3.8 (22.9)</td>
</tr>
<tr>
<td>Role-physical</td>
<td>-4.1 (42.2)</td>
<td>25.0 (57.2)</td>
<td>20.4 (43.3)</td>
</tr>
<tr>
<td>Bodily pain</td>
<td>1.6 (22.7)</td>
<td>3.7 (12.8)</td>
<td>6.7 (18.4)</td>
</tr>
<tr>
<td>General health</td>
<td>0.2 (20.3)</td>
<td>2.5 (15.5)</td>
<td>-2.5 (10.7)</td>
</tr>
<tr>
<td>Vitality</td>
<td>4.1 (22.2)</td>
<td>20.0 (26.3)</td>
<td>-0.4 (18.7)</td>
</tr>
<tr>
<td>Social functioning</td>
<td>6.2 (28.1)</td>
<td>14.7 (41.7)</td>
<td>6.8 (31.5)</td>
</tr>
<tr>
<td>Role- emotional</td>
<td>3.9 (68.5)</td>
<td>21.5 (49.9)</td>
<td>1.6 (59.2)</td>
</tr>
<tr>
<td>Mental health</td>
<td>-2.8 (21.5)</td>
<td>11.2 (23.3)</td>
<td>-3.0 (18.4)</td>
</tr>
</tbody>
</table>

- = deterioration

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Outcome by cluster groups: SF-36 item analysis
Paired differences t tests were carried out on SF-36 items within cluster groups. This provides a more differentiated account of outcome.

Icon: SF-36 outcome (n=30)
The only significant difference between pre- and post-scores was improved ability to climb stairs (t=2.56, p=.016).

Symbol: SF-36 outcome (n=28)
There was a significant improvement in ability to walk more than a mile (t=-2.55, p=.01); increased vitality (t=2.49, p=.01); reduced interference of health with activities (t=-2.54, p=.01) and reduced pain (t=2.60, p=.01)

Index: SF-36 outcome (n=39)
There was a significant reduction in pain (t=1.07, p=.000) and reduced interference of health with activities (t=2.54, p=.005).

Simplified SF-36 item change
A simplified outcome variable was constructed by calculating the difference between pre- and post-treatment scores for each case, and coding into worse (1) same (2) or better (3). This excludes variance due to extreme individual scores. Results of a one way analysis of variance (appendix 4.5) show no significant between group differences.

In summary, cluster groups make a limited contribution to explaining SF-36 outcome variance. Individual differences within groups were considerably greater than pre-post differences.

Subjective evaluation of outcome
At follow up, patients and practitioners were asked to rate treatment effectiveness in relieving pain, helping the patient to cope with pain and relieving stress. Mean scores and patient-practitioner correlation in the sample as a whole are reported in table 4.17. This shows some correlations between patient and practitioner in relation to pain relief and pain-coping, and no correlation in relation to stress relief. Practitioners rate treatment as having had more effect on pain relief and coping, and less effect on relieving stress than patients. This relationship may be complicated by the time at which the questionnaire was completed; for practitioners on completion of treatment, and for patients approximately three months after initial consultation.
Table 4.17
Practitioners and patients subjective evaluation of outcome in the whole sample: means and (standard deviations)

<table>
<thead>
<tr>
<th>Item</th>
<th>Practitioner</th>
<th>Patient</th>
<th>Diff</th>
<th>Corr</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helped relieve pain n= 93</td>
<td>3.6 (1.1)</td>
<td>3.4 (1.2)</td>
<td>0.16</td>
<td>.44</td>
<td>.000</td>
</tr>
<tr>
<td>Helped cope with pain n=91</td>
<td>3.5 (1.0)</td>
<td>3.3 (1.3)</td>
<td>0.15</td>
<td>.34</td>
<td>.001</td>
</tr>
<tr>
<td>Helped relieve stress n=82</td>
<td>2.3 (1.0)</td>
<td>2.8 (1.3)</td>
<td>-0.46</td>
<td>.10</td>
<td>.333</td>
</tr>
</tbody>
</table>

One way analysis of variance was used to determine whether there were any differences between clusters in practitioner and patient outcome evaluation (table 4.18).

Table 4.18  Subjective outcome evaluation in cluster groups: means and (standard deviations)

<table>
<thead>
<tr>
<th>TREATMENT HELPED</th>
<th>Icon n=30</th>
<th>Symbol n=25</th>
<th>Index n=38</th>
<th>F  p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relieve pain</td>
<td>Practitioner: 3.5 (0.8)</td>
<td>3.2 (1.9)</td>
<td>3.9 (1.2)</td>
<td>2.6 .075</td>
</tr>
<tr>
<td></td>
<td>Patient: 3.3 (1.3)</td>
<td>3.5 (1.0)</td>
<td>3.6 (1.3)</td>
<td>0.3 .692</td>
</tr>
<tr>
<td>Cope with pain</td>
<td>Practitioner: 3.5 (0.8)</td>
<td>3.2 (1.2)</td>
<td>3.5 (1.3)</td>
<td>0.4 .640</td>
</tr>
<tr>
<td></td>
<td>Patient: 3.0 (1.1)</td>
<td>3.9 (1.2)</td>
<td>3.3 (1.5)</td>
<td>1.6 .196</td>
</tr>
<tr>
<td>Relieve stress</td>
<td>Practitioner: 2.4 (0.9)</td>
<td>2.4 (1.0)</td>
<td>1.9 (1.1)</td>
<td>0.3 .029</td>
</tr>
<tr>
<td></td>
<td>Patient: 2.6 (1.3)</td>
<td>3.0 (1.2)</td>
<td>2.6 (1.5)</td>
<td>1.0 .367</td>
</tr>
</tbody>
</table>

Higher score indicates greater helpfulness.

There are no significant between group differences in subjective outcome evaluation, apart from practitioners' lower ratings stress relief in the index group. On average both patients and practitioners evaluate treatment as having had at least a moderate positive influence on relieving pain, pain-coping, and to a lesser extent relieving stress. There was a nonsignificant but consistent tendency for patients in the icon group to rate themselves as less improved than the other two groups, consistent with practitioners' initial expectations.

Practitioners over-estimate the effectiveness of treatment relative to patients in relieving pain and helping cope with pain in the icon and index groups. Conversely, practitioners underestimate effects on stress relative to patients, particularly in the index group, and underestimate all treatment effects relative to patients in the symbol group. The
highest average score is 3.9 ("quite a bit"), for patients in the symbol group evaluating the extent to which treatment helped them to cope with pain. The lowest average score is 1.9 (between "not at all" and "slightly") for practitioners' rating of the extent to which treatment helped relieve stress in the index group, and this item shows most discrepancy between patients and practitioners. Practitioners seemed to be less aware of the effects of treatment on stress than on pain and physical disability. This may reflect the predominantly physical orientation of osteopathy, and practitioners' perception that patients in this group were not suffering from stress.

Individual comments on treatment failures

The explanation given by practitioners for treatment failures provides a source of information about the scope and limitations of treatment. These cases were scrutinised as a potential source of feedback about osteopathy. Treatment failures were identified on the basis of subjective evaluation scores, ranging from 555 i.e., maximum benefit in relieving pain, helping cope with pain and relieving stress, to 111. Practitioners made considerably more comments about treatment failures than successes. In 11 cases, practitioners assessed treatment as having had no positive effects at all (i.e. score 111). Of these 5 were "symbol", 5 "index", 1 unclassified and none icon. Ratings from the subjective evaluation of outcome are presented before each quote, and patient code in brackets after.

Index: poor treatment outcomes (n=5)

In all five cases, practitioners expressed some degree of surprise at the unexpectedly poor treatment response. Three cases were referred to physiotherapy, and one patient repeatedly did not attend for treatment.

*Back pain one year.* Seen x4. 111. Couldn't dent the symptoms. Confusing, pt had fairly minor back pain which I though would respond well but didn't. One report of progress only. Nothing I had suggested or done helped though patient said would continue with exercises (117)
No patient follow up.

*Repetitive strain injury 5 years.* Seen x5. 111. RSI, but very odd presentation, I couldn't really find anything major to account for +++ symptoms. perplexed .I didn't help her - thought treatment would help but didn't. Very odd presentation (116)
No patient follow up.
Whiplash injury following accident 6 months ago. Seen x4. I had different rating to patient - I felt she was 90% better, she felt 60% at a push. Now think pain is stress related, has some personal meaning - not sure what though - couldn't get to grips with it - I felt this was a fairly innocent whiplash that would respond well, but I now suspect she will become a persistent attender. It didn't work out, not quite sure why (81)

Patient 211. Been referred to physiotherapy.

Arthritis >5 years, ulcer. Seen x2. Repeated DNA. (127)

Patient 225. I have been referred to physiotherapy.

Knee pain >1 year. Seen 3x. Not knowing exactly what was wrong. Referred to physio for second opinion.

Patient 111.

Symbol: poor treatment outcomes (n=5)
Practitioner comments about treatment failures in the symbol group did not express surprise at poor outcome, but concerned their own difficulty in managing complex chronic problems. One patient had been hospitalised for a serious suicide attempt only weeks before the initial consultation. In one case treatment failure was attributed to pending litigation. One patient was referred for kidney investigations.

Back pain > 5 years. Seen x3. Review with GP. Personal meaning not acknowledged by patient. Anxiety about age issues, and told in past it will get worse as older. Most important patient management, but I couldn't get past his anxiety & little impact at all. My intentions failed to come to fruition. Incongruent symptoms with observed movements when patient unaware of being watched. Patient did sort of acknowledge part of problem to do with anxiety but I just could not get past physical attribution. Very difficult - discharged with 5% improvement only (61)

No patient follow up.

Back pain > 5 years. Seen x2. Difficult to engage, tried chronic pain approach with little joy. I suspect that she thought I was OK & did a good job, but had no impact on her symptoms, they were untouchable. May have had learning difficulties. I did lend her a tape 'chronic pain', but don't really think it helped. Last remembered well time in teens (112)

No patient follow up.

Back pain more than 10 years. Seen x4. Treatment was complicated by fears and past addiction. anxiety, poor job prospects, long term pain due to accident many years ago. Unable to engage patient, got worse, deep set patterns of dysfunction in body & I suspect in relation to anxiety and worry. Complicated by invalidity claims (100)

Patient 242. Much better now but still have to be careful - even better a couple of days ago, but slight recurrence. I put more effort into doing things when I saw the osteopath, and as a result, that helped. Also saw physio last week when it recurred. I don't know why it didn't get better when I saw the osteopath, stopped treatment because it wasn't helping at the time,
though I felt it was good to a certain extent, would have liked to continue, did more exercise, it was beneficial- the physio was not much different. Back is getting better anyway, except for recurrence, sudden movement getting out of the car- hadn't used it for a few weeks, been doing normal things so well, forgot, neglected to take care of back. I have to be very mindful, aware.

Sciatica more than 5 years. Seen x4. 111. (Practitioner Initial) Settlement of claim. Patient willingness to change perception of body pain & body sensation. Difficult to judge, very separated from body & problems. Walks down stairs unaided, but couldn't stand on one leg. Multiple complaints, frequent attender, litigation pending, therefore quite a challenge (Practitioner follow up) Personal investment in pain, pain behaviour & sick role. I couldn't really get through to a deeper level of communication with this patient. Very difficult. Hard to answer stress questions, tried different interventions, didn't work (28)
No patient follow up

Back pain >5 years. Seen x3. 111. Getting to what I feel were deeper psychological issues. More exercise compliance. Didn't really seem motivated about her treatment, and seemed to have made up her mind that treatment wasn't going to help before she even came to see us. referred back to GP. (82)
Patient 111. No good at all. No effect. GP referred to physiotherapist

In summary, SF-36 scores in the whole sample showed some improvement in vitality and physical role functioning, and pain reduction, though the magnitude of pre-post change was small compared to variation within the sample. No clear conclusions could be drawn about between group differences in outcome. There were indications of reduced pain and interference of health with normal activities in the index group; most improvement in physical function, vitality and mental health, and some pain reduction in the symbolic group; and little or no improvement in the icon group, consistent with practitioners' initial expectations. Findings may have been influenced by the relative insensitivity to change of the SF-36 (Patterson, 1996), small sample sizes, high standard deviations, and the high proportion of chronic problems in the current sample. Cluster groupings therefore made a limited contribution towards explaining this outcome variance. However, there were between group differences in practitioners comments about treatment failures. Poor outcome in the symbol group was attributed to intractable chronic pain disability; and in the index group to previously unrecognised psychosocial problems or unknown factors.

In terms of subjective evaluation of treatment outcome, practitioners rated treatment as having been more helpful than patients in relieving pain and helping the patient cope with
pain in the index and icon groups. Conversely, practitioners underestimated the helpfulness of treatment in relieving pain, helping cope with pain and relieving stress in the symbol group; and underestimated the helpfulness of treatment in relieving stress in the icon and index groups.

**Summary of findings**

Three corresponding subgroups were identified using cluster analysis. These correspond to definitions in indexical (primarily physical explanation); iconic (uncertain cause) and symbolic (psychosocial explanation): there were no between group differences in osteopaths’ ratings of physical factors. Subgroups were not associated with patients self-reported physical health status, or LBP; they were associated with differences in patient self-reported general and psychosocial health status. Practitioners reported correspondingly different treatment intentions in each group: primarily physical in the index group; both physical and psychosocial in the symbolic group, and intermediate in the icon group. There was no clear relationship between subgroups and outcome. The pattern of results is consistent with holism, defined within the mapping sentence as use of psychosocial in addition to physical explanation and management, and with osteopathic concepts and assessment tools such as the pathological grid (chapter 2).

**Subgroups and future research**

Results provide some empirical support for osteopaths claim to holism, which is potentially important in the context of the recognized limitations of dualist approaches to understanding and management of chronic pain in conventional medicine. The index, icon and symbol classification described in relation to the formal structure of pain explanation in conventional medicine (chapter 2) was empirically identified in osteopaths interpretation of pain in the current study. This provides a basis for comparison with conventional medicine, and identification of potentially fruitful patient subgroups for further research.

**Pain as an index**

Osteopaths perceived patients in the index group as having minimal psychosocial problems associated with the pain, which was expected to respond to physical processes, treatment and pain coping, and was treated on the basis of primarily physical treatment intentions. Patients reported good general and mental health at initial consultation. Practitioners expected best
outcome, and expressed surprise at treatment failures, most of which were attributed to initially unrecognized psychosocial problems. The predominance of physical understanding and management is compatible with the biomechanical emphasis of osteopathic literature and medical management based on an indexical interpretation of pain.

The index, icon and symbol groups were based on analysis of practitioners' interpretations of pain in individual cases. However, comparable findings have been obtained from research into medical communication styles (e.g., Ong et al, 1995). There is some analogy between the index group in the current study and biomedical or physically focused consultations (e.g., Brent & Beckett, 1986). The limitations of biomedical consultations reflect polarisation of physical and psychosocial factors associated with the dualist explanatory framework. Perseverance with physical interpretation has been attributed to desire to avoid an unwanted and delegitimizing psychological diagnosis (e.g., Mayou, 1991; Priel et al, 1991; Toone, 1990; Goldberg & Bridges, 1988). Conversely, biomedical consultation has been associated with concerns about underestimation of psychosocial distress in patients with diagnosed physical condition (Creed et al, 1990; Ormel et al, 1990; Whitehouse, 1987; Bridges & Goldberg, 1987; Goldberg, 1989; Mayou & Hawton, 1986) and decreased satisfaction in both practitioners (Roter et al, 1997) and patients (Law & Britten, 1995). A study which included evaluation of patient self-reported health status found practitioners rated patients who received biomedical consultations as having least psychosocial problems and worst physical health of all groups, while patients rated themselves as having worst physical and emotional health (Roter et al, 1997). The authors attributed this to limited psychosocial exchange which decreases the likelihood of patients' self-disclosure. In the current study, osteopaths were not asked to rate patients' health status, but indexical interpretation was associated with high patient self-reported psychosocial health status. The holistic explanatory framework may provide less scope for a distinct shift from physical to psychosocial frame of reference (Baszanger, 1997), and reduce the risk of persevering with physical interpretation in order to avoid psychosocial interpretation.

Current findings suggest the meaning of indexical interpretation in osteopathy is associated with physical problems and absence of psychosocial problems. By contrast the
literature suggests the meaning of indexical interpretation in conventional medicine is associated with presence of physical symptoms, and is relatively independent of psychosocial factors. This is consistent with the distinction between information-carrying physical medical signs and subjective symptoms (Nessa, 1996; King, 1982). The physical indexical interpretation of pain is assumed in recommendations for more precisely defined subgroups in future fastidious controlled trials (Koes et al, 1996; Shekelle et al, 1992). Current findings indicate that osteopaths understand and manage a substantial minority of presenting pain problems in primarily physical terms, and it is in principle possible to define subgroups within this population in exclusively physical terms. However, the index group was characterized by exclusion of psychosocial problems related to pain, largely independent of physical factors. Physical pain attributions (disease, work, and injury) made no contribution to cluster groups, which were differentiate by presence, absence or uncertainty about psychosocial factors. There were no significant between group differences in practitioners intention to treat pain or the physical effects of pain; encourage exercise or activity; provide information or understanding or confront self-limiting actions or attitudes. Finally, there were no significant differences between groups in LBP or physical health status as measured by the SF-36 subscales of physical function (ability to carry out routine activities), role-physical (the extent to which health has interfered with work or activities over the past week) or bodily pain (intensity and interference with work or other activities). More precise physical description of subgroups is therefore unlikely to reduce variance associated with pain-related psychosocial factors. In view of the congruence between osteopaths’ explanation and patients’ self-reported health status, patients reporting poor psychosocial and general health could be excluded from trials based on physical description of subgroups. Use of combined criteria defining both physical problem and exclusion of psychosocial problems would contribute towards defining a more osteopathically homogenous subgroup and therefore provide a more valid basis for evaluation.

Pain as a symbol
Osteopaths perceived patients in the symbolic group as having psychosocial problems related to pain, associated with greater potential for recovery, understanding and more effective coping, and reported using a broad range of physical and psychosocial treatment intentions.
Patients reported poor general and mental health at initial consultation. Practitioners' expectations of treatment outcome were intermediate between the other two groups, and most treatment failures were attributed to the difficulties of shifting chronic pain disability. Practitioners underestimated the helpfulness of treatment relative to patients.

The tendency for practitioners to underestimate stress-related effects relative to patients may reflect differences in understanding and experience of manual treatment. Nathan (1993) has proposed that touch normally signifies or embodies intimacy, power, safety, sexuality and the whole spectrum of emotions. The expressive aspects of touch may not be completely neutralized by the clinical context, though they are typically not taken into account in the practitioners' instrumental rationale for using a particular technique. For example the osteopath uses a procedure called a "lateral fluctuation" in order to cause a therapeutic physiological change in a tissue system in the head; the patient "does not experience her body as being manipulated, she experiences herself as being held, cradled, stroked, caressed" (Nathan, 1993, p41). Dekker's study of physiotherapists found psychosocial problems typically managed using physical techniques such as massage, though whether focus on the body precludes effective management of the whole person, including cognitive, affective, behavioural and social aspects of the problem has not been established (Dekker et al, 1995). The current finding that patients report stress-relief adds weight to recommendations for future research in this area.

Osteopaths' understanding and management of patients in the symbolic group seems comparable to the biopsychosocial approach in conventional medical practice. There is considerable evidence that patients suffering from conditions which have some form of psychosocial component are more likely to be satisfied with treatment if this is recognized by the practitioner (e.g., Roter et al, 1997; Wilson et al 1995; Levinson et al, 1995; May 1992; Millar & Goldberg, 1991; Savage, 1990; Whitehouse, 1987; Ben-Sira, 1985). Evidence of the benefits of recognizing psychosocial distress in primary care has resulted in advocacy of a more holistic, biopsychosocial or relationship-centred approach (e.g. Tressolini, 1994; Tylee & Freeling, 1987; Pendleton 1983; Marinker, 1967) and more extensive training in psychosocial aspects of treatment (e.g. Merrill et al, 1994; Goldberg, 1992; Carmichael & Carmichael, 1978). There is evidence of a corresponding increase in the
prevalence of biopsychosocial consultations (e.g. Roter et al, 1997), which has been identified as a characteristic of exemplary medical practitioners with training in family therapy (Marvel et al, 1998).

A tendency towards dualism has been identified in the decreased likelihood of detecting physical illness in patients presenting with recognized psychiatric problems (Dalmau et al, 1998; Koryani, 1979). Similarly, Roter et al (1997) found that patients receiving psychosocial consultations were rated by medical practitioners as having better physical health but worse psychosocial health than patients in other groups; patients rated themselves as having poor physical and psychosocial health. By contrast, symbolic and iconic interpretation were not associated with reduced physical explanation by practitioners in the current study, and were congruent with patients self-reported physical and psychosocial health status.

Consultation styles are normally conceptualised and measured independently of problem interpretation, possibly because diagnosis is established on the basis of standardized criteria which are not expected to vary between individuals (Shafer, 1999). Effective psychosocial management has been associated with practitioners attitudes and beliefs about psychosocial care (Levinson et al, 1995); and patients willingness to disclose psychosocial problems has been associated with perceptions of the practitioners' orientation towards psychosocial issues (Bower et al, 1999) and open communication style (Freeling & Tylee, 1992). Major barriers to disclosure of emotional problems include embarrassment, and concerns about practitioners' lack of training and possible reactions (Priest et al, 1996), and early mention of psychological symptoms increases the likelihood of recognising depression (Tylee et al, 1995). Practitioners' understanding and management of psychosocial issues is likely to be partly shaped by training and beliefs about the nature of the treatment process. To the extent that clinical practice based on idiographic interpretation requires the practitioner to attend to or explore the patient's experience in order to formulate the problem and provide a basis for clinical decision-making, the holistic explanatory framework may facilitate effective psychosocial management.
In view of the recognized benefits of biopsychosocial practice, patients presenting with complex physical and psychosocial problems could provide a useful focus for future evaluation of osteopathy, and comparison with conventional approaches. These problems would be excluded in trials of patients presenting with physical problems likely to respond to particular manipulative techniques. Qualitative exploration of the way in which problems are understood and managed by conventional and complementary practitioners constitutes a potentially fruitful area for theoretical development. This strategy could complement quantitative comparison of outcome associated with different types of management.

Pain as an icon
Patients in the icon cluster were characterized by osteopaths' uncertainty about psychosocial aspects of pain. There were no significant between group differences in physical pain attributions, though all PAIN ratings in this group were closest to "neither agree nor disagree", and practitioners were also least likely to treat physical causes of pain. In combination with higher ratings for luck, this pattern indicates a general uncertainty about both physical and psychosocial aspects of pain and influences on recovery. Practitioners perceived relatively little scope for understanding or change, and the only treatment intention used more often in this group was to enhance self control and responsibility. Patients reported poor general health, and mental health was intermediate between the other two groups at initial consultation. A number of comments by patients and practitioners in this group referred to additional health problems. Similarly, disease and luck items were adjacent and isolated on the proximities plot based on practitioner PAIN ratings (figs 4.2 & 4.3), and "enhance self control" was relatively isolated on the proximities plot of practitioner intentions (figs 4.5 & 4.6). These findings raise the possibility of increased disease in the icon group, though current data are inadequate to address this possibility. Practitioners expected poorest outcome in this group, which was consistent with a non significant trend towards lowest reported change.

Identification of the icon group in the current sample demonstrates that some cases proved difficult to understand within the osteopathic frame of reference. This reinforces Kaptchuk’s (1996) recommendation that future trials should evaluate practitioners’
perception of patients’ suitability for CM. The icon group is comparable to the residual category" (Turner, 1992) of "medically unexplained symptoms" (Goldberg, 1992) in conventional medicine, in that the defining feature is practitioner uncertainty about the nature of the problem. However, the groups are different in that the medical icon group is defined by absence of demonstrable physical pathology to account for symptoms, and the osteopathic group by more general uncertainty about physical and psychosocial aspects of pain. Medically unexplained symptoms are indeterminate, in that it is not possible on current evidence to distinguish between those conditions for which a pathological diagnosis can be found, e.g. when the disease progresses further or more sophisticated diagnostic technologies become available, and those for which no exclusively physical explanation can be found because the problem is inherently biopsychosocial. Treatment methods in conventional medicine include psychological reattribution (e.g. Goldberg, 1992; Guthrie, 1992; Salkovskis, 1992; Sharpe et al, 1992) and pain management based on acceptance of uncertainty. It seems likely that the icon group define the periphery of application for osteopathy, as medically unexplained symptoms define the periphery of application of the biomedical model. This would consequently not seem to be a useful domain for evaluation of the effectiveness of osteopathy.

Given recent interest in conventional medical management of medically unexplained symptoms, and concerns about the cycles of hope and disappointment associated with "shopping" for a practitioner who can find and treat the cause of the problem, this group seems worthy of further investigation. A longitudinal patient-focused methodology may contribute to understanding how patients cope with unexplained illness and the role of repeated treatment episodes in this process.

Finally, the current study was based on a small sample of practitioners. Findings are compatible with the holistic explanatory framework, which, in principle, requires attention to relationships between psychosocial and physical factors in order to construct a representation of the problem and rationale for intervention. However, subgroups in the current study proved comparable to those identified from research into medical practitioners communication styles. The results obtained could therefore be interpreted in
terms of the psychological mindedness of practitioners in the current sample. This possibility is explored with a larger sample of practitioners in the next study.

Limitations
The PAIN Questionnaire and TAQ constructed for the purposes of the current study, as an overall "map" of the pain explanation and the treatment process potentially relevant to any discipline, within which differences between individuals or groups could be located. The relationships between these measures, and stability of structural relationships between items provide some evidence of validity. However, these measures were researcher generated and may not reflect manual therapists understanding of pain or the treatment process.

The PAIN is a fairly crude indication of the structure rather than the content of pain explanation. This strategy inevitably loses the richness and complexity of discipline specific professional explanations and idiographic patient explanations, and provided no indication of distinctively osteopathic pain interpretation. The PAIN was developed for the current study, so no normative data is available to compare with other populations.

A major disadvantage of using a self-report questionnaire format such as the TAQ is that no information is available about the way in which the intention was implemented, or the quality of the intervention, which is understood to be the primary determinant of effectiveness. This includes appropriate timing, manner, and use of the whole spectrum of possible interventions as appropriate rather than exclusive focus on one or two (Heron, 1991).

The SF-36 was used to provide a general indication of physical and psychosocial health status in a heterogeneous population, though this generality may reduce sensitivity to change. A similar study of primary care patients treated by GP's and CM practitioners found no significant change on SF-36 (Patterson, 1996). Generic measures such as the SF-36 facilitate comparison across different populations and interventions though may be insensitive to clinically significant changes in particular groups (Patterson, 1996; Patrick & Deyo, 1989) and do not address the relativity of function, or differences in functional priorities (Liang & Robb-Nicholson, 1987). The insensitivity to individual differences in functional priorities was apparent in the current study, as a number of patients who obtained relatively high scores on role functioning scales which evaluate impairment in activity over
the past week, commented that there were few activities to reduce as they had restricted their lifestyle on account of the pain some time ago.

A more adequate evaluation strategy may therefore require measures both of short term change in experience of pain-relief and well-being, and long term changes in health status to take account of latency effects, i.e., the possibility that consequences of any particular intervention may be reflected in health changes at a much later date. Self-reported health status and change could be complemented by more objective measures of function, such as medication consumption, employment, activity, fitness levels, number and range of consultations with health professionals.
CHAPTER 5
OSTEOPATHS' USE OF TREATMENT METHODS AND PERCEPTION OF TREATMENT EFFECTS

Introduction
The previous study has demonstrated that patients could be classified into index, icon and symbol subgroups on the basis of osteopaths' interpretation of pain. This pattern of results is consistent with the holistic explanatory framework, in that psychosocial factors were taken into account as an addition rather than an alternative to physical explanation. However, results may reflect individual practitioner characteristics such as psychological mindedness. Different treatment intentions were reported for each group, though no data were obtained about the methods used to implement these intentions, or their expected effects on patients. The primary source of information about osteopathic practice in the scientific literature is the definition of intervention in trials. This is normally construed in terms of "specific" or active treatment components i.e. the method under investigation; and all other aspects of treatment process which contribute towards outcome, collectively referred to as "non-specifics". Specific treatment method is often understood in physical terms, and non-specific components in psychosocial terms. This distinction is theory dependent, and the validity of interventions used in trials depends partly on correspondence with osteopathic theory and practice. The current chapter reports two studies carried out with a larger sample of osteopaths to evaluate self reported use of treatment methods, and perception of the relationships between physical and psychosocial components of the treatment process. Findings provide a basis for evaluation of the validity of interventions used in trials; identification of relevant comparisons with other treatment approaches; hypotheses about treatment mechanism, and implications for future evaluation research.

In terms of the overall mapping sentence, the population is osteopaths (facet A1); and the research questions were defined in terms of the relationship between modality (facet B1-5) and treatment process (facet C2). Holism was defined as use of psychosocial methods in addition to, but not as an alternative to, physical methods. In relation to treatment effects, holism was defined as perception of psychosocial treatment components in addition to, but not as an alternative to, physical components.
CHAPTER 5: PART 1
TREATMENT METHODS USED BY OSTEOPATHS

Treatment process in trials
Both fastidious and pragmatic trials have made a significant contribution to the evaluation of manipulation on the basis of different definitions of the intervention.

From a reductionist perspective, CM can be seen as a finite set of problem-method combinations. CM is a heterogeneous domain, including 97 approaches identified in an American study (McPartland & Richardson-Soons, 1997), each of which is likely to include a range of different treatment methods. It is clearly not possible to evaluate all possible problem-method combinations independently in CM or osteopathy, and even in conventional medicine, it has been estimated that only 15% of interventions are supported by solid scientific evidence (Eddy, 1994). The task has been simplified by meta-analyses of trials based on comparison of placebo with the central method used by a particular discipline e.g., acupuncture (Ter Reit et al, 1990), homoeopathy (Linde et al, 1997; Klienjen et al, 1991) and manipulation (Koes et al 1996; 1991; Shekelle et al, 1992).

Trials of manipulation
Outcome studies of manipulation can be ranged on a continuum, from fastidious trials which aim to demonstrate a causal relationship between standardized manipulation and outcome (e.g. Hadler et al, 1987) to pragmatic trials (e.g. Meade et al, 1995) which aim to maximize validity and clinical relevance by approximating real world conditions (Stephenson, & Imrie, 1998). Many trials have used a hybrid approach, attempting to balance the rigour of fastidious trials by equalising non-specific factors between groups, with clinical relevance by allowing practitioners some discretion in treatment choice.

Fastidious RCT's are the methodology of choice for evaluating claims that a specific method produces specific benefits in relation to a well-defined problem. This approach is grounded in a dualist construction of the treatment process as specific method, and non-specific or placebo components. The central mechanism of therapeutic change is defined in terms of the relationship between problem and method. This is understood to be necessary and sufficient for therapeutic change (Sartorius, 1985), and normally considered independently of the person (Kaptchuk & Croucher, 1986). This approach is compatible with indexical interpretation of symptoms as signs of pathology,
and treatment method construed as removing or neutralising the pathological cause of symptoms (Taylor, 1994).

As a result there has been an increasing emphasis on specific techniques such as high velocity thrust, which are used by manipulative therapies, including osteopathy, chiropractic and physiotherapy, in order to diagnose and treat abnormalities of musculoskeletal structure and function (Vickers & Zollman; 1999). Assendelft & Ernst (1998) have welcomed what they perceive as emerging agreement that a distinction should no longer be made between professions delivering spinal manipulation. However, questions about the biomedical or osteopathic validity of homogenous subgroups (chapter 4) recur in relation to the definition of the treatment method suitable for inclusion in trials.

In most trials, the intervention is described as manipulation, which is often equated with chiropractic manipulation (e.g. Shekelle, 1992) though this can lead to major confounding issues (Assendelft et al, 1992). Manipulation is difficult to standardize as there are interdisciplinary differences in manipulative methods used by osteopathy, chiropractors, physiotherapists and medical practitioners (Mnabhi, 1999; Cooper, 1999) and clinical differences between manual therapies (Cassidy, 1999). Osteopathy includes both diverse manual techniques, and different approaches to practice, e.g. biomechanical (e.g., Gibson et al, 1984), generalist or holistic (e.g. Nathan, 1993; Latey, 1991; Ferguson, 1990) and psychodynamic (e.g. Randall, 1998a, 1998b, 1992, 1988; Lieberman, 1990). There are also intra-disciplinary differences between individuals in methods used (Kirk, 1998), so use of more than one practitioner raises questions of standardization of technique (Curtis, 1988), though restriction to a single practitioner raises questions about generalizability.

Meta-analyses have included a range of types of manipulative intervention e.g. high velocity low amplitude thrust (Hoehler & Tobis, 1981) and a combination of osteopathic techniques (Gibson et al, 1984), and in many studies it is unclear what the intervention actually is (Curtis, 1988). The difficulty of defining the intervention has not been resolved in recent meta-analyses using more sophisticated methodology. The intervention was taken into account by Shekelle et al (1992) and Koes et al (1996) only in calculation of the study quality score (Koes et al, 1991). This includes 20% points for
specification of the manipulative and control treatments used; exclusion of other physical or medical interventions (except analgesics; postural advice; heat, rest, or routine exercise); and citation of the practitioners' education or experience.

Shekelle et al (1992) acknowledge that trials included used a range of manipulative techniques, which they broadly categorize as non-specific long lever manipulations or specific short lever high velocity spinal adjustments; and number of treatments received varied from 1 to 19 sessions, extending over periods varying from one day to two months. Few if any studies have used daily treatment, which is common in chiropractic care (Curtis, 1988), and the "dose" of manipulation used in many trials has been described as inadequate for there to be a reasonable chance of success (Kaptchuk et al, 1996).

Additional interventions (back exercises, ergonomic instructions, mobilisation, and medication) were used in 10 of the 25 trials reviewed by Shekelle et al, who conclude their contribution to outcome is unknown, and recommendations for future trials include use of well-defined interventions and control treatments (Shekelle et al, 1992, p596). Koes et al (1996) similarly included all trials of manipulation or spinal mobilisation, and recommendations for methodological improvement in future research did not include more attention to description of the intervention. Trials have been criticized for inadequate exclusion of non-specific factors (Vickers & Zollman, 1999), and authors of the major pragmatic trial of chiropractic, have expressed the belief that there is now more support for the need for more fastidious trials focusing on specific components of management (Meade et al, 1995).

In summary, the nature of manipulative treatment used in fastidious trials is not consistent across studies, so it is unclear whether meta-analytic reviews are comparing like with like. Recommendations have been made to improve comparability across trials by standardizing the manipulative intervention. This would increase confidence that trial results directly address the question of the effects of a particular intervention on a particular problem, but this increased rigour leaves open the question of relevance.

Pragmatic trials provide clinically relevant evidence which may contribute towards informed decision making about service provision, government approval and scientific evaluation (Kaptchuk, 1996). However, if the only source of outcome variance which is
taken into account is the between group comparison e.g. chiropractic and physiotherapy (Meade et al, 1995), the role of different treatment components cannot be established. Further, pragmatic trials are designed to mimic real world conditions, and aim to evaluate effectiveness in practice, rather than efficacy under trial conditions (Stephenson, & Imrie, 1998). In the absence of information about methods routinely used by osteopaths, the relationship between trial intervention and the reality of clinical practice is unclear (Kaptchuk, 1996), and the extent to which trials actually mimic real world conditions cannot be determined.

Interaction between specific and non-specific treatment components

The attempt to exclude non-specific components is based on the assumption that the placebo effects are constant in treatment and control groups, and throughout the duration of the trial; and linear, so that the active treatment effect can be calculated by subtracting placebo effects from total treatment effects. This assumption has been challenged on both empirical and theoretical grounds.

On the basis of decades of theory and evidence produced by RCT's and clinical experiment within conventional medicine, the assumption of a linear additive relationship between separable treatment specific and non-specific components has been described as over-simplified and probably invalid (Spilker, 1991). The assumption that placebo effects are constant, often reported as 35% +/- 2 on the basis of Beecher's original estimation (1955), is inconsistent with evidence that the proportion of patients who are improved following placebo treatment varies from 0% to 100% in different studies (Ross & Olson, 1981). The relationship between non-specific aspects of treatment and specific methods may range from synergistic to antagonistic (Kleijnen & de Craen, 1996). The magnitude of the placebo effect has been associated with technologically sophisticated equipment (Langley et al, 1984; Petrie & Hazleman, 1985) and invasive intervention (Miller, 1989), which is more common in conventional medicine than CM (Richards, 1997). Interactive accounts of the relationship between different aspects of the treatment process is compatible with CM emphasis on facilitating the patients sense of control and self-healing ability through self awareness, relaxation, meditation, nutrition and exercise (Gordon, 1996, p17). The emerging perspective implies the possibility of a "mega-placebo effect", in which the nonspecific effects of a false treatment may be greater than the treatment-specific and
nonspecific effects of a true treatment, though this presents "a genuine conundrum and scientific paradox" (Kaptchuk et al, 1996, p52).

In summary, fastidious trials provide evidence of the efficacy of specific problem/manipulation combinations, but reduce the scope for interaction between different treatment components. The assumption of independent specific and non-specific treatment components is compatible with biomedical treatment based on an indexical interpretation of symptoms, which provides a theoretical rationale for the causal relationship between problem and method. The recommendation for more fastidious trials of manipulation, which rigorously exclude non-specific factors, implies a physical view of the causal mechanism involved. No theoretical rationale for the causal relationship between problem and method has been proposed.

Interactive understanding of the relationship between specific and non-specific components is compatible with iconic or symbolic interpretation, which provide a rationale for enhancing coping, rather than use of external methods to cure underlying pathology. Pragmatic trials are compatible with interactive models of the treatment process, though in the absence of evidence about the nature of osteopathic practice, the representativeness of permitted interventions is unclear. If treatment components are understood as interactive rather than additive, the focus of enquiry shifts from the specific efficacy of particular problem-method combinations, to the relationships between treatment methods used in practice.

Relationships between methods used
Conventional medical management of chronic pain reflects an interactive construction of the relationship between physical and psychosocial components of treatment. Widespread acceptance of the multidimensional view of pain has led some to propose that the factors influencing development of chronic pain and treatment response are largely outside the remit of biomedicine (Gronblom-Lundstrom, 1992; Melin, 1985; Linton & Kamwendo, 1987) and can only be addressed using a biopsychosocial approach (Engel, 1977; 1997). Both iconic and symbolic pain interpretation provide a rationale for a use of multiple methods to improve function and well-being.

The GCM has provided considerable scope for different approaches to understanding and treatment of pain, including pharmacological, surgical, electrical
implants or stimulation, hypnosis, relaxation, meditation, biofeedback, group therapy, various forms of psychotherapy, pain clinics, physiotherapy, osteopathy, chiropractic, Shiatsu, acupuncture and a range of other CM approaches. Conventional management of acute back pain is explicitly biopsychosocial, including prescription of simple analgesics; physical therapy; promotion of active exercise, physical activity, work, and psychosocial management (CSAG, 1994). If pain persists for six weeks, guidelines include additional investigations if required; psychosocial and vocational assessment; active rehabilitation including aerobic exercise and fitness program; use of behavioural medicine principles and workplace liaison. At the secondary care level, a range of treatment methods have been used, including cognitive behaviour therapy (e.g. Williams et al, 1994; Nicholas et al, 1992); fitness programs (Frost, Klabber-Moffat et al, 1995) and multidisciplinary programs (e.g. Luscombe et al., 1995). In contrast to the traditional emphasis on single diagnosis and single therapy, pain management programs typically use multiple convergent procedures, which are more effective than any single approach used in isolation (e.g. Gamsu, 1995). There is some variability in methods used by different teams (Fishbain & Rosomoff, 1995), though all include both physical and psychosocial interventions. Some programs include biofeedback and hypnosis, though passive treatment modalities are generally discouraged.

The relationships between treatment methods have been studied using a number of approaches.

A simple and pragmatic strategy has been to compare different treatments on the basis of cost-effectiveness. This has been recommended as an appropriate criterion for choice between chiropractic and fitness programs given similarity of outcome (Frost, Klabber-Moffat et al, 1995); between chiropractic and primary care physicians and orthopaedic physicians (Carey et al, 1996) and between multidisciplinary and monodisciplinary psychiatric pain clinics (Anooshian et al, 1999). Cost-effectiveness provides a basis for decision-making, but does not purport to explain relationships between treatments.

Dismantling
A more sophisticated strategy for evaluating multi-method treatment packages is dismantling, which involves comparison of outcome in patients who receive the whole
package with patients who receive only part of the package. Dismantling has been used to evaluate the contribution of physical and psychosocial components of pain management programs. Some studies have found reduction or exclusion of psychosocial intervention did not influence outcome, but may have been implicated in more restrictive selection criteria to exclude distressed patients; high rates of drop out and counselling referrals; and discharging patients for "misbehaviour" or failure to improve (Sachs et al, 1990; Altmeier et al., 1992; Burke et al, 1994). The physical components of intervention have been described as providing a valuable alternative to pain experience as basis for prescribing and monitoring training, and assessment of safety limits, capacity for work and recreation (Hazard, 1995), and produce demonstrable improvements in flexibility, cardiovascular endurance and exercise tolerance, though this is not strongly associated with return to work (Alaranta et al, 1994; Mellin et al, 1993). These studies suggest that both physical and psychosocial treatment components make a specific contribution to outcome, without which the efficacy of the program is reduced.

The feasibility of dismantling to evaluate the role of different treatment components may depend on the nature of the treatment: in psychotherapy research it has been used to evaluate behavioural but not humanistic or psychodynamic therapies (Stiles et al, 1986, p170). This approach may be more difficult in CM and manual therapy, where the "whole person" is managed by a single practitioner, rather than different disciplines which can be readily added to or excluded from the program.

Routine management
A number of studies have been carried out to evaluate implementation of guidelines and frequencies of methods used by GPs. There is some evidence that guidelines for LBP have had a limited impact on primary care management. A questionnaire study of 166 general practitioners found routine practice did not match guidelines for management of acute LBP, and identified a number of reasons for this discrepancy (Little et al, 1996). Low frequency of physical examination was attributed to the rarity of serious disease in this population, the risk of medicalising the problem, and workload increase. Inconsistent provision of lifestyle advice was linked to the fact that guidelines do not include a referenced evidence base for each recommendation, or consider context and
generalisation. The authors recommend further research into primary care management of LBP to inform guidelines (Little et al, 1996).

A similar mismatch between practice and guidelines was identified in a questionnaire survey to evaluate practice changes from 1995 to 1997 following publication of CSAG guidelines (1994). Barnett et al (1999) carried out a questionnaire survey of the availability of eight treatment standards for LBP in 1995 (n=251 practitioners) and 1997 (n=198 practitioners). These standards included three for detection of possible physical pathology; acute pain relief services; multidisciplinary assessment of chronic pain; and physical therapy for urgent, acute and chronic problems. Of these, only physical therapy services were more available at follow up, and the magnitude of change was small. The authors attribute lack implementation to the difficulty of developing resource intensive services.

A different strategy was used by Summerton (1996), who used an open-ended questionnaire survey to identify general practitioners most likely responses to a patient with simple acute LBP and no evidence of systemic illness. The 70 GPs who replied reported a range of interventions, including advice in risk factors (67); gentle activity (61); oral non-steroidal anti-inflammatory drugs (58); short bed rest followed by mobilisation (57); physiotherapy referral (31); active exercises (26); and anti-spasmodic drugs (12). Summerton concludes that most interventions reported are supported by fairly strong evidence, and describes Little et al's (1996) approach as over-nihilistic about the extent to which LBP research can be generalized to practice.

The wide range of approaches identified in a study of general practitioners views on management of LBP lead the authors to conclude, "who you see is what you get" (Cherkin et al, 1995). These studies have provided an indication of the range of interventions used in primary care, but have not explored relationships between methods used to treat LBP, or individual differences between practitioners.

**Treatments used in CM**

Relationships between methods used were evaluated in a questionnaire study of 118 CM practitioners, which found patterns of use could be accounted for in terms of a two facet structure (Nanke & Canter, 1993). These facets are graphically represented in the Smallest Space Analysis plot (fig 5.1).
Fig 5.1 Treatments used by complementary practitioners (n=118)
2 dimensional Smallest Space Analysis plot
(Nanke & Canter, 1993)
Facet 1, labelled "mode of intervention" is qualitatively differentiated into six regions distributed around the periphery of the plot. These regions are labelled as physical invasive (within the body e.g. acupuncture); physical non-invasive (body surface e.g. chiropractic); substances (e.g. herbal medicine); "fringe" methods (use of other objects or processes e.g. gem therapy); spiritual (e.g. meditation), and psychological approaches (e.g. counselling). The identified regions correspond to different modalities of the self, described as facet B in the current superordinate mapping sentence. The structure replicates West’s distinction between physical, psychological and paranormal facets of CM (West, 1984), and suggests the physical facet can be further subdivided.

Facet 2, labelled "degree of specialisation", seems to be a quantitative dimension ordered from the least specialized "core" treatments at the centre of the plot to the most specialized discipline specific methods at the periphery. The central location of core methods reflects high intercorrelations, and relative independence from any particular specialist mode of intervention. Methods using all modalities except the physically invasive were included in this region, e.g. diet, exercise, vitamins, meditation, massage, relaxation and counselling. These are associated with self-help, time and touch, and may be accessible at some level to all disciplines as expensive professional training is not necessarily required. Specialist methods tend to require professional training and/or are subject to statutory regulation, particularly if a physical modality is involved, e.g. osteopathic manipulation can only be used by state registered practitioners. Other forms of treatment e.g. relaxation may be provided as a specialist service by practitioners with extensive training, or as one of a range of treatments by practitioners with considerably less formal qualification.

The Research Strategy

The study of CM practice suggests that there is an interpretable structure underlying treatment use, such that the practice of any individual or group of practitioners could be characterized by specialist mode of intervention and utilization of additional core methods. This study was based on a heterogeneous sample of CM practitioners, and the extent to which this organized eclecticism is characteristic of osteopathic practice is unclear. The CMTQ provides a method for empirical exploration of relationships between methods used in routine osteopathic practice. Findings could complement evidence obtained
by trials by describing the context within which specific manipulative techniques are used; providing a basis for evaluating the validity of interventions used in fastidious trials; hypotheses about sources of outcome variance in pragmatic trials and comparison with conventional approaches to pain management.

The current study was therefore carried out using an adaptation of the CMTQ to address the following research questions:

1. What methods do osteopaths use in clinical practice?
2. Are there individual differences in use of different methods?

**Method**

The original CMTQ (Nanke & Canter, 1993) was a list of treatments derived from the CM literature. Practitioners were asked to rate frequency of use on a 5 point scale from "almost always" to "never". The CMTQ was modified to provide a more fine grain analysis of osteopathic practice by including a wider range of manual methods, derived from consultation with osteopaths, and omitting highly correlated or very low frequency items (appendix 5.1), and renamed the Osteopathic Treatment Questionnaire (OTQ). The questionnaire was not constructed on the basis of the mapping sentence, though psychological and physical methods are included, and the qualitative "mode of intervention" facet identified in the original study corresponds to facet B, modality of the self.

**Administration**

The OTQ was part of a questionnaire package, including the TEQ (below), distributed to all osteopathic members of the BSO faculty via internal mail, together with an letter explaining that by participating osteopaths may contribute towards development of an empirically based representation of osteopathic practice, and requesting critical comment (appendix 5.2).

Steve Vogel, a Research Fellow at the BSO, made a major contribution towards revision of the Questionnaire, wrote the letter requesting participation from faculty members, administered questionnaires and collected the data. His expertise was invaluable in helping to establish the osteopathic relevance of the Questionnaires, and enlisting co-operation from other faculty members, who are frequently asked to participate in undergraduate research. The BSO is the largest and oldest osteopathic institution in the UK, with a reputation for a more "hard line" biomechanical approach than
the main alternatives, the European School of Osteopathy, and the British College of Naturopathy and Osteopathy. This selective sample may reduce variability associated with different types of training, but reduces the scope for generalisation.

**Data analysis**

Frequencies were used to calculate descriptive statistics. Proximities analysis was used to analyse the structure of relationships between treatments used. K-means cluster analysis was used to evaluate individual differences in patterns of treatment use. Analysis of variance was used to calculate the significance of each treatment in differentiating between clusters.

**Results**

**Sample characteristics**

Seventy four completed questionnaires were obtained, representing a return rate of 75.5% of osteopathic faculty members (n=98). 54 (73.0%) of the sample were male, and 20 (27%) female, which was approximately proportional to the gender distribution of faculty members at the time. The age range was from under 25 to 60, with most in the 25 to 40 category (table 5.1). Experience was roughly evenly distributed between two and twenty years (table 5.2).

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td>26 to 40</td>
<td>52</td>
<td>70.3</td>
</tr>
<tr>
<td>41 to 60</td>
<td>17</td>
<td>23.0</td>
</tr>
<tr>
<td>Over 60</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical experience (n=74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience</td>
</tr>
<tr>
<td>Under 2 years</td>
</tr>
<tr>
<td>2 to 5 years</td>
</tr>
<tr>
<td>6 to 10 years</td>
</tr>
<tr>
<td>11-20 years</td>
</tr>
<tr>
<td>Over 20 years</td>
</tr>
</tbody>
</table>

**Frequencies of treatment use**

Frequencies of treatment use are reported in table 5.3. Column 1 represents how often each treatment was used, from never to almost always. Column 2 presents binary data based on whether each treatment was used at all or not. The table was ordered in terms of
binary frequencies, as whether or not a particular method is available in a practitioners repertoire seems more important than how often each possibility is used. Comparative data from a study of 100 members of the British Naturopathic and Osteopathic Association (Newman Turner, 1990) are included in column 3.

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>Frequency of use Mean (sd)</th>
<th>Binary Used n</th>
<th>Binary Used: Newman Turner (1990) n=100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulation*</td>
<td>4.4 (0.1)</td>
<td>72 97.3</td>
<td>-</td>
</tr>
<tr>
<td>Soft tissue technique*</td>
<td>4.5 (0.9)</td>
<td>72 97.3</td>
<td>-</td>
</tr>
<tr>
<td>Stretch*</td>
<td>4.2 (0.1)</td>
<td>72 97.3</td>
<td>-</td>
</tr>
<tr>
<td>Advice</td>
<td>4.3 (0.1)</td>
<td>71 95.9</td>
<td>76</td>
</tr>
<tr>
<td>Diet</td>
<td>3.1 (0.8)</td>
<td>71 95.9</td>
<td>76</td>
</tr>
<tr>
<td>Exercise</td>
<td>3.7 (0.9)</td>
<td>71 95.9</td>
<td>-</td>
</tr>
<tr>
<td>Inhibition*</td>
<td>3.8 (1.0)</td>
<td>71 95.9</td>
<td>-</td>
</tr>
<tr>
<td>Manipulation*</td>
<td>4.1 (0.1)</td>
<td>70 94.6</td>
<td>-</td>
</tr>
<tr>
<td>Traction*</td>
<td>3.8 (1.1)</td>
<td>69 93.2</td>
<td>-</td>
</tr>
<tr>
<td>Distraction*</td>
<td>3.5 (1.2)</td>
<td>68 91.9</td>
<td>-</td>
</tr>
<tr>
<td>Examination</td>
<td>4.5 (0.1)</td>
<td>68 91.9</td>
<td>-</td>
</tr>
<tr>
<td>Muscle energy*</td>
<td>3.3 (1.2)</td>
<td>66 89.2</td>
<td>-</td>
</tr>
<tr>
<td>Functional*</td>
<td>3.2 (1.2)</td>
<td>65 87.8</td>
<td>-</td>
</tr>
<tr>
<td>Orth. Medication</td>
<td>2.8 (0.9)</td>
<td>64 86.5</td>
<td>-</td>
</tr>
<tr>
<td>Relaxation</td>
<td>3.1 (1.1)</td>
<td>64 86.5</td>
<td>81</td>
</tr>
<tr>
<td>Counselling</td>
<td>3.0 (1.2)</td>
<td>63 85.1</td>
<td>-</td>
</tr>
<tr>
<td>Vitamins</td>
<td>2.6 (0.9)</td>
<td>60 81.1</td>
<td>89</td>
</tr>
<tr>
<td>Massage</td>
<td>3.3 (1.5)</td>
<td>59 79.7</td>
<td>-</td>
</tr>
<tr>
<td>Myo fascial release*</td>
<td>2.9 (1.3)</td>
<td>57 77.0</td>
<td>-</td>
</tr>
<tr>
<td>Heat</td>
<td>2.4 (1.2)</td>
<td>47 63.5</td>
<td>-</td>
</tr>
<tr>
<td>Cranial</td>
<td>2.5 (1.4)</td>
<td>46 62.2</td>
<td>-</td>
</tr>
<tr>
<td>Homoeopathy</td>
<td>2.0 (1.0)</td>
<td>42 56.8</td>
<td>77</td>
</tr>
<tr>
<td>Yoga</td>
<td>2.0 (1.0)</td>
<td>36 48.6</td>
<td>-</td>
</tr>
<tr>
<td>Herbal medicine</td>
<td>1.6 (0.9)</td>
<td>29 39.2</td>
<td>80</td>
</tr>
<tr>
<td>Psychotherapy</td>
<td>1.8 (1.1)</td>
<td>29 39.2</td>
<td>81</td>
</tr>
<tr>
<td>Meditation</td>
<td>1.6 (1.0)</td>
<td>27 36.5</td>
<td>-</td>
</tr>
<tr>
<td>Biofeedback</td>
<td>1.3 (0.7)</td>
<td>17 23.0</td>
<td>-</td>
</tr>
<tr>
<td>Chiropractic*</td>
<td>1.3 (0.8)</td>
<td>15 20.3</td>
<td>-</td>
</tr>
<tr>
<td>Hydrotherapy</td>
<td>1.3 (0.8)</td>
<td>14 18.9</td>
<td>94</td>
</tr>
<tr>
<td>Minor surgery</td>
<td>1.2 (0.6)</td>
<td>12 16.2</td>
<td>-</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>1.2 (0.7)</td>
<td>9 12.2</td>
<td>47</td>
</tr>
<tr>
<td>Hypnotherapy</td>
<td>1.2 (0.6)</td>
<td>8 10.8</td>
<td>18</td>
</tr>
<tr>
<td>Spiritual healing</td>
<td>1.1 (0.5)</td>
<td>7 9.5</td>
<td>-</td>
</tr>
<tr>
<td>Iridology</td>
<td>1.1 (0.4)</td>
<td>6 8.1</td>
<td>19</td>
</tr>
<tr>
<td>Reflexology</td>
<td>1.0 (0.2)</td>
<td>3 4.1</td>
<td>-</td>
</tr>
</tbody>
</table>

*= manual therapy techniques.
The most notable finding is the range of treatments used, suggesting osteopathic practice in this sample is not adequately characterized by the exclusive use of manipulation. These results are consistent with the proposed two facet structure of treatment use: the most commonly used treatments are specialist manual therapy techniques from the physical non-invasive region, and "core" interventions. Advice, diet, exercise, orthodox medication, relaxation, counselling, vitamins, heat treatment, homeopathy and yoga were used by over half of the sample; and herbal medicine, meditation and psychotherapy by over one third. The least frequently used treatments include other specialist modes of intervention e.g. acupuncture, and "fringe" methods e.g. iridology. All treatments on the questionnaire were reported to be used by some osteopaths.

Compared to members of the Osteopathic and Naturopathic Association, BSO faculty members are less likely to use specific core treatments i.e. relaxation and vitamins, or other specialist modes of intervention i.e. herbal medicine, homoeopathy, psychotherapy, hydrotherapy, acupuncture, hypnotherapy and iridology. This is consistent with the more exclusively manual emphasis of the BSO, and the more eclectic approach of naturopathy.

Age, gender, experience and treatments used
There were no significant differences in treatment use associated with gender, age or experience. There was a non significant trend for those with 10 years experience or less (n= 45) to report using more traction (p=.05) and muscle energy techniques (p=.02); and for those aged 40 or under (n=57) to report using more functional techniques (p=.05).

The structure of relationships between treatments used
A proximities analysis was carried out to evaluate the structure of relationships between treatments used (S Stress = .073; RSQ = .98). In the resulting 2 dimensional proximities plot (fig 5.2), items representing different modes of intervention have been colour coded in the same way as fig 5.1. Item co-ordinates are presented in appendix 5.3.

Item distribution on the plot can be interpreted in terms of the interaction between modality and specialisation. Degree of specialization seems ordered from the most specialist methods at the periphery and least specialist towards the centre, as in fig 5.1. Most specialist manual methods are frequently used and cluster towards the left of the
space, with some outlying methods (functional, myo-fascial release, cranial). Other specialist non-manual modes of intervention e.g. homoeopathy cluster towards the right, together with fringe methods, e.g., iridology.

Modality of intervention is less clearly defined than in fig 5.1. There is little differentiation between non-manual specialist modalities e.g., reflexology, minor surgery and meditation cluster fairly closely. This may reflect minimal use of fringe methods, and relative inaccessibility of specialist non-manual methods due to the extensive training required. Anecdotal evidence suggests a number of osteopaths are dual trained e.g. as psychotherapists, though this was not evaluated in the current study. Less specialist non-manual methods, e.g., relaxation, advice, diet are widely used, and distributed across the plot, which is vertically divided into psychological modalities across the top, and physical non-invasive modalities across the bottom. Other modalities are clustered towards the centre and right of the space.

This distribution reflects the more homogenous osteopathic sample compared to the CM practitioners in the previous study (fig 5.1). The circular order around the space in fig 4, reflecting different facets of the self, was constituted by the diverse specialist disciplines of the CM sample. The plot represented in fig.5.2 can be seen as defining the context of the current "close-up" exploration of treatment use from the perspective of one of these peripherally distributed disciplines.
Individual patterns of treatment use
A K means cluster analysis was carried out to determine whether there are distinct subgroups of osteopaths characterized by different patterns of treatment use, or whether the structure identified in fig 5.2 is broadly representative of the whole sample.

The two cluster solution resulted in one group of 5 osteopaths who used all treatments less than the second group of 69. All group differences were in the same direction, indicating a quantitative difference in range and frequency of treatment use.

Cluster means and analysis of variance of the three cluster solution are reported in table 5.4. This revealed similar cumulative order between groups.
Table 5.4  K-means cluster analysis: all treatments used
Analysis of variance of three cluster solution (n=74)

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>Foc’l Cl1 n=3</th>
<th>Mod Cl2 n=41</th>
<th>Bro’d Cl3 n=30</th>
<th>Clu MS</th>
<th>DF</th>
<th>Err MS</th>
<th>DF</th>
<th>F ratio</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counselling</td>
<td>1.0 3.0 3.2</td>
<td>6.6 2</td>
<td>1.2 71</td>
<td>5.1</td>
<td>.008</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet</td>
<td>1.6 2.9 3.5</td>
<td>6.1 2</td>
<td>0.5 71</td>
<td>11.7</td>
<td>.000*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td>1.3 3.6 4.2</td>
<td>12.1 2</td>
<td>0.6 71</td>
<td>20.0</td>
<td>.000*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homeopathy</td>
<td>1.6 1.9 2.2</td>
<td>0.8 2</td>
<td>1.1 71</td>
<td>0.7</td>
<td>.479</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massage</td>
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<td>25.1 2</td>
<td>1.6 71</td>
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<td>.001*</td>
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<td>Vitamins</td>
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<td>0.8 71</td>
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<td>1.0 71</td>
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<td>4.2 2</td>
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<td></td>
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<td>0.9 71</td>
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<td>Physical exam</td>
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<td>1.1 71</td>
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<tr>
<td>Cranial</td>
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<tr>
<td>Inhibition</td>
<td>1.0 3.7 4.3</td>
<td>16.5 2</td>
<td>0.6 71</td>
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<tr>
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<td>0.7 71</td>
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<td>.720</td>
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</table>

Bonferroni correction p=.001

Focal (n=3)

This very small focal cluster used less of all methods than the other two. The range of treatments used was not exclusively physical and included advice, exercise, diet and vitamins from the central core region.

Moderate (n=40)

All methods used by the focal cluster were used more frequently, in addition to a wider range of methods. All treatments were used by some osteopaths in this group.

Broad (n=30)

Osteopaths in this group used all methods more often than the other two groups.
Between group differences were all in the same direction, with cluster 1 using least, cluster 2 intermediate and cluster 3 most, suggesting a cumulative order in treatment use. These differences were not statistically significant in relation to widely used core methods, and rarely used other specialist methods and fringe methods. It is notable that these differences do not reflect a physical/psychosocial polarisation, and the same order was apparent across modalities.

In summary, cluster analysis of all treatments indicates a broadly cumulative order between osteopaths in frequency and range of self reported treatment use. If this pattern proved to be robust, it suggests that individual differences in osteopathic practice could be ordered on a continuum, from the more focal using a highly selected range of physical non-invasive methods used by virtually all osteopaths, to the more broad spectrum using a wide range of non-specialist methods and different modes of intervention.

**Age, gender, experience, nature of practice and all method cluster groups**
Independent samples t tests were carried out in order to evaluate relationships between membership of the moderate and broad spectrum clusters and age, gender, years of experience, role in the BSO (i.e. administration, management, clinical tutor, lecturer) and specialist clinic practice (child, pregnancy, sports, tempro mandibular joint, back school, multidisciplinary clinics).

There were no significant differences between clusters in age or gender. Those who were employed as lecturers at the BSO (p=.05), had more years of clinical experience (p=.05), and practised in specialist childrens (p=.01), pregnancy (p=.01) or multidisciplinary clinic (p=.01) were more likely to be members of the broad cluster.

Osteopathic and non-osteopathic treatments were analysed separately to determine whether the overall quantitative order was replicated, or whether a more differentiated picture would emerge.

**Non-manual treatments used**
The 2 dimensional proximities analysis of all non-manual treatments is presented in fig 5.3, showing item locations and mean ratings (S Stress = .050; RSQ = .990). Item coordinates are presented in appendix 5.4.
The close correspondence with the distribution shown in all treatments used (fig 5.2), indicates that the structure of non-manual treatment use is relatively independent of manual treatments used: significant interactions would have been reflected in a changed structure.

Fig 5.3 Non manual treatments used by osteopaths

2 dimensional Proximities Analysis: Euclidean distance model

n=74

Counselling 3.0
Advice 4.3
Exercise 3.7
Relaxation 3.1
Vitamins 2.6
Diet 3.1
Orthodox med. 2.8
Psychotherapy 1.8
Homoeopathy 2.0
Meditation 1.6
Yoga 2.0
Massage 3.3

Dimension 1
Moderate
Broad spectrum

Individual differences in non-manual treatment use
In order to determine whether there are meaningful differences in patterns of non-osteopathic treatments used by osteopaths, a K means cluster analysis was carried out. Very low frequency fringe (i.e., iridology, reflexology) and other specialist modes of intervention (i.e., minor surgery, hypnotherapy, acupuncture) were excluded.

The two cluster solution grouped osteopaths into one cluster of 22 who used all treatments to a lesser extent than the second cluster of 52 osteopaths.
The three cluster solution revealed a more qualitatively differentiated grouping, which suggests identified patterns do not simply reflect general response bias. The focal group used all methods to a lesser extent than other clusters. Methods used to a greater extent by the moderate/ body focused cluster have been coloured in blue. Methods used to a greater extent by the broad spectrum cluster, using a wider range of modalities of intervention, have been coloured in purple.

Table 5.5 K-means cluster analysis of non-manual treatments used

Analysis of variance of three cluster solution: non-manual treatments used (n=74)

<table>
<thead>
<tr>
<th></th>
<th>Foc’d Cl1 n=20</th>
<th>Mod Cl2 n=34</th>
<th>Br’d Clu’ms n=20</th>
<th>DF</th>
<th>Error MS</th>
<th>DF</th>
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<td>4.2</td>
<td>8.1</td>
<td>2</td>
<td>72</td>
<td>8.8</td>
<td>000*</td>
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<tr>
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<td>3.0</td>
<td>3.8</td>
<td>12.0</td>
<td>2</td>
<td>72</td>
<td>10.5</td>
<td>000*</td>
</tr>
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<td>Diet</td>
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<td>3.2</td>
<td>3.5</td>
<td>4.1</td>
<td>2</td>
<td>72</td>
<td>7.1</td>
<td>001*</td>
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<td>Exercises</td>
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<td>72</td>
<td>8.7</td>
<td>000*</td>
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<tr>
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<td>2</td>
<td>72</td>
<td>15.5</td>
<td>000*</td>
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<td>1.5</td>
<td>2.4</td>
<td>8.9</td>
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<td>72</td>
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<td>3.2</td>
<td>7.8</td>
<td>2</td>
<td>72</td>
<td>10.3</td>
<td>000*</td>
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<tr>
<td>Yoga</td>
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<td>2.0</td>
<td>2.7</td>
<td>11.2</td>
<td>2</td>
<td>72</td>
<td>11.1</td>
<td>000*</td>
</tr>
</tbody>
</table>

Bonferroni correction p=.004

Cluster 1: Focal (n=20)
The osteopaths in this cluster reported using significantly less of all nonosteopathic interventions than the other two clusters.

Cluster 2: Moderate (n=34)
The osteopaths in this cluster used significantly more advice, exercise and massage, and there was a nonsignificant trend towards more orthodox medicine, all of which are located towards the left of the space (fig 5.3).

Cluster 3: Broad spectrum (n=20)
The osteopaths in this cluster used significantly more counselling, homoeopathy, psychotherapy, meditation, vitamins and yoga than the other two clusters. Use of relaxation was equal to the moderate group, and other treatments were intermediate between the focal and moderate groups. In this group, breadth of treatment use is
associated with decreased use of advice, exercise and massage compared to the moderate group.

Group differences in treatment use correspond to the structural relationships between items in figs 5 and 6. The focal group used treatments from the "origin of the space" centre left; the moderate/physical groups extend towards the centre, making more frequent use of a wider range of methods, and the broad spectrum group tend to use the widest range treatments distributed across the whole plot.

**Age, gender, experience, nature of practice and non-manual cluster groups.**

A one way analysis of variance was carried out to evaluate the relationships between cluster membership and age, gender, experience, nature of practice. There were no significant differences in any of these factors associated with non-manual treatment use.

**Manual treatments used**

A 2 dimensional proximities analysis was carried out to identify relationships between manual treatments used (S.Stress = .068; RSQ = .983). Item co-ordinates are reported in appendix 5.4. The structure of relationships between methods (fig 5.4) is very similar to that represented in the plot of all methods used (fig 5.2). This suggests relationships between manual treatments used are relatively stable, and may correspond with, but are not substantially influenced by use of additional non-manual treatments.
Individual differences in manual treatment use
The data were analysed using K-means cluster analysis in order to determine whether different patterns of manual treatment use could be identified.

The two cluster solution identified one group (n=11) who used all manual treatments to significantly lesser extent, with the exception of heat and physical examination, which were used equally, and cranial osteopathy which was used more.
The three cluster solution identified a focal group using only manipulation, articulation, stretch and soft tissue techniques (n=3). The second group (n=14), used significantly more myo-fascial release, functional, physical examination and cranial osteopathy, suggesting that these outlying methods on the plot tend to be used together by the same osteopaths. The third group (n= 56) used significantly more of all treatments except the specialist osteopathic techniques characterising group 2.

A four cluster solution was required in order to break down the homogeneity of a large majority group who used more of everything more often than the smaller group (appendix 5). The four cluster solution identified an interpretable pattern of qualitatively different profiles of osteopathic practice, corresponding to concentric regions which have been mapped onto the plot (fig 7). The clusters were described using the same terms manual focal, manual moderate, manual broad and cranial.

Cluster 1: Manual/ focal (n=3)
Osteopaths in this cluster only reported using physical examination, manipulation, articulation, soft tissue techniques and stretching. These items are all closest to manipulation in fig 5.4, and presumably define the central elements of osteopathic treatment.

Cluster 2: Manual/ moderate (n=40)
Compared to cluster 1, osteopaths in cluster 2 reported significantly more frequent use of all treatments.

Cluster 3: Manual/ broad (n=22)
With the exception of cranial osteopathy, osteopaths in cluster 3 reported highest frequency of use of all interventions, particularly functional, myo-fascial release, muscle energy, inhibition, and distraction.

Cluster 4: Cranial (n=9)
Osteopaths in cluster 4 used all treatments less than osteopaths in clusters 2 and 3, except cranial osteopathy which is used most. This provides some indication of the reasons for the outlying status of cranial osteopathy on the plot (fig 5.4). Unlike the other outlying specialist manual techniques (e.g. myo-fascial release), cranial methods seem to be used in place of rather than in addition to other manual methods.

The regional structures are congruent with results obtained from a 4 cluster solution to a K-means cluster analysis, and have been mapped onto the plot. There is a
cumulative order throughout the first three regions, so that most osteopaths in cluster 2 use all methods in cluster 1; and most osteopaths in cluster 3 use all methods in clusters 1 and 2. This pattern breaks down in relation to use of cranial osteopathy, which is associated with decreased use of other manual techniques.

**Age, gender, experience, nature of practice and manual cluster groups.**

Independent sample t tests were carried out to evaluate the relationships between moderate and broad spectrum cluster membership and age, gender, experience, nature of practice. The focal and cranial groups were excluded due to small numbers.

There were no differences in cluster membership associated with age, gender, or experience. Results showed BSO lecturers were more likely to be included in the broad spectrum cluster (p=.05). There was also a non significant trend for clinic tutors to be included in the broad spectrum cluster (p=.06).

**Relationships between non-manual and manual cluster groups**

Cross tabulation of numbers of osteopaths in the non-manual and manual clusters are reported in Table 5.6. Chi² test shows a significant association between patterns of focal, moderate and broad spectrum use of manual and non-manual treatment methods. Most osteopaths use a moderate range of both manual and non-manual treatments.

**Table 5.6 Chi² Manual and non-manual treatment use: comparison of cluster groupings**

<table>
<thead>
<tr>
<th></th>
<th>Non-manual: focal (z)</th>
<th>Non-manual: moderate (z)</th>
<th>Non-manual broad (z)</th>
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</thead>
<tbody>
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<td>0 (0.81)</td>
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<tr>
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<td>13 (0.44)</td>
<td>21 (0.37)</td>
<td>6 (2.14)</td>
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<tr>
<td>Manual: broad</td>
<td>3 (1.45)</td>
<td>12 (0.35)</td>
<td>7 (0.18)</td>
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<tr>
<td>Manual: cranial</td>
<td>1 (0.84)</td>
<td>1 (2.37)</td>
<td>7 (8.57)</td>
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</table>

**Summary**

The main findings from this study can be considered in relation to the original research questions.

1. **What methods do osteopaths use in clinical practice?**

Osteopathic faculty at the BSO use predominantly specialist physical non-invasive methods and advice, associated with a wide range of other treatments, including advice, diet, exercise, orthodox medication, relaxation, counselling, vitamins, homoeopathy and
yoga, used by over half the sample; and herbal medicine, meditation and psychotherapy, used by over one third. Least frequently used treatments include other specialist modes of intervention, e.g. acupuncture, and "fringe" methods such as iridology.

2. Are there individual differences between osteopaths in use of treatment methods? The are indications of a cumulative order of treatment use, with all osteopaths using specialist manual methods, the majority additionally using a broader range of physical non-invasive methods and some using additionally a range of methods from other modes of intervention. This order does not seem to extend to cranial osteopathy, which is associated with reduced use of manipulative techniques, and increased use of other methods.

Individual differences were ordered from focal to broad spectrum. This was independent of physical or non-physical treatment modality: osteopaths in the focal cluster used a more limited range of both physical and non-physical interventions. Osteopaths in the moderate and broad spectrum clusters used progressively wider ranges of both physical and non-physical treatment methods. These findings are consistent with the "both physical and psychosocial" definition of holism.

Discussion
Results can be considered in relation to fastidious and pragmatic trials, and provide a basis for future recommendations.

Fastidious trials
The diversity of self-reported osteopathic practice provides grounds for caution about the validity of standardized manipulation in trials, and the value of focusing future research effort on increasingly rigorous definitions of intervention (Vickers & Zollman, 1999; Koes et al, 1996; Meade et al, 1995; Shekelle et al 1992). Current findings suggest that some manual methods, particularly functional, myo-fascial release and muscle energy (or proprioceptive neuromuscular facilitation to physiotherapists) tend to be used in the context of a wider range of manual and non-manual techniques. In view of the interaction between specific and non-specific aspects of treatment generally (e.g., Kleinjen & de Craen, 1996) and between pain treatment methods specifically (e.g., Gamsu, 1995), the effects of manipulation may be different when used in isolation e.g., in a fastidious controlled trial, than when used in a multi-modal context.
Fastidious trials may provide a valid indication of efficacy if there is a theoretical explanation for the proposed causal relationship between problem and method. Physical explanation of this relationship seems to have better face validity in acute than chronic pain, which may be associated with established patterns of biopsychosocial disability. However, Koes et al (1996) found only 12 of 36 trials reviewed restricted eligibility to acute pain patients. The terms of this causal relationship cannot be explained in biomedical terms if pain is interpreted as an icon e.g. low back pain or symbol e.g. somatoform pain disorder. Development of valid fastidious trials may therefore depend on identification of cases where there is a clear osteopathic or chiropractic rationale for expecting standardized manipulation to be effective. The current study demonstrates that such sub groups would involve qualitatively different treatment than the multi-method approach characteristic of osteopaths self reported practice. This limits the scope for generalisation.

The reflexive impact of focusing research effort on standardized techniques shared by different disciplines is an important consideration. To the extent that RCT evidence is specific to well defined method/problem combinations, and no discipline can claim a monopoly on those methods, it is in principle possible for demonstrably effective methods to be assimilated into conventional medical practice leaving the untested residue to CM. Manual therapies are increasingly considered collectively, and implicitly identified with manipulative techniques, despite intra and inter disciplinary differences (Vickers & Zollman, 1999). This trend is implicated in concerns that the definition of osteopathy has been changed in order to gain statutory registration in the UK, by contrast with Australia where this was achieved without osteopaths "hiding how they think and consequently practice their craft" (Cooper, 1999). Current findings indicate a considerable discrepancy between the way in which osteopaths report practising their craft, and the definition of intervention in fastidious trials.

Pragmatic trials
Pragmatic trials are compatible with an interactive understanding of the relationship between specific and non-specific effects, which may generate a unique total outcome (Uhlenhuth, et al, 1966), and may be the most appropriate methodology for evaluation of multi-modal interventions such as pain management programs and osteopathy. Chronic pain patients consulting manual therapists are likely to be less disabled than those eligible for
specialist pain clinics. However, in view of the potential overlap between these populations (chapter 4); the evidence from dismantling studies (Sachs et al, 1990; Altmeier et al, 1992; Burke et al, 1994 Alaranta et al, 1994; Mellin et al, 1993); and the recommendation that CM should be evaluated using the same standards of evidence as conventional treatment (e.g., Ernst, 1996; Gruman, 1995), the use of pragmatic trials in manual therapy seems conceptually and empirically justified.

Pragmatic trials aim to mimic real world conditions in order to evaluate effectiveness. The range of permitted methods in pragmatic trials to date (analgesics; postural advice; heat, rest, routine exercise, back exercises, ergonomic instructions, mobilisation) seem to provide a reasonable approximation of practice for osteopaths in the "moderate" non-manual treatment group. This was the modal form of practice, and unrelated to demographic characteristics or experience, though osteopaths in the "moderate" group also made considerable use of diet, massage, relaxation and vitamins, which would have been excluded.

The range of permitted interventions does not seem to provide a valid approximation of practice for osteopaths in the broad spectrum non-manual group. This was associated with decreased use of the physical non-invasive permitted methods (advice, exercise, massage), and more extensive use of counselling, psychotherapy, diet, vitamins, homoeopathy, meditation and yoga.

Pragmatic trials of osteopathy may provide a more valid indication of clinical effectiveness, but do not contribute to understanding of treatment mechanism. This is an important limitation given that understanding how and why treatment works provides a basis for improving treatment, and understanding health and illness (Gruman, 1995, p69). Interpretation of trial results also depends partly on availability of a plausible treatment mechanism. For example, authors of a meta-analyses of 107 (Kleijnen et al, 1991) and 89 (Linde et al, 1997) RCT's of homoeopathy concluded that there is no evidence outcome is due to placebo, but recommended further fastidious controlled trials. Kaptchuk (1996) a Harvard professor of medicine, suggests that the evidence would be adequate to establish a treatment grounded in conventional medical science, but may be inadequate in the context of the researchers low prior belief that homoeopathy could be effective, due to the lack of a biomedically plausible treatment mechanism.

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Conversely, interactive theories of the relationships between treatment components have been proposed in both CM (e.g. Pietroni, 1996; Taylor, 1994; Launso, 1994; Reason, 1988) and conventional medicine (e.g. Kleijnen & de Craen, 1996; White et al, 1985). Interactive theories are compatible with iconic and symbolic interpretation of pain, which provide a rationale for multi-modal intervention; and with the empirical diversity of osteopathic practice.

Current findings indicate that there are differences between osteopaths in methods used, and previous research suggests range of core methods used is a cross-disciplinary distinction in CM. Evaluation of treatment methods used in pragmatic trials could contribute towards development of more interpretable pragmatic trials by identifying sources of outcome variance which are not attributable to between group differences, e.g. cross-disciplinary differences in use of core methods, and provide a basis for hypotheses about mechanism.

There is some tension between the rationale for pragmatic trials, e.g. to mimic real world conditions, and restriction of the range of methods used, given the diversity of osteopathic practice. An alternative research strategy would be to explore the nature and consequences of naturally occurring practice variation within and between disciplines involved in pain management.

**Disciplinary boundaries**

Current findings provide some empirical support for suggestion that use of multiple intervention is a characteristic feature of holistic treatment (Pietroni, 1996; Launso, 1994; Reason, 1988). The availability of multiple methods in a practitioner's treatment repertoire implies a correspondingly broad assessment framework for clinical decision making about what to use when. This is consistent with the flexibility of osteopathic assessment, and symbolic or iconic problem interpretation. Use of multiple methods is not unique to CM, and is also a feature of pain management by multidisciplinary pain clinics, and the practice of individual health professionals. The current focus on relationships between treatments used raises questions about the nature and consequences of multi-modal treatment provision by individual practitioners, disciplines and specialist teams, and the boundaries between disciplines providing those services.
The question of disciplinary boundaries has been considered in relation to psychological therapies, as virtually all health professionals are engaged at some level with the patient’s experience and behaviour. A survey of 78 NHS health professionals, most of whom were nurses, found an average of 10 psychological therapies used by each respondent, range 1-19 (Cureton & Newnes, 1995). In terms of the proposed two facet structure of treatment use, all methods were based on a psychological modality; core (or generic) treatments were most frequently used (counselling 93%; anxiety management 79%; stress management 76%; relaxation therapy 73%) and specialist methods least frequently used (psychodrama, psychoanalysis, HIV counselling, gestalt and cognitive analytic therapy each used by 9%). Low utilisation of specialist methods was attributed to time and money required to acquire the relevant skills and knowledge base. The authors recommend that this diversity of psychological practice should be acknowledged, and advocate a more integrated approach to training, support and supervision (Cureton & Newnes, 1995, p10).

Similar questions could in principle be raised by other disciplines about the relationship between methods which require specialist expertise e.g. from a dietician or physiotherapist, and those which could with minimal training be used by other disciplines e.g. advice about eating a more balanced diet and encouragement to exercise. The boundary between those methods which are used by all practitioners e.g. communication skills; those which can be included in addition to discipline specific skills e.g. meditation, and those which require accredited specialist training is increasingly clarified by professionalisation, though is currently not clearly defined. There is little evidence about cross disciplinary use of non-psychological methods though use of relaxation, meditation and lifestyle change has been identified as one feature distinguishing holistic from conventional medical practitioners in America (Goldstein, 1987). In the UK, many GP's utilize CM within their own practice (Wharton & Lewith, 1986), with 31% claiming a working knowledge of at least one form of CM, and 42% wanting further training (Anderson & Anderson, 1987). Little et al (1996) found of their sample of 166 general practitioners, manipulation was used by 20% and acupuncture by 6% to manage LBP. The informal diversity of practice within the NHS is reflected in a patient self help book, which suggests that healing skills and CM methods are used but not formally advocated.
by many conventional health professionals, and recommends that patients actively enquire into availability during hospital stays (Fulder, 1991, p58).

Use of multi-modal intervention by individual practitioners may provide a coherent approach within the context of an ongoing therapeutic relationship, which is a potent aspect of any form of intervention (e.g. Tresolini, 1994; Hovarth & Luborsky, 1993), is increasingly compromised by organisational changes in conventional medicine (e.g. Porter & Gorman, 1989; Tresolini, 1994; Rosch & Kearney, 1985) and has been implicated in demand for CM (e.g. Furnham et al, 1995; Taylor, 1994). The therapeutic relationship is theoretically central to most forms of psychotherapy (e.g. Hovarth & Luborsky, 1993), and is increasingly a focus of attention in medicine (e.g. Ong et al, 1995). The potential advantage of multiple method provision within the context of an ongoing therapeutic relationship is offset by the limited specialist knowledge available to an individual practitioner (Hazard, 1995, p2345).

Most CM and osteopathic practitioners work in private practice. Provided individual practitioners have appropriate training and methods are not subject to statutory regulation, this may provide scope for eclectic treatment use with minimal risk of encroaching on the territory of professional colleagues, though without the benefit of the specialist expertise in different modes of intervention represented by different disciplines. This contrasts with the NHS, where disciplinary boundaries are much more clearly defined. Relationships between methods used by different disciplines are mediated by the organisational structure of service provision, or integrated in the practice of multidisciplinary teams.

Multidisciplinary teams provide a rich resource of specialist knowledge and comprehensive, integrated service provision for patients with chronic pain disability (Sullivan, 1993; Aronoff, & McAlary, 1992). Pain management programs are part of a growing emphasis on multidisciplinary chronic disease management in conventional medicine (e.g. Von Korff et al, 1997). This has begun to develop a distinct identity based on recognition that similar strategies can be equally effective for different conditions, for example fitness programs have produced positive outcomes in patients with chronic back pain (e.g., Frost et al, 1995) and chronic fatigue syndrome (e.g., Fulcher & White, 1997). In view of evidence that LBP pain is a recurrent problem with high levels of relapse, it
has been recommended that all intervention should be directed towards prevention of relapse rather than relief of single episodes (Van den Hoogen et al, 1998). Chronic disease management involves collaborative partnership with patients in order to reduce hospitalisation and enhance pleasurable and independent living (Lorig et al, 1999), effective self regulation (Clark & Gong, 2000) and self efficacy (e.g. Clark & Dodge, 1999).

The advantages of multidisciplinary management are widely recognized (e.g. Wagner, 1998), though some difficulties have been identified. In addition to organisational and administrative complexity (Pritchard & Hughes, 1995) and cost (Anooshian et al, 1999), the need to negotiate an integrated approach between different perspectives in the context of unequal power distribution has been described as challenging as well as stimulating (e.g. Gelsthorne, 1999; Reason, 1990). To the extent that treatment decisions are practitioner-led, the coherence of a team approach may restrict the patient's freedom of choice between alternatives, and the lack of clearly defined boundaries may risk exposing the patient to unwanted interventions (Kugelman, 1998). A range of initiatives have been developed to resolve these difficulties (e.g. Von Korff et al, 1997).

Current evidence of the diversity of osteopathic practice suggests a closer analogy with multimodal chronic disease management in conventional medicine, than with biomedical treatment of physical pathology. Exploration of the range of methods used by individual practitioners and teams, and the consequences for patients, would contribute towards development of osteopathically valid research. This strategy would be consistent with recommendations that clinical guidelines and educational provision should be informed by research into routine management of back pain (Little et al, 1996), and current emphasis on audit and clinical effectiveness rather than efficacy in controlled trials (Elliston, 1996).

**Summary and conclusions**
The first study (chapter 4) demonstrated that osteopaths report different treatment intentions in indexical, iconic and symbolic patient subgroups. No information was obtained about how these intentions were implemented, and findings could have been due to individual characteristics of the small sample of practitioners, rather than the holistic
explanatory framework. The current study was carried out to address these limitations by evaluating the methods used by a larger sample of osteopaths. In this context, holism was defined in terms of use of psychosocial methods in addition to, but not as an alternative to, physical methods.

Results indicate a diverse range of self-reported treatment use in osteopaths, including both physical and psychosocial methods. A broadly quantitative order underlying individual differences in treatment use was identified. Cluster analysis identified a focal, moderate and broad spectrum group, which were differentiated by an increasingly extensive use of both physical and psychosocial methods. This is consistent with the definition of holism, and provides some empirical support for osteopaths claim to be based on a holistic explanatory framework. The identified order did not extend to cranial osteopaths in the current sample.

These findings provide grounds for caution about recommendations for future fastidious trials of manipulation, using more standardized manipulation, and more rigorous exclusion of non-specific components. Valid trials would require a clear osteopathic rationale for the proposed causal relationship between problem and method. Current findings suggest this form of treatment is qualitatively different from the self-reported diversity of routine osteopathic practice.

Pragmatic trials are compatible with interactive understanding of specific and non-specific treatment components. Trials to date provide a reasonable approximation of osteopathic practice in the modal moderate group, but not in the broad spectrum or cranial groups. Use of core methods such as diet, exercise, relaxation meditation and counselling is a cross disciplinary distinction. Evaluation of methods used by individual practitioners in future pragmatic trials could provide a basis for interpretation of outcome variance not due to between group differences, and hypotheses about treatment mechanism.

Construction of treatment in terms of separable specific and non-specific components is applicable to treatment methods which aim to cure identified physical pathology. Interactive models are more applicable to intervention based on iconic or symbolic problem interpretation. This is compatible with the empirical diversity of osteopathy, and with multi-modal chronic disease management in conventional medicine.
Exploratory research into the methods used in routine practice by individuals and teams, and the consequences for patients could inform theoretical understanding and practice improvements in both osteopathy and conventional medicine. The question of validity, i.e., whether practitioners actually use the reported methods, could in principle be assessed by observation, though this could be intrusive for patients and practitioners; inclusion of training and qualifications in surveys of self reported treatment use; and patient centred research into range of methods accessed, and consequences.

Use of a wide range of methods cannot be equated with holistic orientation independently of other treatment components (e.g. Pietroni, 1996; Taylor, 1994; Launo, 1994; Reason, 1988). The treatment methods within the repertoire of any practitioner or discipline may interact with other facets of the therapeutic process such as privileging the patients experience and the therapeutic relationship, which jointly constitute the intervention so "there are no such things as holistic therapies, only holistic ways of understanding a person with a view to intervening therapeutically" (Tyreman, 1992, p2). The current study did not take account of the osteopaths understanding of treatment mechanism or expected consequences of intervention. This provides the focus for the next study.
CHAPTER 5 PART 2
OSTEOPATHS PERCEPTION OF TREATMENT EFFECTS

Introduction
Previous studies have provided some empirical basis for questioning the osteopathic validity of problem definition and intervention in trials of manipulation, and similar questions can be raised about the distinction between non-specific and specific treatment components. The distinction is theory dependent, so the way in which treatment mechanism is explained has substantive implications for outcome research strategy. The current study was therefore carried out to evaluate osteopaths perception of treatment mechanism. The domain was defined using an adapted mapping sentence of adjustive behaviour which includes both well-being and coping (Guttman & Levy, 1982), and conceptualised in terms of osteopaths perception of the way in which treatment helps patients. Structuples from the mapping sentence were used to generate items for the Treatment Effects Questionnaire, which was administered to the same sample of BSO faculty members.

In terms of the superordinate mapping sentence, the population is osteopaths (facet A1); and the research questions were defined in terms of the perceived relationship between modality (facet B 1-5) and of treatment outcome (facet C3). Holism in this context is defined as perception of psychosocial treatment effects in addition to, but not as an alternative to physical treatment effects.

Non-specifics in fastidious trials: comparison with placebo
From a theoretical perspective, non-specific treatment components are unidentified causes of outcome variance when examined from the perspective of a given explanatory framework (Grunbaum, 1985, p431); disciplinary matrix (Brody, 1985) or observer (Skevington, 1995, p261; Plotkin, 1985). Grunbaum has recommended that the definition of placebo should be reformulated to make explicit the intrinsic relationship between placebo or non-specific treatment components and the theoretical framework of the speaker.

The theory that treatment is constituted by specific physical mechanism and non-specifics has been seen as a reflection of a dualistic orientation (White, Tursky & Schwarz, 1985) and the dominance of a biological reductionist matrix (Brody, 1985).
From a different theoretical perspective, "non-specific" aspects of treatment have been conceptualised as an essential component of all forms of healing (Brody, 1985; Adler & Hammett, 1973), and as an indication of the potential for self-healing (Borkovec, 1985). Taylor (1994) has argued that self-healing can be influenced in different ways by different forms of treatment, and much of the available knowledge of this potential is misnamed and buried under the "X" marked "placebo". Some medical researchers have advocated an explicitly holistic approach such as general systems theory to address the complex interactions between biological, psychological and social influences on health and illness, and the emergent properties which may result (White et al, 1985).

In fastidious trials, the specific method under investigation reciprocally defines all other aspects of the treatment process as non-specific, including expectation, persuasion, anticipation, belief, faith, suggestion, cultural beliefs, the therapeutic relationship dynamics, imagination and conditioning (Kaptchuk et al, 1996, p43). Non-specific components are equalized by randomisation, minimized by blinding and considered in much the same way as error variance, without further analysis. This model of treatment is implied in endorsement of fastidious trials by CM as the appropriate means to refute the widespread claim (Box 5.1) that CM methods may be inadvertent placebos, which are falsely believed to be effective (Sartorius, 1985).

**Box 5.1 The placebo allegation and CM**
From Taylor, 1994, p54
Placebo - connotations of psychiatry
Oh - emotional tone
Isn't - knowledge of what it is
It - homogenous
Just - only- dismissive
A - singular
Placebo response- what is it?

If patient choice, motivation and experience are understood as independent non-specific factors, they can make little substantive contribution to outcome evaluation, and must be excluded in order to evaluate efficacy (e.g., Ernst & Assendelft, 1998). From this perspective, trials have been criticized for failure to adequately exclude non-specific factors, including inadequate randomisation procedures, blinding in that pain and
disability outcome measures are assessed by patients (e.g., Vickers & Zollman, 1999; Koes et al, 1996) and description of drop-outs (e.g., Koes et al, 1996).

Manipulation is one of a range of interventions, including surgery and psychotherapy, which cannot be provided in placebo or inactive form without the practitioner’s knowledge. This is a serious threat to the validity of the placebo control, given substantial evidence that outcome in trials is positively associated with practitioners’ belief in the strength of the drug being tested (Miller, 1989), and patient expectations of change (Turner et al, 1980). Practitioner confidence in treatment has been proposed as an explanation for the well-established finding that new treatments tend to be maximally effective when first introduced, followed by a steady decline (Melzack & Wall, 1996, p287). In order to minimize expectancy effects, and obtain meaningful results from trials of interventions which cannot be blinded Critelli & Neumann (1984) have proposed that control treatments should be equivalent to experimental treatment in terms of induced expectancy of and demand for improvement; credibility of rationale and procedures; practitioner’s attention, enthusiasm, effort, perceived belief in treatment procedures and commitment to client improvement. These requirements are rarely met in trials of psychotherapy (Critelli & Neumann, 1984, p38), and have not been adequately fulfilled in trials of manipulation. There is some debate about the most appropriate placebo control treatment though the most commonly used have been detuned short wave diathermy (e.g. Gibson, 1985); sham or non-forceful manipulation (e.g. Ongley, 1987) and exercise (e.g. MacDonald & Bell, 1990). These control groups are not blind to the practitioner, so the role of expectations is not excluded. Patients' perception of the credibility of control treatments was not evaluated.

Patient motivation has also been identified as a non-specific compounding factor. For example, Meade et al (1995) found patients referred to chiropractic by chiropractors showed greater improvements, and were significantly more likely to say treatment had been helpful, than those referred from hospitals. This has led to criticism that patients recruited from chiropractors were self-selected on the basis of belief that chiropractic would be effective (Greenough, 1995), despite the fact that the randomisation procedure excluded a disproportionate number of patients with positive attitudes towards chiropractic: 28% of patients presenting to chiropractors, and 80% of patients presenting to hospitals.
agreed to randomisation, and those who refused were not followed up (Meade et al, 1995). The potency of randomisation procedure is not unique to manual therapy. Kunz & Oxman (1998) have coined the phrase the "unpredictability paradox" to describe their finding that outcome variations associated with adequately concealed vs. inadequate randomisation may be larger than treatment effect size, and that the direction of these effects is unpredictable. The authors conclude use of unpredictable randomisation procedures is the best protection against unpredictability of bias in inadequately randomised trials. Randomisation may also be practically impossible if an unrepresentative sample of practitioners recruit patients into trials, or decipher randomisation procedure to ensure their patients are recruited into the active treatment group (Black, 1996).

The attempt to exclude non-specifics has led to the recommendation that the effects of touch could be separated from the specific mechanism of manipulation by use of naxalone to inhibit production of endogenous opiates (Curtis, 1988). This strategy does not seem to have been implemented, though attempts have been made to blind patients to non-specific differences between manipulation and control treatments by using Diazepam to induce amnesia (Ongley et al, 1987; Sloop et al, 1982). The difficulty of distinguishing between technique concerned with the body as biomechanical object, and touch concerned with the experiential body reflects the interaction between specific physical and non-specific psychosocial components of treatment.

If the distinction between specific and non-specific components is theory dependent, valid criteria for inclusion or exclusion of treatment components should be based on osteopaths understanding of treatment process and outcome. Factors such as expectations and motivation are non-specific if treatment process is understood in terms of physical mechanism; but specific if treatment process is understood in terms of facilitating change in patients' experience, attitudes and lifestyle. The extent to which treatment is oriented towards using particular methods to cure physical problems, or active engagement of the patient to promote health, is therefore of direct relevance to the task of distinguishing between specific and non-specific treatment components.

Health vs. problem orientation
The distinction between problem and health focused intervention is a theoretically important aspect of treatment process and outcome evaluation. Health promotion has played an
increasingly important role in conventional medicine, in addition to treatment of disease, management of illness and reduction of risk factors. The WHO (1986: p1) has defined health promotion as:

"the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, emotional and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy lifestyles to well-being".

There has been a corresponding expansion of health-related psychological theory and practice. By contrast with the problem focused orientation towards coping and disease prevention, which have been associated with negative affect (Millar & Millar, 1995) and medical fearfulness (Muris & Van Zuuren, 1992), Van Zuuren & Dooper (1999) found all reasons given by a non-clinical adult sample for engaging in health promotion behaviours were pleasant, including relaxation, laughter and stress reduction. Health promotion activities have been classified as approach strivings towards a desired outcome (e.g. jogging to lose weight), which are largely independent of problem focused coping (Ingledew et al, 1996) and associated with greater psychological well-being than avoidance strivings (Coats et al, 1996). Van Zuren & Dooper (1999) recommend that health education should focus on encouraging approach strivings towards health. There has been a corresponding interest in developing measures of positive health and well-being (Bowling, 1995; Jenkins, 1992) to complement the predominant emphasis on physical and psychological pathology. There is some common ground between the emerging emphasis on health promotion in conventional medicine, and CM, which is characterized by the richness of its language about health (Levine, 1994; Power, 1991; Fulder, 1998).

The osteopathic orientation towards health and facilitating self direction can be traced to its founder, Still, who criticized the allopathic search for disease, and removal of its causative agent: "anyone can find disease.. to find health should be the object" (Still, 1899, p28). This is reflected in Korr's contrast between the view that a man is sick because he has an ulcer which needs to be treated, and the osteopathic view that

"the man has an ulcer because he has not been well.. The more whole I become, the better I live, the better I nourish myself, the better my occupational conditions, the better
the physical environment etc. the more competent my health care system becomes" (Korr, 1995, p3).

The self is understood in functional terms as the relationship between the multifaceted "I" and the "not I", or the world beyond the self, and health is understood as a measure of the quality of that relationship. This relational view is expressed in Tyremans' description of health in terms of relationships between e.g., gravity and the musculoskeletal system, pathogenic organisms and the immune system, and activity and the cardiovascular system (Tyreman, 1992b, p1).

The functional concept of health as adequacy of capabilities relative to goals is not unique to osteopathy (e.g. Nordenfeldt, 1986), and has been advocated as a humanistic approach to management of CLBP in physiotherapy, with the choice of technical method based on objective findings, and overall treatment strategy planned on the basis of the patients' goals and ability to act in relation to their social context (Gronblom-Lundstrom, 1992). However, emphasis on the possible adaptive function of illness, distress or disturbance does seem specific to CM and holistic medicine. This is a central factor differentiating iconic (coping with problem) from symbolic (understanding personal meaning of symptom). The distinction between "negative" problems and "positive" resources is less clear when both may be seen as expressions of the functioning of the whole system:

"When we react against a bacterium with inflammation; when we grieve over the death of someone close to us; when we suffer pain from overstraining while lifting, we respond healthily. There are numerous conditions that we perceive in negative way, but which are healthy responses of our body to potential threats. Not to get a sore throat, not to feel anything after the death of a loved one; not to suffer pain while overstraining tissues-these are the unhealthy responses whether or not they produce illness" (Tyreman, 1992, p1).

Distress and depression are not seen failure through weakness to "remain cheerful and optimistic in the face of misfortune" (Lazarus, 1984, p126) or psychopathology to be cured by treatment, but as part of a potentially adaptive response to pain, disruption and loss. This attitude may be reinforced by the holistic view of the embodied self, so pain and illness constitute a fundamental disruption of the self, rather than an impediment to the instrumental context of action. The aim of treatment is to improve health by
facilitating change in the factors that contribute towards the inadequate or imbalanced relationship between the person and their environment (Latey, 1991). This theoretical orientation towards health suggests that osteopathy cannot adequately be understood in terms of causal relationship between physical problem, method and outcome, and that psychosocial factors such as motivation and expectancy are active treatment components. However, there is little evidence concerning the way in which osteopaths understand the relationship between physical and psychosocial components of treatment in routine practice. The current study was therefore designed to evaluate osteopaths' perception of treatment process and outcome.

The research strategy
Within the framework of the mapping sentence, the domain can be defined in terms of osteopaths' (Facet A1) perception of the relationship between modality (B1-5) and outcome (C3). In order to carry out a systematic exploration, a more detailed mapping sentence was required. The strategy adopted was to extend the superordinate mapping sentence using facets derived from Guttman & Levy's model of coping and well-being (1982).

Method
The TEQ was developed for the purposes of the current study to evaluate relationships between physical and psychosocial aspects of the treatment process and on the basis of Guttman and Levy's (1982) definition of adjustive behaviour (box 5.2). This mapping sentence integrates well-being, defined as cognitive, affective or instrumental satisfaction with life area (Levy & Guttman, 1975), and coping defined as strength of cognitive, affective or instrumental reaction against a possible negative state in a particular life area (Levy & Guttman, 1975) within a common frame of reference. The transactional approach of defining actions in terms of functions has made an important contribution to understanding and measurement of coping (Ferguson & Cox, 1997). This approach was used in the TEQ to define treatment components in terms of effects on patients.
Box 5.2: A mapping sentence for observations of adjustive behaviour
(Levy & Guttman, 1975, p8)

The extent to which respondent x is

[Facet 1: 1.1 satisfied; 1.2 uneasy; 1.3 motivated, 1.4 able to try, 1.5 likely] to

[Facet 2: 2.1 be, 2.2 continue, 2.3 attack, 2.4 accommodate, 2.5 defend] with respect to some

[Facet 3: 3.1 problematic, 3.2 unspecified] condition of his

[Facet 4: 4.1 primary, 4.2 secondary, 4.3 unspecified] environment in life area

[Facet 5: 5.1 health, 5.2 work, 5.3 economy, 5.4 social, 5.5 leisure, 5.6 residence, 5.7 education, 5.8 unspecified] - Extent

[Facet 6: common range]

The mapping sentence of adjustive behaviour was adapted to evaluate the way in which treatment facilitates adjustive behaviour by making the following changes.

Facet 1 This was excluded as irrelevant to practitioners perception of treatment effects.

Facet 2: This was labelled directive. The elements "be" (2.1), "continue" (2.2) and "accommodate" (2.4) were compounded to include all adjectives emphasising acceptance of or adjustment to the situation. This directive is primarily associated with coping and iconic interpretation.

The element "attack" (2.3) was extended to include overcoming, correcting or removing the problem. This is primarily associated with cure and indexical interpretation.

The element "defend" (2.5) was extended to include protection or enhancing strength. This takes account of prevention and promotion of health and well-being.

A further element was included to denote explanation, understanding and finding meaning. This is primarily associated with symbolic interpretation.

Facet 3 This was labelled target. The elements "health" and "self" were added to include interventions directed towards the person.

Facet 4 This was excluded as the importance of health and well-being to the patient is not directly relevant to treatment process.

Facet 5 This was unnecessary as the domain is restricted to element 1 (health).

The common range was defined as osteopaths' global judgement of the frequency with which each treatment effect was observed in routine practice. The TEQ structure is described by the mapping sentence: The extent to which practitioner (x) perceives his or her treatment as helping patients to adopt (directive/ type of approach) using (modality/ facet of the self) in relation to (target) common range (almost always- never).
Mapping sentence for the Treatment Effects Questionnaire
The extent to which practitioner (x) perceives his or her treatment as helping patients to:

**Facet A: directive**
A1 Change, cure, resolve, fight, confront.
A2 Accommodate to, adjust, adapt, cope with, continue, accept.
A3 Strengthen, improve, defend against, protect, restore.
A4 Understand, explore, recognize, find meaning or purpose.

**Using facet B: modality**
B1 Physical, body.
B2 Behavioural, lifestyle.
B3 Cognitive, attitudes.
B4 Affective, feelings.
B5 Spirituality, energy.
B6 Unspecified.

**in relation to facet C: target.**
C1 Problems/illness
C2 Well-being/health
C3 Self/unspecified

**Common range facet D: extent** D1 Never - D5 Almost always.

The questionnaire was constructed by developing items corresponding to a sample of structuples, containing one element from each facet. For example, question 1 (how often does osteopathic treatment help the patient to understand their illness") corresponds to A4: directive - understand; B1: modality - physical; C1: target - problems. The facet structure of each questionnaire item, or structuple, is reported in column 1 of table 5.7.

The rationale for the TEQ was to develop a theoretical model of treatment effects potentially applicable to all health care professions. An intrinsic part of professional practice is the need to translate specialist knowledge into ordinary language in order to negotiate contracts with potential clients and communicate with other disciplines. All questions were therefore framed in ordinary language and discipline-specific terminology was avoided in order to maximize the scope for cross-disciplinary application and contribute towards the development of a cumulative meta-theory of the treatment process (Canter, 1987). Flexibility was used in phrasing items to prevent undue repetition and rigidity. In relation to the TEQ, holistic orientation can be defined in terms of perception of psychosocial effects in addition to physical effects.
RESULTS

Perceived frequency of treatment effects

Table 5.7 lists data obtained from the BSO osteopaths and a previous heterogeneous sample of CM practitioners. Column 1 describes the facet structure of each item, the first digit referring to element of facet A, the second to element of facet B and the third to element of facet C in the mapping sentence (Box 5.1).

The ratings are not strictly comparable as the common range was ordered from "almost always" to "not at all" in the pilot study of CM practitioners, and reversed to "not at all" to "almost always" on the basis of feedback received. Inverse scores have been used for the CM practitioners so that for both a higher score indicates greater use. However, as the order of the common range may have had an influence on response set, the relationships between variables are more directly comparable than absolute mean scores. The table has been ordered on the basis of frequencies reported by osteopaths.

Restoring physical well-being was one of the three most commonly reported treatment effects by both osteopaths and CM practitioners. For CM practitioners this was rated equal to changing health attitudes and enhancing control over health; for osteopaths with helping the patient to understand illness, and overcoming physical symptoms. Though physical well-being is rated as important by both groups, the CM practitioners' high ratings of health-related items contrasts with the osteopaths' ratings of symptom relief and understanding illness, which reinforces the validity of a focus on problem interpretation.

Five of the most common eight structuples in the osteopath sample are targeted at the problem or illness (C1), though after this there is no apparent order between the three elements of the "target" facet.

At the other end of the spectrum, "cure illness" was rated as the least commonly observed treatment effect by CM practitioners, and among the least common by osteopaths. Items including a spiritual element were least frequently reported treatment effects by both groups. Frequency ratings suggest an order within psychosocial elements of facet A (modality), with cognitive and behavioural most common, followed by emotional and spiritual. The physical items are more heterogeneous, and seem to interact with the directive facet to a greater extent.
Table 5.7 The Treatment Effects Questionnaire: Osteopaths and CM practitioners means and (standard deviations)

<table>
<thead>
<tr>
<th>Item</th>
<th>Facet</th>
<th>Osteo n=74</th>
<th>Comp n=118</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand their illness</td>
<td>411</td>
<td>4.0 (0.7)</td>
<td>2.7 (1.0)</td>
</tr>
<tr>
<td>Restore physical well-being</td>
<td>312</td>
<td>4.0 (0.8)</td>
<td>2.8 (1.1)</td>
</tr>
<tr>
<td>Overcome physical symptoms</td>
<td>111</td>
<td>4.0 (0.8)</td>
<td>2.7 (1.0)</td>
</tr>
<tr>
<td>Feel hopeful about recovery</td>
<td>333</td>
<td>3.9 (0.8)</td>
<td>2.6 (1.0)</td>
</tr>
<tr>
<td>Cope with practical problems</td>
<td>221</td>
<td>3.9 (0.7)</td>
<td>2.4 (0.9)</td>
</tr>
<tr>
<td>Physically fight illness</td>
<td>111</td>
<td>3.7 (0.8)</td>
<td>2.4 (1.1)</td>
</tr>
<tr>
<td>Feel hopeful about self</td>
<td>343</td>
<td>3.7 (0.8)</td>
<td>2.5 (0.9)</td>
</tr>
<tr>
<td>Resolve practical problems</td>
<td>121</td>
<td>3.5 (0.8)</td>
<td>2.3 (0.9)</td>
</tr>
<tr>
<td>Understand self better</td>
<td>463</td>
<td>3.5 (0.8)</td>
<td>2.5 (0.9)</td>
</tr>
<tr>
<td>Change attitudes to health</td>
<td>132</td>
<td>3.5 (0.8)</td>
<td>2.8 (0.9)</td>
</tr>
<tr>
<td>Feel in control of health</td>
<td>342</td>
<td>3.4 (0.8)</td>
<td>2.8 (0.9)</td>
</tr>
<tr>
<td>Trust own judgement</td>
<td>233</td>
<td>3.3 (0.8)</td>
<td>2.4 (0.9)</td>
</tr>
<tr>
<td>Restore emotional well-being</td>
<td>342</td>
<td>3.3 (0.9)</td>
<td>2.7 (1.0)</td>
</tr>
<tr>
<td>Protect against illness</td>
<td>311</td>
<td>3.3 (0.9)</td>
<td>2.7 (1.0)</td>
</tr>
<tr>
<td>Overcome unhealthy lifestyle</td>
<td>121</td>
<td>3.3 (0.8)</td>
<td>2.6 (1.0)</td>
</tr>
<tr>
<td>Accept self more</td>
<td>233</td>
<td>3.2 (1.0)</td>
<td>2.4 (1.0)</td>
</tr>
<tr>
<td>Change attitudes to self</td>
<td>133</td>
<td>3.2 (0.7)</td>
<td>2.7 (1.0)</td>
</tr>
<tr>
<td>Recognize emotional problems</td>
<td>441</td>
<td>3.2 (0.8)</td>
<td>2.5 (0.9)</td>
</tr>
<tr>
<td>Adjust to illness</td>
<td>211</td>
<td>3.1 (0.7)</td>
<td>2.1 (0.9)</td>
</tr>
<tr>
<td>Lead well balanced lifestyle</td>
<td>322</td>
<td>3.1 (0.9)</td>
<td>2.6 (0.9)</td>
</tr>
<tr>
<td>Stick to healthy lifestyle</td>
<td>222</td>
<td>3.1 (0.8)</td>
<td>2.5 (0.9)</td>
</tr>
<tr>
<td>Express real feelings</td>
<td>243</td>
<td>3.0 (0.9)</td>
<td>2.4 (0.9)</td>
</tr>
<tr>
<td>Resolve emotional problems</td>
<td>141</td>
<td>2.9 (0.8)</td>
<td>2.2 (0.9)</td>
</tr>
<tr>
<td>Face real feelings</td>
<td>443</td>
<td>2.9 (0.9)</td>
<td>2.3 (0.9)</td>
</tr>
<tr>
<td>Accept illness</td>
<td>211</td>
<td>2.8 (0.8)</td>
<td>1.9 (1.0)</td>
</tr>
<tr>
<td>Cure illness</td>
<td>111</td>
<td>2.8 (1.1)</td>
<td>2.1 (1.0)</td>
</tr>
<tr>
<td>Correct energy imbalances</td>
<td>151</td>
<td>2.7 (1.3)</td>
<td>2.5 (1.1)</td>
</tr>
<tr>
<td>Spiritually heal self</td>
<td>153</td>
<td>2.2 (1.0)</td>
<td>2.1 (1.0)</td>
</tr>
<tr>
<td>Spiritually accept illness</td>
<td>251</td>
<td>2.2 (1.0)</td>
<td>2.3 (1.0)</td>
</tr>
<tr>
<td>Spiritually accept self</td>
<td>253</td>
<td>2.2 (1.0)</td>
<td>2.2 (1.0)</td>
</tr>
</tbody>
</table>

Age, gender, experience and perception of treatment effects

Some differences in osteopaths perception of treatment effects are related to age, sex and years of clinical experience.

Age

73% (n=57) of the sample were under 40; and 23% (n=17) between 40 and 60. Osteopaths aged 40 and under were more likely to report that their treatment helped patients to express their real feelings (p=.009), trust their own judgement (p=.023) and spiritually accept illness (p=.023).
Gender
73.0% (n=54) of the sample were male, and 27% (n=20) female. Women were significantly more likely to say that their treatment helped overcome physical symptoms (p=.004), protect against illness (p=.053) and help the patient to feel in control of their health (p=.054). Men were more likely to say that treatment helped patients spiritually accept illness (p=.033). There was no evidence of an association between gender and perception of psychosocial treatment effects, though previous research has found female practitioners, particularly with female patients, to have highest levels of patient orientation (Law & Britten, 1995).

Years of clinical experience
37% (n=28) had less than five years post qualification experience. 23% (n=17) had 6 to 10 years experience; and 39% (n=29) had over 11 years experience. Osteopaths with over six years clinical experience were more likely to say that treatment helped overcome physical symptoms (p=.026), express feelings (p=.035) and face real feelings (p=.045).

The structure of relationships between treatment effects
The two dimensional proximities analysis is represented in fig 5.5 (Stress .130; RSQ .942), and item co-ordinates in appendix 5.6. This plot proved difficult to interpret, partly due to the number of items clustered together. However, there are three noteworthy features of the item distribution.

Firstly, the broadly horizontal distribution of items suggests a quantitative pattern of relationships between items. This linear structure corresponds to frequency ratings, with most commonly endorsed items to the right, and least commonly endorsed towards the left. Secondly, there is a clear distinction treatment targets. Treatment effects on illness (C1 blue) were distributed across the lower half of the plot. Treatment effects on health or the self were distributed across the top of the plot, together with items including a psychosocial modality (C2, C3 yellow). Finally, the "directive " facet (B1-4; cure, accept, strengthen, understand) did not differentiate between psychosocial or self-targeted items, which were distributed in regions corresponding to spiritual, emotional, cognitive and behavioural modalities, with items targeting the self towards the centre. The directive facet did differentiate between approaches to illness, which were more widely distributed. In other
words, osteopaths seem to make clear distinctions between helping patients to overcome, cope with, protect against and understand in the physical but not the psychosocial domain.

**Fig 5.5 Treatment Effects Questionnaire**

2 dimensional Proximities Analysis: Euclidean distance model

N=74 osteopaths

**Individual differences in perception of treatment effects**

K-means cluster analysis of the data identified two main groups, labelled broad spectrum (n=47) and focal (n=23). The difference between them seems to be more quantitative than qualitative, in that the focal group report consistently lower frequencies of all treatment except cure illness, which is marginally but not significantly higher (table 5.8).

Analysis of variance showed that the focal and broad spectrum groups were not significantly differentiated in terms of cure illness, healthy lifestyle, feel in control of health, overcome physical symptoms, adjust to illness, restore physical well-being, feel hopeful about recovery or cope with practical problems.
Table 5.8 K-means cluster analysis: Treatment Effects Questionnaire

Analysis of variance of two cluster solution

<table>
<thead>
<tr>
<th>EFFECT</th>
<th>Clu1</th>
<th>Clu2</th>
<th>Clu1 MS</th>
<th>Clu2 MS</th>
<th>DF Error</th>
<th>DF F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physically fight illness</td>
<td>3.3</td>
<td>3.9</td>
<td>6.0</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>9.4</td>
</tr>
<tr>
<td>Feel hopeful about self</td>
<td>3.1</td>
<td>3.9</td>
<td>10.1</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>15.3</td>
</tr>
<tr>
<td>Change unhealthy lifestyle</td>
<td>2.9</td>
<td>3.5</td>
<td>6.7</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>11.1</td>
</tr>
<tr>
<td>Protect against illness</td>
<td>2.8</td>
<td>3.5</td>
<td>8.1</td>
<td>1</td>
<td>0.7</td>
<td>68</td>
<td>11.5</td>
</tr>
<tr>
<td>Adjust to illness</td>
<td>3.0</td>
<td>3.2</td>
<td>1.1</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>1.9</td>
</tr>
<tr>
<td>Stick to healthy lifestyle</td>
<td>2.7</td>
<td>3.3</td>
<td>4.4</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>6.8</td>
</tr>
<tr>
<td>Lead well balanced life</td>
<td>2.7</td>
<td>3.3</td>
<td>5.1</td>
<td>1</td>
<td>0.7</td>
<td>68</td>
<td>6.6</td>
</tr>
<tr>
<td>Feel in control of health</td>
<td>3.0</td>
<td>3.6</td>
<td>5.8</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>8.3</td>
</tr>
<tr>
<td>Restore emotional well-being</td>
<td>2.6</td>
<td>3.7</td>
<td>19.1</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>27.8</td>
</tr>
<tr>
<td>Overcome phys symptoms</td>
<td>3.8</td>
<td>4.1</td>
<td>8.1</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>1.2</td>
</tr>
<tr>
<td>Understand their illness</td>
<td>3.6</td>
<td>4.3</td>
<td>4.4</td>
<td>1</td>
<td>0.5</td>
<td>68</td>
<td>8.1</td>
</tr>
<tr>
<td>Accept illness</td>
<td>2.2</td>
<td>3.1</td>
<td>12.2</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>19.5</td>
</tr>
<tr>
<td>Understand self better</td>
<td>3.0</td>
<td>3.8</td>
<td>9.5</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>15.6</td>
</tr>
<tr>
<td>Face real feelings</td>
<td>2.2</td>
<td>3.2</td>
<td>15.3</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>24.8</td>
</tr>
<tr>
<td>Express real feelings</td>
<td>2.3</td>
<td>3.3</td>
<td>14.5</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>23.3</td>
</tr>
<tr>
<td>Recognize emot problems</td>
<td>2.6</td>
<td>3.4</td>
<td>11.4</td>
<td>1</td>
<td>0.5</td>
<td>68</td>
<td>19.7</td>
</tr>
<tr>
<td>Resolve emotional problems</td>
<td>2.1</td>
<td>3.2</td>
<td>18.0</td>
<td>1</td>
<td>0.4</td>
<td>68</td>
<td>40.6</td>
</tr>
<tr>
<td>Spiritually accept self</td>
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<td>2.6</td>
<td>33.0</td>
<td>1</td>
<td>0.7</td>
<td>68</td>
<td>46.7</td>
</tr>
<tr>
<td>Feel hopeful about recovery</td>
<td>3.6</td>
<td>4.0</td>
<td>1.8</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>2.9</td>
</tr>
<tr>
<td>Change attitudes to health</td>
<td>3.1</td>
<td>3.6</td>
<td>4.6</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>7.4</td>
</tr>
<tr>
<td>Change attitudes to self</td>
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<td>3.4</td>
<td>8.2</td>
<td>1</td>
<td>0.5</td>
<td>68</td>
<td>15.3</td>
</tr>
<tr>
<td>Restore physical well-being</td>
<td>3.7</td>
<td>4.1</td>
<td>1.8</td>
<td>1</td>
<td>0.7</td>
<td>68</td>
<td>2.4</td>
</tr>
<tr>
<td>Cure illness</td>
<td>2.8</td>
<td>2.7</td>
<td>0.0</td>
<td>1</td>
<td>1.2</td>
<td>68</td>
<td>0.0</td>
</tr>
<tr>
<td>Correct energy imbalances</td>
<td>1.7</td>
<td>3.2</td>
<td>33.5</td>
<td>1</td>
<td>1.3</td>
<td>68</td>
<td>27.7</td>
</tr>
<tr>
<td>Spiritually heal self</td>
<td>1.3</td>
<td>2.6</td>
<td>26.5</td>
<td>1</td>
<td>0.7</td>
<td>68</td>
<td>36.6</td>
</tr>
<tr>
<td>Accept self more</td>
<td>2.2</td>
<td>3.6</td>
<td>31.1</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>47.3</td>
</tr>
<tr>
<td>Cope practical problems</td>
<td>3.6</td>
<td>4.0</td>
<td>2.3</td>
<td>1</td>
<td>0.8</td>
<td>68</td>
<td>4.8</td>
</tr>
<tr>
<td>Trust own judgement</td>
<td>2.6</td>
<td>3.6</td>
<td>16.3</td>
<td>1</td>
<td>0.5</td>
<td>68</td>
<td>28.1</td>
</tr>
<tr>
<td>Resolve practical problems</td>
<td>3.1</td>
<td>3.7</td>
<td>5.4</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>8.8</td>
</tr>
<tr>
<td>Spiritually accept illness</td>
<td>1.3</td>
<td>2.5</td>
<td>24.0</td>
<td>1</td>
<td>0.6</td>
<td>68</td>
<td>36.7</td>
</tr>
</tbody>
</table>

* Bonferroni correction p=.003

In terms of the original facet structure, no items including the physical modality (A1) except "protect against illness" significantly discriminate between clusters. This is consistent with previous findings that physical pain attributions (chapter 4) and physical-manual treatment methods (chapter 5) did not significantly differentiate between clusters.

All items which include the emotional-spiritual modality (B4), and or which target the self (C3) discriminate at the p<=.001 level. The attitude and lifestyle items (B2, B3) fall in between these two. In all cases, when the target is "self or unspecified" (C3) these items do discriminate between clusters (p<=.001). When the target is illness-problems (C1) or health (C2), items which include the attitude-lifestyle modality discriminate between
clusters at the $p <= .01$ level. In order, these are: understand illness, cope with practical problems, lead a well-balanced life, and maintain healthy lifestyles.

**Age, gender, experience, nature of practice and cluster groups**

A one way analysis of variance was carried out to evaluate the relationships between cluster membership and age, gender, experience, nature of practice. There were no significant differences in any of these factors associated with focal or broad spectrum cluster groups.

In summary, the broadly linear order between items identified in the proximities plot (fig 5.5) is reflected in patterns of individual differences between osteopaths. Groups identified using cluster analysis are not differentiated by perceived illness-related treatment effects, except prevention; are moderately differentiated by perceived changes in patients understanding and behaviour; and are most clearly differentiated in relation to emotional and spiritual effects.

**Validity: free response comments from osteopaths**

The pilot study of 118 CM practitioners resulted in feedback about the ordering of the scale, but there were no substantive comments about the questionnaire items. By contrast, 9/74 (12.1%) of participants in the current study expressed concern about this questionnaire (appendix 5.6), which suggests it is not a valid measure of osteopaths' perception of treatment effects and results must be treated with caution.

The most frequent criticism concerned the meaning and wording of questions (Box 5.3)

<table>
<thead>
<tr>
<th>Box 5.3 Limited validity of the TEQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Only a quack quantifies what he can't define</td>
</tr>
<tr>
<td>• philosophical overtones and a certain ambiguity with the content of some words such as restore, overcome, recognize</td>
</tr>
<tr>
<td>• probably do this but define it differently</td>
</tr>
<tr>
<td>• poorly worded</td>
</tr>
<tr>
<td>• osteopathy is a social science with very unclear boundaries, not a physical science with yes/no boundaries</td>
</tr>
<tr>
<td>• you say the Questionnaire is designed to look at my views about my osteo practice and then ask 30 very specific questions many of which I may feel have nothing to do with the question but I am obliged to answer therefore you are collecting false information.</td>
</tr>
</tbody>
</table>
One suggested a tick box format was inappropriate for this type of research, particularly in the absence of "not applicable" category, and an interview study would have been more appropriate. Two commented that they did not always know what effects treatment had on the patient, and two described their own view of treatment effects:

"The many sides of my patients (emotional, physical, spiritual etc.) are so closely linked that treating one (physical) must affect the others. But I don't go out of my way to discuss emotional & spiritual issues unless the patient appears to want to. Of course I discuss diet exercise, sleep, respect for body etc. but experience has shown that while my patients agree in theory the practice is often very hard for them" (18)

"I hope that the treatment I give my patients helps them to be healthy. Health is by no means synonymous with the absence of disease, nor even the absence of illness. It is essentially a matter of harmonious integration of all the body systems, maintained by the bio-regulatory functions of the neuro-endocrine and psycho-immunological mechanisms. The body is a self healing organism and occasionally I act as a feeble tool to help" (13).

These comments that the TEQ did not correspond to participants' understanding of treatment effects are consistent with the difficulty of interpreting structural relationships between items on the plot (fig 5.5). This may partly reflect the absence of osteopathic terminology, and the fact that the TEQ was constructed on the basis of a prior theoretical model (Guttman & Levy, 1982) with limited consultation. The current study therefore inadvertently replicated the problem of limited osteopathic validity, which has been identified in relation to trials of manipulation. This problem has been described as ubiquitous in CM research (Kaptchuk et al, 1996), and attributed to the predominance of non-collaborative research (e.g., Chilvers et al, 1991), carried out by researchers with limited knowledge of CM (COST B4, 1995).

It is not possible to determine from current data whether feedback indicates that the theoretical definition represented by the mapping sentence is inadequate; or whether the problem is due to inappropriate items generated from structuples. However, the definition on treatment effects in terms of directive (cure, adjust, strengthen, understand); modality of the self (physical, cognitive, behavioural, affective, spiritual) and target (illness/ problems; health/ strengths, self) seems to offer a promising theoretical model of both well-being and coping, and it would be premature to reject this on the basis of current findings.

Some indication of the theoretical validity and scope of the mapping sentence can be obtained by comparison with other measures. To the extent that different questionnaires
evaluate the domain defined by the mapping sentence, it should be possible to translate each item into a particular structuple; items which cannot be translated into structuples are theoretically outside of the domain. This translation process was attempted with the Functional Dimensions of Coping Scale (FDC), which is intended to evaluate the perceived functions of self generated coping behaviours (Ferguson & Cox, 1997), and the Pain Cognitions List (PCL) which has been proposed as an measure of outcome appropriate for pain management programs (Vlaeyen et al, 1990).

It proved possible to translate all FDC items from the approach, emotion focused and reappraisal scales into the mapping sentence. For example, the approach item "(to what extent did these activities) provide you with information useful in solving the problem" could be coded A1: directive - change; B3: modality- cognitive; C1: target-problem. The emotion focused item "allow you to manage the distress and upset caused by the event" could be coded A2: directive - cope; B4: modality - affective; C1:target-problem. The reappraisal focused item "allow you to grow and develop as a person" could be coded A3: directive -strengthen; B6: modality-unspecified; C3: target- self.

Items from the avoidance scale of the FDC, and most items from the PCL could not be translated into the mapping sentence, which is concerned with positive adjustment. The PCL (Vlaeyen et al, 1990) primarily evaluates maladaptive cognitions associated with chronic pain syndrome, though the authors note the PCL does not map onto any conceptual framework. The mapping sentence provides a tool for clarifying the conceptual structure of the questionnaire and making explicit the treatment aims which are currently defined implicitly by equating reduced scores with positive outcome. Reframing the conceptual content in terms of aims which the practitioner intended to achieve, and positive adjustment for the patient would clarify the relationship to practice. This also raises some substantive questions, such as whether definition of positive outcome in terms of reduced reliance on health care (e.g., item 60: "I have utmost confidence in medical science") means enhancing patients’ understanding, confidence and ability to cope with pain (A3; B2-4; C1). The mapping sentence therefore represents an integrative definitional framework, which could provide a basis for conceptual clarification and reanalysis of data obtained using different measures to evaluate the same domain. This work could contribute towards cumulative theory development, and provide a basis for refinement of the mapping sentence.
The mapping sentence could also be used as an initial conceptual framework for content analysis of qualitative accounts of problem, process and outcome, which could be modified on the basis of responses. Development of a robust ordinary language mapping sentence would facilitate intra- and interdisciplinary comparison, and more systematic evaluation of patient-practitioner congruence. In view of feedback from osteopaths, a more qualitative open-ended approach may be required to elicit a more valid account of how osteopaths believe their treatment helps patients.

The most important outcome of this study was recognition of the importance of avoiding the "Type 3 error" of asking the wrong questions, and the value of actively requesting critical comment from participants (appendix 5.6). The fact that the BSO study was perceived as "in house" research may have been associated with increased willingness to comment.

Discussion
In view of feedback from osteopaths, results obtained in the current study can only be interpreted with caution as a general indication of osteopaths' perception of treatment effects.

The most general finding is that perception of psychosocial effects was not associated with reduced perception of physical treatment effects. This is again consistent with the "both physical and psychosocial" view of holism. Osteopathy was perceived as being most likely to help patients understand their problem, enhance well-being and relieve symptoms, and least likely to cure illness, correct energy imbalances, and help the patient spiritually, though all of these were endorsed by some osteopaths. Effects on health and illness were most highly rated, followed in descending order by cognitive, behavioural, affective and spiritual change. In addition to being the most highly rated effects, osteopaths did differentiate between curing, adjusting, strengthening and understanding in relation to physical health and illness, but not in relation to psychosocial items. For example, ratings of lifestyle items were highly correlated independent of emphasis on change or maintenance.

Health orientation and patient choice
Osteopaths' orientation towards health in addition to illness, and endorsement of psychosocial in addition to physical treatment mechanisms raises questions about the rationale for exclusion of beliefs and expectations as theoretically non-specific. Health
promotion and change in understanding, experience and lifestyle require active patient participation, and cannot be "done to" a passive patient. Active participation and development of a strong therapeutic alliance in psychotherapy is facilitated by patients perception of the relevance and potency of interventions offered (Bordin, 1994), and choice has been identified as a potentially important influence on health promotion in conventional medicine (Black, 1996). Despite the reported desire of medical patients for increased lifestyle advice (Coulter, 1987), unsolicited advice has been associated with negative patient reactions (Williams et al, 1991; Stott & Pill 1990). Hence, randomisation to exclude patient self-selection on the basis of treatment-related beliefs and expectations may be self-defeating, and reduce treatment effectiveness by minimising the scope for participation (Brewin & Bradley, 1989).

Osteopaths’ orientation towards positive adjustment and health is potentially important in the context of suggestive evidence from one study of reduced GP enablement of patients since introduction of fund-holding. Over a two year period, Howie et al (1994) found an increase in social problems and decrease in enablement and diagnostic investigation of patients with joint pain (Howie et al, 1994). Patient ratings of enablement included ability to cope with life, understand and cope with illness, confidence about health, and ability to help self. Though Howie et al (1994) did not evaluate associated change in intervention, effective primary care is described as negotiation of patient needs, which may include physical or psychosocial problems, or education on health behaviour and health promotion. This study has not been replicated, and may be unrepresentative of current medical practice. However, in combination with increased referral of LBP to manual therapists (Barnett, 1999), this suggests psychosocial intervention and health promotion constitute an important aspect of manual treatment.

Individual differences
Differences between the focal and broad spectrum groups were primarily quantitative, with the broad spectrum group rating all effects except "cure illness" more frequently than the focal group. The same order was reflected in differences identified using cluster analysis: physical effects were least potent; cognitive and behavioural items moderately potent, and affective and spiritual effects most potent items in discriminating between groups. Group comparisons suggest that emotional and spiritual items are more likely to be rated highly by
men under 40 with more than 6 years clinical experience. As the pattern of results is the same for all items except cure illness, it is possible that they denote a single underlying factor reflected in a tendency to attribute greater importance to psychosocial factors, rather than decreased attention to physical factors.

There is some analogy between "focal" and "broad spectrum" osteopaths identified in the current study, and individual differences in psychological mindedness or the tendency to recognize distress (e.g. Whitehouse, 1987), patient-centredness (Law & Britton, 1995) and communication skills (e.g. McManus et al, 1997; Byrne & Long, 1984; Stewart & Rotter, 1989) in medical practitioners. These practitioner qualities and abilities have been understood as facilitating affective treatment aims such as establishing a good therapeutic relationship and meeting the patients need to feel known and understood (Henbest & Stewart, 1989; Hall et al, 1987), by contrast with instrumental task oriented aims such as information exchange, explanation of diagnosis and treatment, decision making and informed consent (e.g. Braddock et al 1999; Hall et al, 1987; Katz, 1984). In terms of this distinction, all TEQ items are instrumental, as they are defined in terms of perceived effects on the patient. However, both affective and instrumental components are recognized as essential to effective clinical communication, and the distinction has been described as a false dichotomy (Ong, 1995).

Practitioner qualities relevant to affective treatment aims are normally considered independent of explanatory framework or intended effects on patients (e.g., McManus et al, 1997). However, there is some evidence of an association between psychological mindedness, longer consultation times and lower rates of prescribing with distressed patients (Whitehouse, 1987); and between family orientation and longer non-interpreted consultations, increased practitioner questions and clarification, and establishment of a shared language (Shapiro, 1999). As the relationship between attitudes and behaviour is strongest when both are defined at the same level of specificity (Ajzen & Fishbein, 1974), and matched with respect to target, action, and context (Ajzen & Fishbein, 1977), there are grounds for caution about the extent to which specific consultation behaviours can be predicted from generalized attitudes or skills. Conversely, specific measures of clinical intentions or expectations may be more predictive of practitioner behaviour in routine clinical practice.
PAGE NUMBERING AS ORIGINAL
CHAPTER 6
PATIENTS' EXPECTATIONS AND EXPERIENCE OF OSTEOPATHY

The research crisis in CM and osteopathy is centered on the question "does it work?", and evidence for the efficacy of manipulation to date can be summarized as generally positive, but inconclusive. The focus of concern in the preceding chapters has been the definition of problem, process and outcome in osteopathic practice and in trials. Evidence obtained has provided some support for osteopaths' claim to holism, and a basis for questioning the osteopathic validity of problem definition and intervention in trials of manipulation. However, this research, and the majority of literature reviewed have considered osteopathy from the perspective of researchers or practitioners. Enquiry into patients' experience may contribute towards explaining the discrepancy between limited evidence of efficacy in trials and high levels of reported satisfaction, and inform choice of outcome measures for future research. The reasons for patient willingness to "vote with their feet" by paying for treatment constitute an important source of information about and the priorities of ill people seeking help, which may complement evidence obtained using other methodologies. From the patients' perspective, questions about problem definition, method and outcome evaluation can be reformulated as: why do patients consult CM? and how do they evaluate process and outcome? The aim of the current study was to explore the nature and role of problem, process and outcome description in patients' expectations and experience of osteopathy.

The TEQ (chapter 5) was developed to evaluate perception of treatment process and outcome, but feedback from osteopaths had raised serious questions about the validity of items generated from the mapping sentence. In order to minimize this risk, the current study was designed and implemented in collaboration with members of The Enabling Group for Osteopathic Research (EGOR). The first phase of the study was designed to explore patients' expectations of osteopathy. The second phase was designed to explore patients' experience of osteopathy, and compare with expectations. The superordinate mapping sentence was used as a framework for content analysis of patient responses to sentence completion tasks.
**Outcome: the conclusions**

Outcome is normally evaluated in trials of manipulation using questionnaire measures of pain intensity and disability, or number of patients who were reported to be recovered or improved (Koes et al, 1996). On these criteria, evidence for the efficacy of manipulation (Ernst & Assendelft, 1998) and chiropractic (Assendelft et al, 1996) can be summarized as generally positive but inconclusive.

Both Curtis (1988) and Shekelle et al (1992) conclude that manipulation has a specific short term beneficial effect in patients with uncomplicated acute (under 3 weeks) and subacute (under 13 weeks) LBP, but that differences between manipulation and control treatments do not persist to long term follow up. Of the identified 5 trials of chronic LBP patients, one included injection; one used a cross-over design with patients acting as own controls, and one included patients with sciatic nerve irritation. Of the remaining two, one showed a benefit from manipulation and the other did not. Shekelle et al (1992) conclude that current evidence is inadequate to determine the efficacy of manipulation for chronic LBP.

Rather different conclusions were drawn by Koes et al (1995), who found only 5 of 12 trials involving acute (under 6 weeks) LBP showed a significant benefit for manipulation; 4 showed no difference between groups, and 3 showed positive results only in a particular subgroup, though evidence was inadequate to identify common features in these subgroups (chapter 4). The authors conclude there is no definitive evidence in favour of manipulation for acute LBP. In the 8 trials comparing manipulation with other conservative treatment modalities in patients with chronic (over 6 weeks) LBP, 5 showed a significant benefit for manipulation, 2 showed no difference between groups and one was inconclusive. Koes et al (1996) conclude that there is more evidence in favour of manipulation for chronic than for acute LBP.

Pragmatic trials may provide a more valid and clinically relevant measure of effectiveness, but results have proved equally inconclusive, and difficult to interpret given limited information about treatment process. Meade et al (1995) found chiropractic care was more effective than physiotherapy, particularly in patients with chronic or severe back pain. Koes et al (1991, 1992) carried out a one year follow up study and found most improvement with manipulative therapy, slightly less with physiotherapy, and significantly less
improvement in the placebo (detuned shortwave diathermy) and general medical groups. Two subsequent pragmatic trials have provided less promising results. Skargen et al (1997) carried out a similar trial to Meade et al (1995) and concluded that the effectiveness and costs of physiotherapy and chiropractic were similar immediately after treatment and at 6 months. Cherkin et al (1998) found similar outcomes following chiropractic and McKenzie physiotherapy for acute uncomplicated LBP. Outcomes were not superior to controls receiving an educational booklet, which had previously been shown to be ineffective.

Kaptchuk et al (1996, p48) conclude from review of 25 controlled trials of manipulation for LBP, that efficacy beyond the placebo is unknown from the fastidious perspective: all studies have methodological flaws that might explain the equivocal findings. The authors argue interpretation of trial results depends on beliefs about treatment: if specific and nonspecific aspects of manipulative treatment are believed to be separate and additive, more fastidious trials are required. If specific and nonspecific effects are believed to be interactive or inseparable in practice, translation of questions about efficacy into comparison between focal technique and placebo is misconstrued (Kaptchuk et al, 1996, p64).

In summary, trials of manipulation have provided some evidence of efficacy, but further fastidious trials would be required to convincingly establish efficacy beyond the placebo. Questions have been raised about whether evaluation of outcome in terms of efficacy beyond the placebo is the most appropriate strategy, and there is some discrepancy between limited evidence of efficacy obtained in trials and patients' evaluation of treatment.

The patients' perspective
CM is a demand-led service (Sharma, 1989), which has developed as a result of the choices made and paid for by patients as consumers. There is a corresponding body of evidence that patients perceive CM to be effective, and report high levels of satisfaction.

Large scale surveys have found over 80% of patients very or fairly satisfied with the effectiveness of CM (Which? 1995; Sawyer & Kassak, 1993; Harris et al, 1987). Comparable proportions claim to have been cured or improved by CM (Anon for Which? 1981; Anon for Which? 1995). An interview study of 30 patients attending diverse CM practitioners found two reported no benefits, the rest all expressed some degree of satisfaction with outcome (Sharma, 1987).
High levels of satisfaction have also been identified in studies of manual medicine. A survey of 500 randomly selected Connecticut households found 21% had visited a chiropractor, and of these 78% felt treatment was effective or very effective (Wardwell, 1989). A population-based study of prevalence and care-seeking for acute severe LBP found that compared to those who sought care from medical practitioners, those who sought care from chiropractors were more likely to feel that treatment was helpful, more likely to be satisfied with their care, and less likely to seek care from another provider for the same episode of pain (Carey et al, 1996). A survey of members of a health maintenance organisation offering both conventional and chiropractic care found that of 359 LBP patients who had received conventional treatment, 22% reported being very satisfied with care received, compared to 66% of 359 patients who had received chiropractic treatment (Cherkin & MacCornack, 1989). High levels of patient satisfaction are not unique to manual medicine, and have also been reported by patients attending patient pain management clinics (e.g. Williams et al, 1993). The available evidence from patient surveys has been summarized:

"one of the ways to obtain a sense of how non-randomised, self selected, biased and ordinary people subjectively experience complementary and alternative medicine is by patient surveys. Here the evidence for whether people think complementary and alternative medicine is more than a sham is clearly positive" (Kaptchuk et al, 1996, p44/5).

**Push from conventional medicine and pull to CM**

Evidence suggests that demand is fuelled both by satisfaction with CM and dissatisfaction with conventional medicine (Anon for Which?, 1995; Oojendijk et al 1981; Fulder, 1984; Fulder, 1987; Furnham & Smith, 1988; Furnham & Bhagrath, 1996; Furnham & Forey, 1994; Lewith, 1985). Findings from studies of patient motivation have been summarized as a balance between "pull" towards CM associated with perception of natural, effective relaxing, sensible treatment which patients could actively participate in; and "push" away from conventional medicine, associated with perceived ineffectiveness for a particular problem and poor communication with medical practitioners (Furnham & Smith, 1988; Sharma 1987; Moore et al, 1985). A study of 250 patients found no differences between those attending acupuncture, osteopathy or homoeopathy clinics when severity of illness was controlled for, suggesting at least some aspects of patient motivation are common to different forms of CM (Vincent & Furham, 1996).
The "push" away from conventional medicine seems to be specifically associated with treatment experience for the current problem. Patients seem to typically exhaust the sanctioned resources of conventional medicine before turning to CM as an additional treatment resource rather than as a substitute (Fulder & Monro, 1985; Moore et al., 1985). Multiple serial or parallel consultation, or "doctor shopping" is more common among CM than GP patients (Which?, 1995; Furnham & Bhagrath, 1996) and many patients exercise considerable freedom of movement within CM (Booker & Canter, 1987; Sharma, 1987) as well as between CM and conventional medicine (Thomas et al., 1991; Booker & Canter, 1987; Lewith, 1985). Most patients consult the GP before seeking CM (Thomas et al., 1991; Booker & Canter, 1987; Lewith, 1985) and tend not to return to the GP with the same set of symptoms (Booker & Canter, 1987). Comparative data on osteopathic patients satisfaction with previous treatment of the presenting problem was obtained by Pringle & Tyreman (1993). Results showed 99/147 dissatisfied with GP management; 19/23 with hospital consultation, 19/27 with physiotherapy and 4/7 with osteopathy. These figures are likely to reflect the selective use of osteopathy by dissatisfied patients, and are not claimed to be representative. Most patients report a good relationship with their GP and state that they would return to conventional medicine for future problems (Lewith, 1985). There is no evidence that patients consulting CM are rejecting conventional medicine completely. Available evidence indicates that patients typically adopt an eclectic, consumerist or discriminating "mix and match" rather than either/or approach to treatment choice (Furnham, 1996; Sharma, 1992; Thomas, 1991; Fulder & Munro, 1985).

The "pull" towards CM has been described as part of a more general change in philosophy, values and lifestyle. This is associated with growing concern over a technology driven society, also manifest in the green movement, consumer demand for natural products and services, and the development of tertiary patterns of consumption (Coward, 1989; Woodhouse, 1996). In health care, this demand has been seen as part of a move from fragmentation of persons, iatrogenesis, disease orientation, and patient loss of control to wholeness, active patient participation and responsibility, broad spectrum treatment effects, and less invasive, tool intensive, mechanistic interventions (Fulder, 1987), attention to the therapeutic relationship; health rather than illness-orientation; and willingness to deal with the more emotional or even spiritual aspects of illness (Vincent & Furnham, 1997). This is
consistent with evidence that approximately one third cite belief in the philosophy of CM as a main reason for seeking treatment (Which? 1995); and CM patients tend to have more self and ecologically aware lifestyles both in the UK (Furnham & Forey, 1994) and in Germany (Furnham & Kircaldy, 1996).

**Meaning and explanation**

The way in which the presenting problem is understood within CM has been identified as a potentially important feature of patient motivation, though there is scope for debate about the nature of this understanding. Some theorists have attributed the appeal of CM to the rhetorical force of dramatic healing rituals and belief systems, which provide a "pathway of words, feelings, values, expectations... which reorder and organize the disease experience" (Kleinman, 1973); "imaginative possibilities, behavioural options and rhetorical supplies" for the ill person (Kirmayer, 1992); a sense of solidarity, unity, holism and the sense of encompassing oneness (Tambiah, 1990) and an attempt to re-mystify or re-enchant the body (Weston, 1992). Problems such as chronic pain which cannot be clearly diagnosed or explained within the scientific, neutral, analytic experimental discourse of conventional medicine may be understood within the broader framework CM discourse (Kaptchuk et al, 1996, p59).

Alternatively, there is evidence that the appeal of manual medicine is partly based on patients' desire for a physical explanation of their pain. Interpretation and legitimation of symptoms has been identified as a central feature underlying dissatisfaction with conventional medicine and satisfaction with CM. In an interview study of 30 patients attending six different practices (GP, homoeopathy, herbalist, acupuncture, healer and osteopath), Levine (1994) found reasons given for consulting the GP included access to "sick notes", medication, and legitimation of symptoms by making a diagnosis. GPs were perceived as sanctioning physical symptoms as legitimate, but not symptoms attributed to psychological or emotional causes, and absence of a diagnosis was seen as invalidating the patients experience. Reasons for consulting the CM practitioner often involved patients' need to assert their own view of symptoms, following perceived delegitimation by their GP. Orientation to emotion was identified as a central factor mediating treatment choice. Patients consulting GP's and osteopaths described problems in exclusively physical terms, though osteopathic patients were more concerned with pain relief and legitimation of symptoms,
suggesting that the GP's attempt to define the symptoms in emotional terms was a result of their inability to identify the real cause of the problem. A second group of patients believed that the problem was due to physical and emotional factors, and believed their GP was unable to understand or treat them appropriately as a result of failure to recognize the importance of the relationship between mind and body.

Levine's account is consistent with evidence that many LBP patients explain their condition in physical or structural-anatomical-biomechanical terms, and that this type of explanation is associated with dissatisfaction with conventional medicine (Deyo & Diehl, 1986), and the expectation that manipulation could help (Zusman, 1997; Borkan et al, 1995; Cherkin & MacCormack, 1989). Similarly, Jamison (1994) concluded from an informal observation study of chiropractic consultations that all patients were provided with a believable and understandable physical explanation of their condition and how it could be remedied by chiropractic treatment, often illustrated with charts or models of the spine. Chiropractors routinely take lumbo-spinal x-rays at initial consultation (Cherkin et al, 1988) and the resulting "hard" evidence of a physical cause is highly valued by patients as counteracting perceived delegitimation (Coulehan, 1985; Cherkin & MacCormack, 1989, Borkan, 1995). Chiropractic has been seen as appealing to the mechanistic and holistic aspects of American culture, giving popular and graphic explanations of what people expect or want to happen (Coulehan, 1985), and also as manipulating the patients' belief structure to shape understanding of the physical manipulation (Oths, 1994).

In summary, research into patient motivation indicates that demand for CM is fuelled both by "push" away from conventional medicine, associated with perceived ineffectiveness for particular conditions such as chronic pain, and "pull" towards CM, associated with perception of natural effective treatment, and possibly beliefs about illness and treatment. This has been attributed to holistic belief systems and rituals, though evidence suggests demand for manual therapy may be specifically motivated by patient desire for physical explanation to legitimate symptoms.

Safety and risk
Evaluation of safety is an essential component of the demand for evidence from both the scientific community and the consumer movement. CM is widely perceived by patients as natural, safe and free from the discomfort and side-effects typically associated with drugs and
surgery (Furnham & Smith, 1988), available evidence suggests that CM is associated with very low physical risk (Vincent & Furnham, 1997; Abbot et al, 1996) and there have been few if any high profile health scares. However, it has been argued that consumers underestimate the risk of side effects (Ernst, 1996), and Dickinson (1996) has warned that the prolonged absence of information about the limitations of CM, and formal complaints procedures risks a pool of unvoiced complaints which could turn to a "poisonous flood of media scares and public ill-will" (Dickinson, 1996, p158).

Research into safety has focused on physical effects of manipulation. Some cases of serious complications following manipulation have been reported (Laderman, 1981; Patijn, 1991) though most adverse reactions are minor (Waddell, 1998), and none have been reported in the 1500 patients treated in trials (Shekelle et al, 1992). Frequency of adverse reactions has been estimated at 1:200,000 to 1: million (Assendelft et al, 1996), which is low relative to the inadvertent iatrogenic risks of conventional medicine treatments (e.g., Lazarou et al, 1998; Hiatt et al, 1989). However, there has been little or no research into the possible performative risks of facilitating treatment dependence and passivity which have been associated with exclusively physical interpretation of pain (Zusman, 1997; Latey, 1991). This has been described in terms of the consequences of persevering with an indexical interpretation in the absence of an identified cause or improvement (chapter 2).

Evidence about patients’ perception and experience of osteopathy could clarify the reasons for choice of and reported satisfaction with treatment, inform the debate about risk, and contribute towards defining relevant variables for future outcome research.

Background to the study
The Enabling Group for Osteopathic Research (EGOR) was established in order to facilitate research into osteopathy. A meeting at the British College of Naturopathy and Osteopathy in London in 1994 was attended by approximately 20 osteopaths, most of whom had been motivated to join EGOR by recognition of the need for research, and willingness to become involved in meeting this need. A proposal to carry out a research study as a group was greeted with general enthusiasm. The aims were defined primarily in terms of engaging participants in research; beginning an iterative process of finding empirically based answers to osteopathically relevant research questions, and using
findings to inform subsequent decisions about the conceptual and methodological tools for future research.

Patients' experience emerged as a central shared concern during a brainstorming exercise to identify potential research questions. This led to discussion of the relationships between motivation and satisfaction, and the way in which initial expectations may change as a result of treatment experience (Sharma, 1996; Gordon, 1996). The exploratory research questions identified collaboratively with EGOR members were therefore "how do patients expect the osteopath to help?" and "what do patients experience as helpful and unhelpful about osteopathy?".

**EGOR-I Patients expectations of osteopathy**
The research was carried out in two phases. The first phase was designed to evaluate patient expectations. Findings obtained from this study were used to refine methodology for the second phase, which was designed to evaluate patient experience of helpful and unhelpful aspects of osteopathy.

**Methodology**
There was some debate about appropriate methodology to address the research questions. Very little research had been carried out into perception of osteopathic treatment and outcome: no standardized questionnaire of patient expectations was available, the TEQ lacked adequate validity, and no adequate theoretical or evidential basis for constructing an improved alternative could be identified. More fundamentally, a number of osteopaths expressed concern that using a format which would inevitably involve asking questions about low as well as high frequency expectations may establish unrealistic patient expectations and interfere with the treatment process. For example, asking whether the patient expected relief from anxiety may imply that this was a legitimate treatment aim. Finally, as the primary aim was to obtain a valid description of the experience of osteopathic patients, it was decided that a simple open-ended procedure which provided patients with maximum freedom of response would be most appropriate. The strategy adopted was to put the research question directly to patients in a sentence completion format:

"I think my osteopath may be able to help me by....".
Content analysis was agreed as an appropriate methodology to identify themes in the data obtained (Weber, 1990), provided there was adequate collaboration between the researcher and an osteopathic EGOR member, and preliminary findings were presented to a subsequent EGOR meeting to evaluate validity. The aim of the first phase was to map out the structure of patient expectations, and relationships to other factors such as clinical characteristics were seen as beyond the remit of the current study. It was thought that including additional questions may have implicitly shaped patients' perceptions and minimized variability of responses and reduced response rates. As such, only questions asking for basic demographic information about age group, gender and number of osteopathic consultations were included.

**Patient selection**
The focus of concern was with the spectrum of treatment expectations represented in the osteopathic patient population, so all patients consulting participating osteopaths who were willing to participate were eligible for inclusion. Resources were inadequate to obtain a representative patient sample, as the study was dependent on the voluntary participation of independent practitioners in private practice. In order to minimize selection bias, participants were requested to invite consecutive patients to participate until ten completed questionnaires had been obtained.

**Administration**
There was some debate about whether administration procedure should be standardized in advance, or left open for individual participants to find an approach which was most suitable in their own practice. The group decided that participants could choose whether to give the questionnaire to patients and ask for it to be returned to the practice subsequently, or to complete the questionnaire with patients during the consultation, provided information about which procedure was used was recorded. The majority expressed a preference for the first option. The risks of limited comparability between patient and osteopath completed questionnaires; compromising anonymity, and positive bias were recognized, discussed and accepted by the group as a worthwhile compromise in order to meet participants' needs for choice and active engagement with the process of empirical enquiry into their own practice. This collaborative approach addresses concerns that unilateral imposition of particular research strategies on CM risks gaining compliance only from a non-representative sample (Rapoport, 1993).
Completed questionnaires were sent to EGOR offices, where each questionnaire was given a code representing the osteopath. Coded questionnaires were sent to the researcher, who did not know which osteopaths had participated, or which code corresponded to which osteopath. In order to extend the range of participants, the study was advertised in the EGOR newsletter. Interested osteopaths were requested to contact the EGOR offices, and were sent a package of 20 questionnaires (to allow for non-returns) and covering letters (appendix 6.1), freepost envelopes to return completed questionnaires to the EGOR offices; administration instructions, and an address to contact for further information.

Qualitative data analysis
The data were transcribed, and independent content analyses carried out the researcher and Helen Allinson, an osteopathic EGOR member, using the same procedure but without collaboration. The transcripts were read through several times in order to identify recurring themes, which were defined in general terms (e.g. pain relief). A separate word-processing file was constructed for each identified theme, including all relevant text from the data set. The content of text in each file was reviewed, and compared with that of other files to ensure that there was no overlap. This process frequently led to identification of ambiguous and unclassifiable responses, which were used to revise and redefine the categories. This iterative process was completed when a set of internally consistency and coherent categories had been identified. The defined themes were revised and redefined to ensure that they were mutually exclusive, in that no response was coded as belonging to more than one category on the basis of any particular feature.

The preliminary content analyses generated by the researcher and Helen Allison were compared over a period of two days in order to prepare a presentation for the EGOR group. There was considerable similarity in the categories produced, though the osteopath had used a more flexible semantic approach and identified a smaller number of more comprehensive categories, and the researcher had relied more heavily on actual words used, and produced a larger number of categories.

At this stage, the possibility of using the original superordinate mapping sentence as an organising framework for refining categories and ordering the relationships between them was considered. This has not been introduced initially, in order to avoid imposing an *a priori* structure on the data. Most categories proved to be easily accommodated with little
modification, though some changes were required. For example, the osteopath had included all references to the individual osteopath in a single category; these were divided into relationship/support (affective process) and expertise/skill (physical process). The mapping sentence was agreed as an adequate framework for the final content analysis to be carried out by the researcher subject to discussion with EGOR members.

The themes identified from the preliminary content analyses were presented at the next EGOR meeting. The scope for using the mapping sentence as an organising framework for the final analysis of phase 1 and for phase 2 was also discussed. The emerging themes were generally perceived as meaningful and valid, and use of the mapping sentence agreed as a feasible approach, provided results were again reviewed with an osteopathic member of EGOR. The focus of attention shifted to design of phase two.

**EGOR-2: patients experience of helpful and unhelpful aspects of osteopathy**

Phase two was carried out using similar methodology to assess patients experience of the effects of osteopathic treatment, and compare with expectations established in EGOR-1. The three research questions were defined as:

1. **What do patients experience as helpful and unhelpful about osteopathic treatment?**

These questions were addressed using a parallel sentence completion format to maximize comparability with findings from EGOR-1:

"What I found least helpful about osteopathy is.."

"What I found most helpful about osteopathy is.."

An open question was added to provide scope for patients to make any additional comments which they perceived to be relevant: "Is there anything else which you feel it would be useful for us to know about your experience of osteopathic treatment?"

The data from EGOR-1 and EGOR-2 were content analysed within the definitional framework of the mapping sentence. The final category system and item codings were again reviewed and revised in consultation with Helen Allison.

The inter-rater reliability of the final category system was assessed by an independent person, who coded each category as present or absent in a subset of 50 responses, using predefined criteria. This was done in a hierarchical way. In EGOR-1, each response was coded first for problem, process or outcome facet, and then for categories representing elements within facets. In EGOR-2, this was repeated, though each response was first
coded for helpfulness or unhelpfulness. Disagreements were identified, discussed and in most cases agreement reached and the criteria changed accordingly. This process was continued until at least 90% agreement was reached for each category.

2. How does patients' experience of osteopathy compare with expectations?
Expectations and experience were compared by analysis of the conceptual content of each category; and by comparison of frequencies.
A separate binary data matrix constructed from the qualitative data obtained in EGOR-1 and EGOR-2 by coding each sub category as present or absent in each participant's response. Each matrix was comprised of rows defined by the population from which this sample was taken (A1: osteopathic patients); columns defined by the facet B modality of the self (B1-B5: physical to spiritual) and facet C treatment process (C1-C3: problem, intervention and outcome). Cell scores were defined by the binary common range. Parallel analyses were carried out on both data sets, and the results compared.

Structural relationships between categories were analysed using proximities analysis. Subgroups within patient expectations and experience were identified and compared using K-means cluster analysis; and the significance of items in differentiating between items was compared using one way analysis of variance. These procedures provide a means of evaluating the "goodness of fit" between the proposed theoretical model defined by the mapping sentence, and the empirical data.

3. Is there any relationship between clinical characteristics and experience of osteopathic treatment?
Five questions were included in EGOR-2 to evaluate self-reported health status. Three items from the SF-36 (Appendix 6.1) were used to provide an indication of pain (SF7), disability (SF8) and general health (SF1). A question to evaluate perceived stress was developed using the same format as SF7 i.e. "How stressed have you felt over the past week" rated on a five point scale from "not at all" to "very much".

The pain chronicity scale from EGOR-1 which asked patients to rate "How long have you had your current pain" on a 3 point scale (under 3 months; 3 to 12 months; over 1 year) was included, as it provided a reasonably even distribution of responses. The "treatment history" scale from EGOR-1 was skewed towards the longer term patients, so the range was restricted to treatment for current condition, and the minimum response extended from 3 to 5 consultations.
Finally, patients were asked to rate "In your own case, would you say osteopathic treatment has been" on a 5 point scale from definitely helpful to definitely unhelpful.

The final questionnaire (appendix 6.1) asked patients to complete 9 questions, including age and gender, with a tick box format, and 3 open-ended questions.

The relationships between demographic and clinical characteristics, and subgroups identified using cluster analysis were evaluated using independent sample t tests.

**Administration**

The procedure used for EGOR-1 was repeated, with the exception that administration was standardized. In view of the fact that virtually all EGOR-1 questionnaires were completed by patients independently, and concerns about positive bias and non-comparability, all participating osteopaths were asked to explain the study to consecutive patients and invite them to participate. Patients who gave consent were asked to return completed questionnaires in freepost envelopes addressed to EGOR offices. The osteopath did not have access to the data, or know whether or not the patient had returned a completed questionnaire.

**Results**

**Participant characteristics**

Of the 26 osteopaths who participated in EGOR-1, 23 recruited 10 patients each; 2 recruited 11; and 1 recruited 15 patients. A total of 267 completed questionnaires were obtained, of which only 2 were completed by the osteopath during the consultation.

Of the 43 osteopaths who agreed to participate in EGOR-2, 36 recruited patients into the study. 211 completed questionnaires were returned from a possible 360, representing a return rate of 58.6% (Table 6.1). It is not possible to follow-up the remaining 7 osteopaths to determine whether questionnaires were not distributed, or whether they were not returned by patients. The modal return rate for individual osteopaths was 8 (n=9), though the range varied from 1 (n=2) to 9 (n=3).

**Table 6.1 EGOR-2 Frequency distribution of questionnaire returns**

<table>
<thead>
<tr>
<th>Returns</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<td>4</td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
The increased variability in response rate compared with EGOR-1 is likely to reflect the changed administration procedure, which required patients to return completed questionnaires by post rather than to their osteopath.

Patient characteristics
The gender distribution was similar in both studies, with approximately two-thirds women. In EGOR-1, 183 (68.3%) of patients were women and 84 (31.3%) men. In EGOR-2, 139 (65.9%) of patients were women, 61 (28.9%) men, and 11 (5.2%) did not answer. This is comparable to Thomas et al (1991), who found women outnumber men by two to one, which matches CM practitioners estimates (Fulder & Munro 1985).

The age distribution of both samples are similar to previous studies showing the majority of CM and osteopathic patients to be of working age (table 6.2), though there was a greater proportion of older patients in EGOR-2.

<table>
<thead>
<tr>
<th>Table 6.2 Age</th>
<th>EGOR-1</th>
<th>%</th>
<th>EGOR-2</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
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<td>%</td>
<td>n=</td>
<td>%</td>
</tr>
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<td>1.5</td>
<td>0</td>
<td>0.0</td>
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<td>21 to 40</td>
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<td>30.3</td>
<td>40</td>
<td>21.8</td>
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<tr>
<td>41 to 60</td>
<td>122</td>
<td>45.7</td>
<td>102</td>
<td>48.3</td>
</tr>
<tr>
<td>61 to 80</td>
<td>51</td>
<td>19.1</td>
<td>60</td>
<td>28.5</td>
</tr>
<tr>
<td>Over 80</td>
<td>9</td>
<td>3.4</td>
<td>3</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Treatment history
The EGOR-1 sample was skewed towards longer term patients: 68 (25.5%) were attending for the first consultation; 35 (13.1%) had attended between 1 and 3 previous consultations; and 164 (61.4%) had attended more than 3 previous consultations.

The range was modified for EGOR-2, resulting in more even distribution: 68 (32.2%) had consulted the osteopath less than 5 times; 49 (25.2%) had consulted between 5 and 10 times, and 93 (44.1%) had consulted more than 10 times. Missing data n=1 (0.5%).

EGOR-2 Satisfaction
As in previous studies (Wardwell, 1989, Cherkin & MacCornack, 1989), patients reported high levels of satisfaction with treatment. Treatment was rated as definitely helpful by 177 (83.9%); probably helpful by 26 (12.3%) and possibly helpful by 8 (3.8%). No patients used the "unhelpful" side of the scale, and there was no missing data.
EGOR-2 Clinical characteristics
Approximately two-thirds of the current sample reported chronic pain (over 3 months).
Comparison of current data obtained from private osteopathic patients with Stockwell data obtained from NHS patients (chapter 4) suggests a similar profile of pain duration (table 6.3).

Table 6.3 Pain chronicity: Stockwell study* and EGOR-2

<table>
<thead>
<tr>
<th>PAIN DURATION</th>
<th>Stockwell*</th>
<th>Current study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 months</td>
<td>39 (25.5%)</td>
<td>63 (29.9%)</td>
</tr>
<tr>
<td>7-12 months</td>
<td>38 (25.6%)</td>
<td>42 (19.9%)</td>
</tr>
<tr>
<td>Over 1 year</td>
<td>73 (49.0%)</td>
<td>102 (48.3%)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0.7%)</td>
<td>0</td>
</tr>
</tbody>
</table>

* Pain explanation, intentions and outcome: chapter 4.

Health status
Mean and modal ratings for each question are described in table 6.4. The relatively high standard deviations associated with ratings of pain, disability and stress indicate considerable variation within the sample, compared to the more homogenous responses to perceived helpfulness of treatment. Pain, stress and disability were all significantly correlated (p=.000) suggesting the physical and psychosocial facets of self-reported health status were difficult to distinguish. All of these items were negatively correlated with number of consultations (pain p=.009; disability p=.000; stress p=.004), indicating lower reported levels of pain, stress and disability in longer term osteopathic patients. The perceived helpfulness of osteopathic treatment was not significantly correlated with any other items, suggesting satisfaction in this sample was largely independent of self-reported health status.

Table 6.4 EGOR-2 Self reported health status

<table>
<thead>
<tr>
<th>Health status</th>
<th>Range</th>
<th>Mean (sd)</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain intensity</td>
<td>1-6</td>
<td>3.5 (1.1) mild-moderate</td>
<td>Moderate (n=86, 40.8%)</td>
</tr>
<tr>
<td>Pain disability</td>
<td>1-5</td>
<td>2.6 (1.1) little-moderate</td>
<td>A little (n=65, 30.8%)</td>
</tr>
<tr>
<td>Pain chronicity</td>
<td>1-3</td>
<td>2.1 (0.8) 3 to 12 months</td>
<td>&gt;1 year (n=102, 48.3%)</td>
</tr>
<tr>
<td>Stress</td>
<td>1-5</td>
<td>2.7 (1.1) little-moderate</td>
<td>A little (n=73, 34.6%)</td>
</tr>
<tr>
<td>Health</td>
<td>1-5</td>
<td>2.6 (0.9) very good- good</td>
<td>Good (n=98, 46.4%)</td>
</tr>
<tr>
<td>Helpfulness</td>
<td>1-5</td>
<td>1.2 (0.4) definitely -probably</td>
<td>Definitely (n=177, 83.9%)</td>
</tr>
</tbody>
</table>
A subset of questions about pain and health were asked of participants in the Stockwell study and the current study (table 6.5). On average, the EGOR-2 sample report less severe pain, and similar levels of disability and general health.

**Table 6.5 Pain and health status: Stockwell study and EGOR-2**

<table>
<thead>
<tr>
<th>Health status</th>
<th>Stockwell mean (sd)</th>
<th>EGOR-2 mean (sd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain intensity (1-6)</td>
<td>4.1 (1.3) moderate/severe</td>
<td>3.5 (1.1) mild/moderate</td>
</tr>
<tr>
<td>Pain disability (1-5)</td>
<td>2.9 (1.4) little/moderate</td>
<td>2.6 (1.1) little/moderate</td>
</tr>
<tr>
<td>Health (1-5)</td>
<td>2.9 (1.1) very good/good</td>
<td>2.6 (0.9) very good/good</td>
</tr>
</tbody>
</table>

Fifty six (37.3%) patients in the Stockwell study reported suffering primarily from back pain, compared to 33% in EGOR-1 and 20.9% in EGOR-2.

**Qualitative results**

In both EGOR-1 and EGOR-2, it proved possible to analyse responses within the framework of the mapping sentence, with minor revisions (Box 6.1)

**Box 6.1: Revised mapping sentence of patient expectations and experience**

The extent to which

**Facet A Osteopathic patient** x expects osteopathic treatment to help

**Facet B Problem** [B1 specific physical; B2 whole body; B3 psychosocial; B4 other/unspecified] by providing

**Facet C Intervention** [C1 manual treatment; C2 explanation/understanding; C3 therapeutic relationship; C4 self help; C5 Quality/natural; C6 other] which results in

**Facet D Outcome** [D1 pain relief; D2 mobility; D3 normal life; D4 well-being/relaxation; D5 prevention/maintenance; D6 other improvements] ->

**Facet E Extent** [does or does not refer to]

The final category system was comprehensive in that all elements from both facets were included; exhaustive in that all patient responses were included; mutually exclusive in that each category was defined by independent criteria; and coherent in that the categories could be combined together in the form of the mapping sentence. The data were not comprehensive as participants were not asked questions about each structuple.

The analysis and coding of data from EGOR-1 was completed first. The procedure was repeated to analyse and code EGOR-2. Repeated comparisons were made between corresponding categories in both data sets to ensure conceptual similarity, and note differences. In most cases, it did not prove possible to distinguish between responses
included in EGOR-1 and EGOR-2 apart from the emphasis on expectations vs. experience.

This section includes frequencies and qualitative description of the problem, process and outcome categories. Identified differences between EGOR-1 and EGOR-2 responses are noted. Brackets after each italicised quote include patient code number and study (E1 = EGOR-1; E2 = EGOR-2). Additional quotes from EGOR-1 are presented in appendix 6.2, and from EGOR-2 in appendix 6.3.

Problem description
Problem description was categorized into specific physical (B1), whole body (B2) and psychosocial (B3) categories. However, there were differences in level of description from the most frequent location e.g. back pain, or structure e.g. bones or muscles to less frequent accounts of the relationships between different physical problems; between the body and lifestyle or psychosocial factors such as stress; or the whole body, associated with emphasis on balance and health.

Bones and biomechanical description (EGOR-1 21%, n=56; EGOR-2 11.8%, n=25)
This category included skeletal structures (i.e. specific bones, joints, discs, vertebrae); biomechanical descriptions of problem or treatment (e.g. alignment); muscles, nerves and physical location (back; head or neck; lower limbs; upper limbs).

<table>
<thead>
<tr>
<th>Box 6.2: Bones and biomechanical problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• bones are out of place (81E1)</td>
</tr>
<tr>
<td>• joints which have become misplaced due to accident/ stress of position (246E1)</td>
</tr>
<tr>
<td>• spinal problems caused by aggressive sport (245E1)</td>
</tr>
<tr>
<td>• I have had treatment for disc lesions for 20 years off &amp; on (105E2)</td>
</tr>
<tr>
<td>• pressure on the spinal nerves in the lumbar region where the vertebrae may be compacted (165)</td>
</tr>
<tr>
<td>• dysfunction of the skeleton brought on by misuse (143E1)</td>
</tr>
<tr>
<td>• it helps to relieve the pain when my back is out of alignment (113E2)</td>
</tr>
</tbody>
</table>

Muscles (EGOR-1 14.7%, n=38; EGOR-2 6.2 %, n= 13)
All responses involved direct reference to muscles, often described in terms of tension or stiffness, e.g. it loosens my muscles (178E2) and tension built up in my muscles causing headaches and joint pains (232E1).
Location (EGOR-1 n=107, 40.1%; EGOR-2 n=57, 27.0%)
This included all references to a specific body part, usually described as the location of pain.
Location was subdivided into back (EGOR-1 n=88, 33.0%; EGOR-2 n=44, 20.9%), head and neck (EGOR-1 n= 25, 9.4%; EGOR-2 n=10, 4.7%), upper limbs (EGOR-1 n= 10, 3.7%; EGOR-2 n=5, 2.3%) and lower limbs (EGOR-1 n= 18, 6.7%; EGOR-2 n=8, 3.7%).

The prevalence of physical problem description replicates previous findings that that manual therapy patients explain problems in structural-anatomical-biomechanical (Borkan et al, 1995; Levine, 1994; Jamison, 1994; Cherkin & MacCormack, 1989; Coulehan, 1985).

Body (EGOR-1 n=21, 7.9%; EGOR-2 n=22, 10.4%)
A minority of participants referred to the body, often in association with health, prevention or balance. Some quotes emphasized understanding the relationships between different problems or parts of the body. This is consistent with emphasis on the intelligent self-healing body in CM (e.g., Power, 1991, p195), and the osteopathic philosophy of the body as an intentional (e.g., Latey, 1990, p16) and integrated unit (DiGiovanna & Schiowitz, 1991). Attitudes to the body have also been found to differentiate between GP and homeopathic patients, who report stronger belief that the body can be self-healing, that general resistance can be improved, and that treatment should focus on the whole person (Furnham & Smith, 1988); greater health awareness (Furnham & Bhagrath, 1996), and greater knowledge of the physiology of the body (Furnham & Forey, 1994; Furnham & Kircaldy, 1996).

Box 6.3: The body
- conditioning the body (118E1)
- rebalancing the body system (62E1)
- it treats the whole person, as most complaints are connected (82E1)
- manipulating my body back to the correct way in which it originally worked (48E1)
- help me balance the energies in my body to complement the other work I'm doing in other areas of my life- as well as helping correct structural imbalances and their consequences (211E1)
- the way my whole body is being treated & that many areas which I didn't realise were a problem have been found & are being treated (44E2)
- attempting to relate back symptoms to the general bodily function (206E2)
Psychosocial (EGOR-1 n=14, 5.2%; EGOR-2 n=9, 4.4%)
No participant described exclusively psychosocial problems. Some described explicitly psychosocial problems in addition or in relationship to physical problems. The small but consistent proportion of patients who referred to the whole person, or psychosocial factors in both studies demonstrates that these factors are not necessarily excluded by the predominantly physical orientation.

**Box 6.4: Psychosocial descriptions**
- possibly relieving stress after a recent bereavement (262E1)
- releasing the tension in my neck and shoulders caused by stress (190E1)
- unresolved emotional problems held in muscular tensions (70E1)
- relieving muscular pain caused by juvenile arthritis and the effects of stress which aggravate this condition (140E1)
- helping me relax and thus reducing the need for oral stimulants such as cigarettes and over eating (212E1)
- I think it is helpful if the osteopath is able in a containing and unintrusive way to bring up issues of stress etc.- the more psychosomatic aspects of the condition (209 E2)
- it surprised me how it helped mentally as well as physically (204E2)

Four participants in EGOR-1 and 1 in EGOR-2 referred to spiritual or energetic aspects of the problem, e.g. "providing the treatment that remedies & on occasion maintains my body & spirit in a healthy condition" (65E1).

**Problem description: frequencies**
There was no reference to a particular problem in over 40% of patients in EGOR-1, and over 60% in EGOR-2. The relative frequency of reference to different problem descriptions was similar in both studies, though there was a consistent trend towards less frequent physical description in the EGOR-2 study of helpfulness than the EGOR-1 study of expectations. Those patients who did refer to a problem used predominantly structural anatomical biomechanical descriptions, most commonly pain location. Back pain was reported by approximately one-third of EGOR-1 patients, and one-fifth of EGOR-2 patients. A small but comparable proportion referred to the body, self, psychosocial or spiritual factors in both studies. These categories have been combined in table 6.6.
Table 6.6 Problem description: Comparison of EGOR-1 and 2

<table>
<thead>
<tr>
<th>PROBLEM DESCRIPTION</th>
<th>EGOR-1 Expectations n=267</th>
<th>EGOR-2 Helpfulness n=211</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bones/ skeletal structures</td>
<td>56 (21.0%)</td>
<td>25 (11.8%)</td>
</tr>
<tr>
<td>Muscles</td>
<td>38 (14.2%)</td>
<td>13 (6.2%)</td>
</tr>
<tr>
<td>Total location</td>
<td>107 (40.1%)</td>
<td>57 (27.0%)</td>
</tr>
<tr>
<td>Body/self/psychosocial</td>
<td>39 (14.6%)</td>
<td>32 (14.8%)</td>
</tr>
<tr>
<td>TOTAL PROBLEM DESCRIPTION</td>
<td>153 (57.3%)</td>
<td>71 (33.6%)</td>
</tr>
</tbody>
</table>

Fig 6.1 Percentage of patients referring to type of problem description in EGOR-1 (expectations) and EGOR-2 (experience)

Treatment process

Descriptions of the intervention were readily classifiable into four categories: physical (manual techniques); cognitive (explanation and understanding); behavioural (self-help) and affective (the therapeutic relationship). An additional category referring to the natural, drug free and active nature of osteopathic treatment was added. Most of the comments about dissatisfaction with conventional treatment referred to the lack of explanation, lack of active treatment and prescription of medication.

Physical: manipulation (EGOR-1 n=75, 28.1%; EGOR-2 n=22, 10.4%)

In EGOR-1, many participants referred to manipulation (n=51), massage (n=21), manual treatment (n=2) or the osteopaths skill (n=5), though only two mentioned touch directly.

In EGOR-2, only 9 participants referred to manipulation or massage. The smaller number of responses provide a more detailed account of the experience of manual treatment, emphasising the osteopath’s skill, reassurance and confidence. A similar finding was
reported by Furnham & Vincent (1995), who found osteopathic patients no more likely to refer to touch than acupuncture or homeopathic patients. Because manual treatment is fundamentally nonverbal, this category may be the most difficult to evaluate using verbal responses.

**Box 6.5: Manipulation**

- using his hands to get me right (3E1)
- relies completely on the practitioners ability to diagnose and treat by touch. One does not therefore rely on external agents (144E1)
- knowing that the damaged part of the body is actually being examined by someone who can feel/ understand what is going on (209E2)

Cognitive: explanation (EGOR-1 n=54, 20.1%; EGOR-2 n=64; 30.3%)
The common theme was finding, understanding, treating and/or explaining the cause of the problem, and in some cases explaining treatment e.g. "explaining what he is doing and why"(103E1). This was sometimes expressed in terms of diagnosis, by reference to osteopaths specialist knowledge of the body, or understanding in a more general sense, e.g. "taking a wider view of my back problem" (185E1), often referred to as getting "to the root of the problem" (175E2).

**Box 6.6: Finding the cause**

- taking time to find out the cause of the problem (87E1)
- making me understand my problem (E1266)
- most importantly diagnosing the problem. This has proven more accurate in the past than by any other means (174E1)
- finding some way to identify the cause of my back problem (188E1)
- telling me what's wrong with me (250E1)
- gave me a good reason for my problem with a logical explanation (60E2)
- I really appreciate having understanding of whatever the problem is and have found that the osteopaths I have been to have been able to explain this to me (115E2)
- the wonderful ability to get to the root of the trouble (30E2)

In some cases (EGOR-1 n=5; EGOR-2 n=12) this was contrasted with the inability of conventional medicine to find and/or treat the cause of the problem.
Box 6.7: Conventional medicine did not treat cause

- after years of misdiagnosis by the NHS, my osteopath, who I first consulted 2 years ago, not only diagnosed the problem but has taken me some considerable distance towards recovery (43E2)
- I was given something to work on immediately, and not being fed a diet of pain-killers and anti-inflammatory without looking for the cause (60E2)
- gets to the root of the problem much more than a GP or physiotherapy (187)

The perceived lack of medical explanation may reflect iconic interpretation of pain, which is based on acceptance of uncertainty and possibly meaninglessness (Priel et al, 1991, Kugelman, 1998), and the reduced role of the body associated with both iconic and symbolic interpretation (Baszanger, 1997; Sullivan, 1993).

Affective: the therapeutic relationship (EGOR-1 n=23, 8.6%; EGOR-2 n=54; 25.6%)

This included references to the osteopaths' personal qualities such as honesty and compassion, and communication such as listening. This category excluded technical skills, which were coded as physical manipulation, and providing information or explanation, which was coded as cognitive.

Box 6.8: The therapeutic relationship

- it is really my lifeline as I couldn't cope without my osteopath (17E1)
- a support in tackling chronic problems, which may however never be resolved (70E1)
- providing somebody who will listen to me and provide reassuring (hopefully) noises about my condition (29E1)
- just giving us his very good usual support & help. I have nothing to complain about (he) is very good and patient (60E1)
- someone who.. is actively involved in the healing (209E2)
- someone to take your aches and pains seriously (194E2)
- her understanding helped me talk about my problems whilst doing my back (168E2)
- in addition to training, osteopaths who are sensitive & 'in tune' are the most successful (161E2)

Patient emphasis on the therapeutic relationship, particularly in relation to helpfulness, is compatible with the proposal that demand for CM is partly due to longer consultation times with patient-centred practitioners, who provide in-depth discussion of patients backgrounds and problems (Taylor, 1985; Hewer, 1983). This has been poetically described as the "search for good water, for a genuine therapeutic encounter" (Taylor, 1994). There is some evidence that patients perceive CM practitioners as more sympathetic and having more
time to listen than GP's (Furnham et al, 1995), and homeopathic patients report more loyalty to their chosen practitioner than GP patients (Furnham & Smith, 1988; Furnham & Kircaldy, 1996). Though demand for CM has been attributed to dissatisfaction with the authority and control exercised by conventional practitioners (Taylor, 1985), and patients have reported high levels of dissatisfaction with their relationships with conventional practitioners (Neuwirth, 1999), participants in the current study made no critical comments about communication or therapeutic relationships with conventional practitioners.

**Behavioural: self-help** (EGOR-1 n= 51, 19.1%; EGOR-2 n= 42; 19.1%)

This category included general advice; specific advice about exercise, posture, lifestyle, diet; and increased body awareness. The majority of responses concerned general advice about maintaining health and preventing problems, without specifying the content of this advice e.g. "how to stop the pain" (250E1). Some described the cost of treatment as a motivation for self-treatment.

Specific self help-strategies included exercise (EGOR-1 n= 8; EGOR-2 n=15), lifestyle (EGOR-1 and 2 n=6), body awareness (EGOR-1 and 2 n=6) posture (EGOR-1 and 2 n=4), diet (EGOR-1 n=2; EGOR-2 n=4), and individual references to other strategies such as Alexander technique, a self-help book and support aids.

**Box 6.9: Self help**

- correcting imbalances in my body caused by previous injuries & long term poor deportment. I would also like help in learning how to sit and how to reduce these problems in the future (93E1)
- enabling me to be aware of my posture so I can prevent further damage to my joints (227E1)
- suggesting ways I can help myself- rather than keep visiting expensive professionals (66E1)
- general advice regarding diet medicine and certain exercises (27E1)
- useful to discuss lifestyle/ activities & ways of modifying them to prevent future episodes (186E2)
- he offers advice on exercises to be done between sessions, although I don't always do them, he is happy to repeat then & change tactics where necessary (189E2)
- I understand a bit more about the causes of pain & can change my lifestyle (169E2)

References to body awareness as a means of helping the body to heal itself is consistent with the holistic (Power, 1991), and osteopathic (Latey, 1990) view of the intentional self-
healing body. This contrasts with the tendency to view the body as an uninterpreted threat to be coped with associated with iconic interpretation (Priel et al., 1991).

**Box 6.10: Body awareness and self-help**

- I think an osteopath aligns the body and strengthens it enabling the patient to make a fuller recovery after an injury or to just lead a healthier life by being more aware of your body (47E1)
- I expect her to look at whole of me and enlighten me a bit about my body & weaknesses & the way I use it (50E1)
- A trusted check on the body; - like an MOT check on my back and to check I won't be making things worse. - helping my body heal itself naturally while the skill of the osteopath checks & records for future avoidance/support (207E2)

Patient emphasis on self-help replicates previous findings that CM patients value scope for active participation (Furnham & Vincent, 1995).

Natural/ drug free/ constructive (EGOR-1 n=43, 16.1%; EGOR-2 n =53; 15.1%) This category included references to the non-invasive, drug-free, active, constructive nature of osteopathy. This category is not easily accommodated in the original mapping sentence as it refers to the quality of the whole treatment process rather than a specific component. Patient responses indicate a preference for the manual treatment modality, at times contrasted with use of drugs or surgery in conventional treatment.

The largest subgroup was drug free, non-invasive, safe and gentle (EGOR-1 n=27; EGOR-2 n=36). The advantages of drug-free treatment were linked to lack of side-effects, being able to give up or reduce drug consumption, drug-free pain relief, treating the cause rather than symptoms, and a changed attitude to pain.

**Box 6.11: Natural, drug free treatment**

- A natural remedy...; it has no detrimental side effects (4E1)
- I prefer this kind of treatment rather than painkilling drugs (19E1)
- Relieving prolonged muscular pain which has not happened with painkillers (142E1)
- Diagnosing more exactly what the pain is instead of painkillers etc. (67E1)
- Thorough examination of spinal movements and thus getting "to the bottom" of the problem without antibiotics (30E1)
- Far more favourable than any invasive procedures (16E2)
- A realisation that I have to take responsibility for my health & body - that pills are not the answer to pain (79E2).
- I can carry on life as per normal, without taking anything stronger than paracetomals; if I respect my back and visit my osteopath regularly (11E2)
In some cases the non-invasive osteopathic approach was contrasted with conventional treatment, which was perceived by some as having little to offer for their particular problem. Concerns expressed about drugs (EGOR-1 n=18; EGOR-2 n=16) included ineffectiveness, side effects, the possibility of dependence, personal preference and inability to resolve the cause of the problem. Similarly Sharma (1989) found CM patients perceived conventional medication as relieving symptoms without addressing the cause, and CM as getting at the cause of their condition without producing side effects.

**Box 6.12: Medicine has little to offer for pain**
- what would conventional medicine have to offer me? drugs perhaps Surely its better to treat the cause and not the symptoms (185E1)
- saved me operations, visits to the doctor, couldn't have lived without one (228E1)
- if you go to your GP with back pain all you are told is rest .which is not really very helpful (58E2)
- an orthopaedic surgeon gave me the same diagnosis 10 years ago but only said 'you'll have to live with it' Which I did but in constant pain (60E2)
- the hope that someone can help to relieve the pain which the NHS seems to say is something I will have to put up with (75E2)
- the NHS had given up on my back, but I now need a 'tweek' every so often. I am extremely pleased with the result of this osteopath (246E2)
- because after 4 visits to my doctor & A&E at hospital all that they could advise was painkillers, rest, and well 'we don't know'. The wait for the physio was 5-6 weeks (90E2)

A related group of responses indicate the patients perception that the osteopath would do something constructive about the problem (EGOR-1 n=21; EGOR-2 n= 23).

**Box 6.13: Doing something constructive**
- taking remedial steps to sort out the problem (32E1)
- trying different treatments and methods (41E1)
- I am unsure as to how or whether an osteopath would be able to help me but it is an avenue I would like to try (44E1)
- feeling that somebody was actively trying to do something about my problem (206E2)
- much better- less aggressive, more constructive and positive than conventional medicine (88E2)
- doing something constructive where the doctors send you home to bed with painkillers which does not make you feel as if you are going to get anywhere (79E2)
- it is available. It is great alternative to drug taking and operation (61E2)
- probably most important (after treatment) it gives disabled people like myself HOPE (73E2).
This category also includes simple positive evaluations of osteopathy e.g. "excellent service & treatment" (24E2), at times associated with recommendation to others (n=3) e.g. "I have recommended my osteopath to 5 other people who have all received treatment and are now 'converted'' (10E2). Word of mouth recommendation has been identified as the primary means of establishing a caseload for most CM practitioners (Sharma, 1989).

Treatment process: frequencies
Over half of the participants in both studies referred to the therapeutic process. In contrast to EGOR-1, participants in EGOR-2 were more likely to refer to the helpfulness of explanation and the therapeutic relationship; less likely to mention manipulation, and equally likely to refer to self-help and the natural active quality of osteopathic treatment (table 6.7).

<table>
<thead>
<tr>
<th>TREATMENT PROCESS</th>
<th>EGOR-1</th>
<th>EGOR-2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expectation</td>
<td>Helpfulness</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Physical: Manipulation</td>
<td>75 (28.1%)</td>
<td>22 (10.4%)</td>
</tr>
<tr>
<td>Cognitive: Explanation find cause</td>
<td>54 (20.1%)</td>
<td>64 (30.3%)</td>
</tr>
<tr>
<td>Affective: Therapeutic relationship</td>
<td>23 (8.6%)</td>
<td>54 (25.6%)</td>
</tr>
<tr>
<td>Behavioural: Self-help</td>
<td>51 (19.1%)</td>
<td>42 (19.1%)</td>
</tr>
<tr>
<td>Natural/ drug free/ active</td>
<td>43 (16.1%)</td>
<td>53 (15.1%)</td>
</tr>
<tr>
<td>TOTAL PROCESS</td>
<td>156 (58.4%)</td>
<td>109 (51.6%)</td>
</tr>
</tbody>
</table>

Fig 6.2 Percentage of patients referring to aspects of treatment process in EGOR-1 (expectations) and EGOR-2 (experience) of osteopath
Treatment outcome
The treatment outcome facet could be accommodated fairly easily within the original structure of facet B. The categories of pain relief, mobility, ability to lead a normal life and well-being are broadly similar to those used in health status measures e.g. the SF-36 and pain disability questionnaires e.g. the Oswestry, though responses suggest a greater emphasis on health improvement and well-being. Similarly, key themes identified in a qualitative study of health perceptions included absence of symptoms; reserves of strength; health behaviour; fitness and vitality; psychosocial well-being and ability to engage in normal activities (Blaxter, 1990).

Pain relief (EGOR-1 n=97, 36.3%; EGOR-2 n=101, 47.9%)
This was the most frequently mentioned category, suggesting that what osteopathic patients most consistently expect and experience as helpful is relief from pain.

Box 6.14: Pain relief
- releasing the tension built up in my muscles causing headaches and joint pains (232E1)
- I was in agony until I saw the osteopath (95E1)
- alleviating the pain as cause of the problem is my work- cannot be removed (94E1)
- she has helped me & relieved & removed pain with no drugs (69E1)
- the way it takes me out of pain (5E2)
- that I have got such relief from pain in my neck, head and shoulders after years of almost constant pain (55E2)
- obviously I have gone because I am in pain and this has been relieved (38E2)
- the pain is getting better, so is my posture and awareness of the connection between various parts of my body- and various pains I have had in the past (22E2)

Mobility (EGOR-1 n=47, 17.6%; EGOR-2 n=33, 15.6%)
This included ease of movement, suppleness, flexibility and decreased stiffness.

Box 6.15: Mobility
- providing ease of movement (20E1)
- easing the extreme pain of moving and making the affected area less stiff, making normal movement possible again, and walking an automatic process once more (55E1)
- keeping my leg joints moving- without this treatment I would not walk (148E1)
- manipulating my neck to make it more flexible (8E1)
- constantly keeping my body capable of coping with everyday 'elderly' movements (116E1)
- before treatment I was unable to walk without pain in the area of my hip, knee and foot but now I can walk/ hike as normal also my feet are less likely to swell (12E2)
- I have had treatment from 2 osteopaths and am now able to walk again. (104E2)
Normal life (EGOR-1 n=16, 6.0%; EGOR-2 n=30, 14.2%)
Responses included in this category range from ability to engage in specific activities, work and normal functioning, to descriptions of enhanced quality of life. Ability to walk and freedom of movement were excluded, and coded as mobility. Most comments explicitly or implicitly refer to ongoing or recurrent treatment episodes.

Box 6.16: Normal life

- I can play again piano, wash up, iron for longer than 10 minutes which is really great (190E2)
- I could not have managed to function as fully as I have done in the past and at present without his treatment (222E1)
- I have been able to continue working solely because of the osteopathic treatment I have received over the past 10 years (242E1)
- enabling me to go about my everyday duties without pain stiffness and discomfort (255E1)
- it enables me to carry on as if I were OK (56E2)
- the ability for the body to respond over a period of time to a non intrusive and gentle treatment, which is effective and life transforming!! (106E2)

The ability to maintain normal activities, including work and leisure, was referred to by a surprisingly small proportion of participants, given that this is the primary objective of pain management. It is possible that ability to live a normal life is assumed as a consequence of more frequently endorsed expectations of pain relief, mobility and well-being, which provides "freedom to do what I want without pain and discomfort" (168E1).

Well-being, relaxation, tension release (EGOR-1 n=67, 25.1%; EGOR-2 n=54, 25.6%)
This category included tension release, stress relief, relaxation, feeling better, and well-being. The short-term experience of feeling better after treatment is not normally included in outcome evaluation, though current findings suggest this is commonly expected and experienced by osteopathic patients, and has been reported by 83% of CM patients (Which! 1995). Some responses seemed to suggest a more physical or psychological referent of stress, tension and pressure, but this distinction was difficult to draw consistently. Patients accounts of enhanced well-being were often grounded in descriptions of physical experience.
Box 6.17: Well-being, tension release and relaxation

- rebalancing my bones and generally rebalancing the body system easing pain and improving general well-being (62E1)
- generally make me feel well again (168E1)
- osteopathy helps to develop stronger structure from which to balance organs and allows me to move with greater freedom in the joints and with an economical use of weight: this aids an all round feeling of well-being both physically and emotionally (226E1)
- I find the treatment calming and invigorating (12E2)
- I feel so relaxed after the treatment and it takes all the stress and tension out of me. In fact I feel like a new person (151E2)
- feeling relaxed and my joints feeling better and well all over (154E2)

Prevention and maintenance (EGOR-1 n=51, 19.1%; EGOR-2 n=34, 16.1%)

This category included references to prevention, maintenance and health improvement. Many of these responses also referred to self-help, and some reflect the conceptual link between knowing what has caused the problem, and knowing how to prevent recurrence.

Box 6.18: Prevention and maintenance

- setting me on the right road towards good health. I think an osteopath aligns the body and strengthens it enabling the patient to make a fuller recovery after an injury (47E1)
- ensuring that joints and skeletal structures are working at best (247E1)
- balancing me, strengthening my muscle weaknesses (age), calming me (218E1)
- I have experienced osteopathic treatment consistently since 1945. Without this I would not be the fit woman I am today. I go regularly to my very dear osteopath who keeps my creaking frame in very good order (29E2)
- my husband also attends when necessary. After 10 years of back pain he was ‘cured’ after 3 visits and now only requires occasional treatment. Most recently, approximately once every 12 months (140E2)

Other positive outcome (EGOR-1 n=57, 21.2%; EGOR-2 n=80, 37.9%)

This includes references to outcome, which could not be included into other categories. In EGOR-1, it was not always possible to distinguish experience of effectiveness from hopeful expectations for outcome. Specific improvements included circulation, torn muscles, swelling following injury; digestive problems (n=2); migraine; asthma; chest congestion; immune system; women's problems, change of life and hiatus hernia. In EGOR-2, specific benefits (n=21) included relief from muscle spasms (n=7), sciatica (n=4), and menopause/periods, injuries, swelling feet, vertigo, inflammation, circulation, blocked ears, childhood asthma, birth trauma in a newborn baby, thyrotoxicosis, and myopathy, and multiple medical problems. Most responses described improvements in general terms without specifying the nature of changes experienced.
Box 6.19: General benefits

- the treatment given is more successful than any other course I have taken (18E1)
- results are long lasting and truly beneficial (20E1)
- doing what he did last time- he fixed it! (53E1)
- the treatment has been most beneficial to me in every respect (95E1)
- it really does make you better (41E2)
- fantastic results (93E2)
- your treatment has cured and help me. I am the one that should say thank you (151E2)

One EGOR2 participant referred to the helpfulness of manipulation from physiotherapists (105E2), and in two cases osteopathy was described as helpful when used in conjunction with chiropractic (197E2), and radionic therapy (195E2).

Speed of treatment effects
This category was included to take account of the number of people referring to the speed of expected (n=10) and experienced treatment effects (n=37), with 18 using the words immediate or instant.

Box 6.20: Rapid relief

- instantly relieving my pain and tension. I walk in in pain and walk out without (179E1)
- over the years very often relief from pain has been instantaneous (78E2)
- almost instant cure for any current problem (102E2)
- the extra movement obtained immediately (112E2)
- successful treatment in a maximum of 3 visits for varying ailments over the last 27 years (99E2)

The unexpected emphasis on rapid experience of relief is consistent with results obtained by Triano et al (1993) in a study of the reliability and validity of 6 different outcome questionnaires. The authors note that the Modified Somatic Perception Questionnaire (Main, 1983), measuring various aspects of physical discomfort such as sweating, rapid heart rate, tension in forehead, nausea, dizziness and muscle twitching, was unsuitable for assessment of chiropractic outcome because results showed a significant decrease from pre- to post-assessment, but no change between post-assessment and 6 week follow-up, and comment that this observation merits further study (Triano et al, 1993, p72). In combination with current findings, this suggests that manual treatment helps patients to
feel physically better, at least in the short term. The effectiveness of osteopathy was at times contrasted with the ineffectiveness of conventional treatment for pain.

**Box 6.21: Conventional treatment ineffective**

- treatment has made an enormous difference in my life which conventional medicine has failed to do (12E1)
- eliminating the back pain I have been suffering from for the past 18 months. NHS system doesn't seem to be able to do anything about it (40E1)
- I had been pushed from my GP to physiotherapist etc. so they could 'try' to help e.g. traction, electric pulse treatment & deep heat etc, to no avail (10E2)
- I have suffered severe neck & back problems for over 25 years and despite numerous visits to GP's and hospital the only relief I experience is when I receive treatment from my Osteo (124E2)

This replicates previous findings that the "push" away from conventional medicine is associated with perceived ineffectiveness for the particular problem (Pringle & Tyreman 1993; Furnham & Smith, 1988; Sharma 1987; Moore et al, 1985).

**Treatment outcome: frequencies**

**Table 6.8 Treatment outcome comparison of EGOR-1 and 2**

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>EGOR-1 Expectations</th>
<th>EGOR-2 Helpfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain relief</td>
<td>97 (36.3%)</td>
<td>101 (47.9%)</td>
</tr>
<tr>
<td>Mobility</td>
<td>47 (17.6%)</td>
<td>33 (15.6%)</td>
</tr>
<tr>
<td>Normal life</td>
<td>16 (6.0%)</td>
<td>30 (14.2%)</td>
</tr>
<tr>
<td>Well-being, relaxation, release</td>
<td>67 (25.1%)</td>
<td>54 (25.6%)</td>
</tr>
<tr>
<td>General helpfulness</td>
<td>57 (21.2%)</td>
<td>80 (37.9%)</td>
</tr>
<tr>
<td>Prevention</td>
<td>51 (19.1%)</td>
<td>34 (16.1%)</td>
</tr>
<tr>
<td>TOTAL OUTCOME</td>
<td>206 (77.2%)</td>
<td>170 (80.6%)</td>
</tr>
</tbody>
</table>

Fig 6.3 Percentage of patients referring to aspects of treatment outcome in EGOR-1 (expectations) and EGOR-2 (experience) of osteopathy

![Graph showing treatment outcome comparison](image)
Overview

Categorisation of the data into separate elements resulted in some loss of coherence of individual responses. The following responses are longer than average, include a range of elements, and provide a more integrated view of the patients account:

"enabling me to return to work much quicker than would my GP. Also by having the manipulation to my back and neck I am hopefully getting rid of the underlying cause-although they say my job doesn't help, however it is not possible to give up farming which is constant lifting and bending. The osteopath advise me on various things which keep me going from visit to visit- whereas the doctor just tells me to lie down! Well worth the 15 pounds a treatment" (267E1).

"my treatment was the only option that seemed available to me. Conventional medicine could offer no treatment for a neck injury that was causing almost complete physical breakdown. Osteopathy has not only treated my neck injury but put me more in harmony with my body & well being" (195E2)

QUANTITATIVE DATA ANALYSIS

Relationships between problem, process and outcome

Proximities analyses were carried out on problem, process and outcome variables in both data sets. The "problem" facet was represented by bones, muscles, body and psychosocial factors; the "intervention" facet by manipulation, explanation, therapeutic relationship, and self help; and the "outcome" facet by pain relief, mobility, normal life, well-being, and prevention/maintenance. The "natural active" category was excluded as it describes the treatment process as a whole rather than any specific aspect of intervention.

The most notable feature of both plots was the location on pain relief at the periphery of the space, and the resulting compression of other items. This polarisation was considerably more marked in relation to experience than expectations (Appendix 6.3). Both frequency of reference and structural predominance in relation to problem, process and other aspects of outcome, indicate that pain relief is central to patients expectations and experience of osteopathy. In order to obtain a more differentiated picture of relationships between other factors, the proximities analyses were repeated without pain. Patient expectations are represented in EGOR-1 (fig 6.4) Stress = .139; RSQ = .909. Item co-ordinates are reported in appendix 6.5. Patient experience is represented in EGOR-2 (fig 6.5) Stress .112; RSQ .952. Item co-ordinates are presented in appendix 6.5.
These analyses led to clearer regional partitions between problem, process and outcome facets, and between elements within facets. In both plots (fig 6.4 and fig 6.5) problem, process and outcome items are located in distinct regions of the space, with problem towards the centre. These seem to be conceptually and empirically distinct aspects of patient expectations and experience of osteopathy.

**Physical and psychosocial problem description.**
In both plots "problem" items are located between process and outcome, with bones/muscles towards the "manipulation" region, and "body/psychosocial" nearer the explanation region. The close proximity of these items indicates a positive correlation between physical and psychosocial description. There is therefore no evidence of polarisation between physical and psychosocial aspects of problem descriptions.

**Self-help, well-being and prevention**
Pain-relief and manipulation have been identified as the defining characteristics in the public perception of osteopathy (Simons, 1991), and have been defined as the central components of intervention and outcome in trials. The cluster of self-help, explanation, relationship, normal life and prevention suggests there is a distinctive and different aspect to patient expectations and experience.

The plots are different in that the elements of treatment process i.e. relationship, explanation and self help are more widely separated in EGOR-2, indicating lower associations between them. Finding out what is wrong and what to do about it, in the context of a good therapeutic relationship, seem to be more closely related in patients expectations than experience of treatment. This could also reflect the increased frequency of reference to the relationship and explanation in EGOR-2.

**Treatment outcome**
The central aspect of patients experience and expectations is pain relief, which has been excluded from these analyses (appendix 6.4). The remaining items are located in the same region of the space in both plots, but the pattern of relationships is different. Further research would be required to determine whether this is due to inherently unstable relationships between different aspects of outcome, or whether this reflects substantive differences in patients expectations and experience of outcome. The tendency for "prevention" and "normal life" to be associated with description of the problem in terms of "whole body/self" and treatment process seems worthy of further investigation.

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Fig 6.4 Problem, process and outcome minus pain: EGOR 1

2 dimensional proximities analysis; Euclidean distance model

n=267

Fig 6.5 Problem, process and outcome minus pain: EGOR 2

2 dimensional proximities plot: Euclidean distance model

n=211
Individual differences in treatment expectation and experience

In order to determine whether any meaningful subgroups could be identified, and compare subgroups identified in EGOR-1 and EGOR-2, process and outcome variables were analysed using K-means cluster analysis.

Problem description items were excluded because these were less directly relevant to patients' expectations and experience, and proximities analyses had shown that removal of problem items had little effect on the structure of relationships between process and outcome. Categories included were: manipulation; explanation; relationship; self-help and "natural/active" from the "treatment process" facet, and pain relief, mobility, normal life, well-being, prevention and general helpfulness from the "treatment outcome" facet. In both data sets, interpretable and comparable two cluster solution were identified, which map onto structural relationships between items (figs 6.4 and 6.5). The significance of each item in differentiating between groups was evaluated using analysis of variance (tables 6.9 and 6.10).

In both EGOR-1 and EGOR-2, there were no significant differences between clusters in reference to three of the six outcome categories: mobility, ability to lead a normal life or well-being.

**Focal clusters: pain relief**

In EGOR-1, patients included in the focal cluster (n=122, 45.6%) were significantly more likely to refer to pain relief (F=212.5, p=.000), the general helpfulness of treatment (F= 15.8, p=.000) and manipulation (F= 14.7, p=.000). In EGOR-2, patients included in the focal cluster (n= 134: 63.5%) were significantly more likely to refer to pain relief (F= 29.5, p=.000). Compared to the EGOR-2 broad spectrum cluster, there was significantly less reference to prevention (F=9.01, p=.003), and no reference at all to any aspects of the treatment process. The focal group was proportionally larger and conceptually more pain-centred in relation to patients' experience than expectations. For the majority of patients in the current study, osteopathy is experienced as helpful because it relieves pain, and there was little or no reference to other benefits or treatment process.

**Broad spectrum clusters: explanation and process**

In EGOR-1, patients included in the broad spectrum cluster (n=145, 54.3%) were significantly more likely to refer to explanation and understanding (F=52.2, p=.000), the therapeutic relationship (F=11.9, p=.001), self-help (F=18.3, p=.000) and prevention (F=12.9, p=.000).
In EGOR-2, patients in the broad spectrum cluster (n=77; 36.5%) were significantly more likely to refer to explanation (F=225.6; p=.000), all other aspects of the treatment process, including the therapeutic relationship (F=84.7, p=.000), self-help (F=26.7, p=.000), manipulation (F=11.1, p=.001), natural active qualities (F=15.7, p=.000) and prevention (F=9.0, p=.003). The broad spectrum group was proportionally smaller, and conceptually broader in relation to patients experience than expectations.

**Table 6.9 EGOR-1 Process and outcome**
Analysis of variance of 2 cluster solution from K-means cluster analysis (n=267)

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Focal n=122</th>
<th>Broad n=145</th>
<th>Clu MS</th>
<th>df</th>
<th>Error MS</th>
<th>df</th>
<th>F</th>
<th>p</th>
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</thead>
<tbody>
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<td>.13</td>
<td>265</td>
<td>52.2</td>
<td>.000*</td>
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<td>2.2</td>
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<td>.001*</td>
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<td>265</td>
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<td>12.9</td>
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</table>

Bonferroni correction p=.003

**Table 6.10 Process and outcome clusters: EGOR-2**
K-means cluster analysis: Analysis of variance of 2 cluster solution

<table>
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<tr>
<th>CATEGORY</th>
<th>Focal n=134</th>
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<th>DF</th>
<th>Error MS</th>
<th>DF</th>
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<td>209</td>
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<td>1.1</td>
<td>1</td>
<td>.13</td>
<td>209</td>
<td>9.0</td>
<td>.003*</td>
</tr>
</tbody>
</table>

Bonferroni correction p=.003

In relation to both expectations and experience, these findings indicate that explanation, self-help, relationship and prevention were referred to by a distinct and different
patient group than those whose expectations were expressed primarily in terms of manipulation and pain relief. Pain relief was the most powerful factor differentiating patient expectations in the focal and broad spectrum groups; explanation was the most powerful factor differentiating patient experience of helpfulness in the focal and broad spectrum groups.

Cluster groupings indicate that self-help, explanation, relationship, normal life and prevention, which were located in the same region of the proximities plot (figs 6.4; 6.5) tend to be referred to by a distinct group of patients.

Problem description in broad spectrum and focal clusters
Independent sample t tests were carried out on both data sets to evaluate relationships between cluster membership and age, gender and problem description (bones, muscles, body, psychosocial and location). Three significant between-group differences were identified. In EGOR-1, patients in the focal cluster were significantly more likely to refer to back problems (p=.000); and patients in the broad spectrum cluster to psychosocial factors (p=.01). In EGOR-2, patients in the broad spectrum cluster were more likely to be male (p=.004). This is consistent with the Which? (1995) survey, which found demand for manual therapy increasingly fuelled by men who wanted relief from pain, rather than women who were sympathetic to the general approach.

Clinical characteristics and experience of osteopathy
A number of items were included in EGOR-2 to evaluate self-reported health status. Independent sample t tests showed no significant difference between cluster groups in self-rated pain, disability, health, stress, chronicity or helpfulness.

In summary, proximities analysis indicated that problem, process and outcome are distinguishable features of patient expectations. The structure reflected the predominant role of pain relief, and the conceptual and empirical relationship between explanation, self-help and prevention. Cluster analysis identified a broad spectrum cluster who referred to treatment process and prevention, and a focal cluster who referred primarily to pain relief. Identification of comparable groups in different data sets suggests this is a reliable distinction, though clusters were more polarized in EGOR-2, with only patients in the broad spectrum group making any reference to process. In EGOR-1, focal expectations
were associated with back pain and absence of psychosocial description. In EGOR-2, there were no relationships between cluster membership and problem description, self-reported health status, treatment experience or satisfaction, though members of the broad spectrum cluster were more likely to be women.

**Unhelpful aspects of osteopathy**  
The question about unhelpful aspects of osteopathy was not answered by 71 (33.6%); an additional 57 (27%) explicitly stated that they had found nothing unhelpful e.g. "nothing negative to report" (130); "as yet haven't experienced this" (118) "I really have no comments under this heading from my own experience" (92); "a stupid question" (28), and "having been visiting osteopaths for over 7 years I obviously do not find anything unhelpful" (38). By contrast, all participants responded to the corresponding "helpful" question.

Of the 83 (39.3%) who commented on the unhelpful aspects of osteopathy, 13 (6.1%) explained that their criticisms were based on experience with previous practitioners, so the material in this section contributes towards understanding of the factors which motivate movement between practitioners (Which! 1995; Furnham & Bhagrath, 1996; Thomas et al, 1991; Booker & Canter, 1987).

Patient comments have been subdivided into access, process and outcome. Access was not included in the description of helpful aspects of osteopath due to the relatively small number of responses, and the fact that this category was seen as peripheral to osteopathic treatment. Accessibility and cost effectiveness were also rated as the least important reasons for choosing CM in Furnham & Vincent's study (1995). However, limited access emerged as a major concern in patients account of the unhelpful aspects of osteopathy. Process and outcome were described within the framework of the mapping sentence, and proved to be congruent with the corresponding "helpful" categories.

**Lack of access to osteopathy**  
The largest category of responses to the question "what I found least helpful about osteopathy" concerned difficult access (n=58), mainly unavailability on the NHS (n=30), cost (n=27) and lack of insurance cover (n=4). The predominance of concerns about access reflects the fact that most CM, including osteopathy, is also private medicine, and the majority of patients who expressed an opinion in the current study wished to see
osteopathy available on the NHS. Similar views have been reported by GPs (Rees, 1976; Cameron et al, 1993). On the other hand, some participants referred to the benefits of private practice, including easy access, choice, time and individual attention, and there is evidence that medical practitioners in private practice show higher levels of affective behaviour (Ben-Sira, 1980). Cost was described as particularly problematic in relation to regular treatment (n=11), in the context of uncertainty about how long the treatment should continue, or inability to afford the number of which were believed to be required in order to obtain desired improvements.

Box 6.22: Cost, uncertainty and regular treatment

- uncertainty about whether paying for further follow up is a) wise b) necessary (70)
- not having a time limit to continue treatment for, and the cost has been limiting (180)
- the amount of times I have had to go, plus the cost (171)
- as the treatment is quite expensive, I was unable to continue treatment long enough to effect a cure (6)

In most cases lack of availability on the NHS was linked to cost, three referred to potential clinical benefits e.g. "if osteopathy was available on the NHS I feel less tablets would be swallowed and an earlier return to work feasible as, with the correct diagnosis it is possible to give the patient exercises to perform to strengthen and correct the disability" (101).

Other access difficulties included location (n=4), inadequate consultation time (n=2), inconvenient appointment times (n=3); lengthy waiting times (n=4); late appointment (n=1); unavailability of home visits (n=1) and the difficulty of finding a qualified practitioner (n=1), or gaining access to a preferred osteopath (n=3). References to lack of public awareness or distrust of osteopathy (n=7) were included in this category as potential barriers to access.

Another aspect of difficult access was the lack of contact between the osteopath and GP (n=11). This included comments about GP's limited understanding of osteopathy (n=4), lack of referral to osteopathy (n=5), and recommendation for increased liaison in relation to diagnosis, drug treatment and monitoring (n=2)

Conversely, some described costs as reasonable (n=5) e.g. "it's worth every penny I pay" (151), and found fast access to private treatment helpful (n=14).
Box 6.23: Lack of contact between osteopaths and medical practitioners

- GP's should make more referrals in order that the problem can be managed (95)
- why no more GP are given a few hours tuition about the benefits of osteopathy at all levels (192)
- the need to work closely with (sometimes sceptical) GP's over such matters as the need for radiography or other diagnostic tests or drug regimens (105)
- I think osteopaths should encourage a clear prior diagnosis of the problem through conventional means. They should also encourage regular monitoring, again through conventional means, of the effects of their treatment (81)

Treatment process

Manipulation: lack of skill (n=16)

Of three participants who found manipulation unhelpful, two referred to cranial osteopathy; one to unnecessary manipulation. More often, patients referred to osteopaths lack of skill (n=13). This was summarized by one participant "the value of the treatment depends entirely on the skill of the practitioner" (86).

Box 6.24: Unskilled osteopaths

- a practitioner who is looking for a quick fix (160)
- I have only ever found one osteopath to be really effective. I have tried lots of osteopaths over 40 years span (45)
- osteopaths who lack strength and experience (110)

Affective: poor therapeutic relationship (n=3, 1.4%)

Patient comments referred to lack of sensitivity, honesty and sexual abuse 35 years ago, all in connection with a previous practitioner.

Box 6.25: Insensitive osteopaths

- lack of sensitivity & communication with an osteopath led to worsening of my condition (195)
- my present osteopath is very honest about the probability or otherwise of success- this has not always been the case with previous practitioners (48)

Individual differences between practitioners are an accepted feature of osteopathic practice (Kirk, 1998), and current findings suggest that these differences play a role in "doctor shopping" by CM patients (Which?, 1995; Furnham & Bhagrath, 1996; Booker & Canter, 1987; Sharma, 1987).
Cognitive: Lack of explanation/uncertainty (n=28 (13.3%))

This category included lack of explanation of the problem (n=14), treatment (n=12), or general inadequate information (n=6). Three specifically referred to lack of X ray facilities, which are commonly used in chiropractic (Cherkin et al, 1988) but not osteopathy. In some cases this uncertainty was directly associated with the decision about whether to continue osteopathic treatment (n=7).

Box 6.26: No explanation of problem or treatment in osteopathy

- not knowing how & why it could help me (10)
- referencable information regarding cranial checks with children and babies (17)
- that I do not understand how it helps and so am sometime unable to prevent the pain building up again (55)
- little attempt to give a prognosis or an idea of how long treatment is expected (128)
- uncertain future treatment requirements to achieve tangible benefit (190)
- that doesn't explain your case i.e. left in the air (61)

Behavioural: Lack of self-help advice (n=3, 1.4%)

Three participants commented on failure of osteopaths to volunteer advice about self help, though in two cases this advice was provided when asked for e.g.

"osteopaths don't offer advice on diet/exercise/posture (unless especially asked perhaps) to prevent a condition recurring, which would be helpful, for e.g. exercises to strengthen the lower back if you are prone to lower back problems" (4)

Quality of treatment process: discomfort, apprehension, tiredness (n=19, 9.0%)

This category was not the converse of "natural active" as the primary focus was on pain and discomfort. Osteopathic treatment was clearly not always experienced as gentle and relaxing. One noted "it is seldom painful" (104) implying that it occasionally is painful, and 3 expressed apprehension about treatment. Others mentioned a short term exacerbation of pain. These descriptions often represented exacerbation of pain as part of the process of recovery, associated with longer term benefits. This potential therapeutic value was not described in relation to perceived side-effects of drugs. The proportion reporting pain or discomfort is roughly comparable to 12% reporting some form of adverse reaction to CM (Abbot et al, 1996).
Limited effectiveness (n=33, 15.6%)
This category included lack of cure (n=10), incomplete pain relief (n=8), short-term effects (n=9) and concern that treatment was a slow process (n=8). References to chronic ongoing conditions, or the need for regular treatment were not included unless some kind of dissatisfaction or disappointment was implied, or they had been referred to in response to the "unhelpful aspects of osteopathy" question.

The centrality of pain relief in patients' accounts of the helpful aspects of osteopathy clearly does not mean permanent elimination for all patients, as reflected by comments that relief may be partial (n=8) short term (n=9) or slow (n=8).

In summary, apart from restricted access due to cost and lack of availability on the NHS, unhelpful aspects of osteopathy were the converse of helpful aspects i.e. lack of...
explanation and limited improvement. Though categories derived from the mapping sentence were considered separately, a recurring theme is uncertainty, about what is wrong, about whether and how treatment may help, about differences between osteopaths, and whether continuing treatment is worth the cost and will lead to permanent improvement.

Relationships between helpful and unhelpful aspects of osteopathy
The elements each facet were combined, to produce an overall binary variable representing whether or not each individual had referred to the helpful and unhelpful aspects of process and outcome. Frequencies of comments about the helpful and unhelpful aspects of osteopathy are shown in table 6.11.

Table 6.11
Helpful and unhelpful aspects of access, process and outcome: EGOR-2

<table>
<thead>
<tr>
<th></th>
<th>Helpful</th>
<th></th>
<th>Unhelpful</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Per cent</td>
<td>n</td>
<td>Per cent</td>
</tr>
<tr>
<td>ACCESS</td>
<td>15</td>
<td>7.1</td>
<td>58</td>
<td>27.4</td>
</tr>
<tr>
<td>PROCESS</td>
<td>128</td>
<td>60.7</td>
<td>50</td>
<td>23.7</td>
</tr>
<tr>
<td>OUTCOME</td>
<td>169</td>
<td>80.1</td>
<td>33</td>
<td>15.6</td>
</tr>
</tbody>
</table>

A proximities analysis was carried out to evaluate relationships between helpful and unhelpful aspects of access, process and outcome (fig 6.6). S-Stress.027; RSQ = .998. Item co-ordinates are reported in appendix 6.5.

The resulting plot (fig 6.6) shows close associations between unhelpful aspects of osteopathy, suggesting that those who did express criticisms were likely to criticize more than one aspect. Helpful aspects of treatment process and outcome are more widely distributed. The space is polarized, with positive experience of treatment outcome at one extreme, and all other aspects at the other. Personal experience of improvement seems to provide the basis for patient evaluation of osteopathy.
Fig 6.6 Helpful and unhelpful access, process and outcome: EGOR2

2 dimensional proximities analysis: Euclidean distance model

n=211

Definite improvement

Limited improvement

Unhelpful process

Limited access

Easy access

Helpful process

Summary of findings

Results of the EGOR studies will be summarized in relation to the research questions.

1. What do patients experience as helpful and unhelpful about treatment

The mapping sentence has provided an organising framework for categorising patient expectations' and experience of osteopathic treatment into physical and psychosocial aspects of problem, process and outcome.

The clear picture emerging is that the most helpful aspect of osteopathic treatment is its effectiveness, particularly in relieving pain. Over half found the actual process of treatment helpful. The natural, holistic, drug-free approach which did something positive about the problem was contrasted with alternatives which many found unhelpful. Osteopathy was also valued as providing some explanation, discussion or listening, and helping the patient to help themselves. Most unhelpful aspects were cost and lack of availability on the NHS; lack of skill, explanation, or understanding, and partial or short-term effectiveness.

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The conceptual relationships between unhelpful aspects of osteopathy, primarily uncertainty and limited improvement, are empirically reflected in the fact that these comments were made by a minority of participants, and closely associated on the proximities plot, suggesting they represent a subgroup within the sample. This uncertainty may be paradoxically reinforced by some of the helpful aspects of treatment, e.g. the widely reported relief from pain, even if temporary, and the perception that treatment is doing something constructive, both of which may reinforce hope for a cure. It is notable that the problem does not seem to be just that osteopathy fails to cure the problem, as many patients expressed satisfaction with osteopathy as a resource for coping with chronic conditions. Cluster analysis identified a focal group of patients who referred to pain relief, and a broad spectrum cluster who referred to all aspects of the treatment process and prevention.

2 How do patients expectations compare with patients experience of osteopathy?
The conceptual content of patient expectations' and experience was similar, though there were differences in frequency of reference to particular categories. Compared to expectations of osteopathy, patients experience was less likely to involve physical description of the problem and manipulation, and more likely to involve the therapeutic relationship, explanation, pain relief and general or unspecified improvements. Expectations and experience of self-help, natural active treatment, mobility, well-being and normal life were similar.

3 Is there a relationship between clinical characteristics and patients' experience of osteopathy?
Results showed no relationship between self-reported pain, chronicity, disability, stress or problem description and patients accounts of their experience of osteopathy.

Discussion
Results of the current study make some contribution towards explaining the discrepancy between limited evidence of efficacy in trials of manipulation, and high levels of patient-reported effectiveness and satisfaction. Patient accounts broadly replicate previous findings.

The current study has provided some indication of the reasons patients consult osteopaths in private practice, and the way in which they evaluate treatment process and outcome.
Patients in the current study described osteopathy as helpful for problems which were described in predominantly physical terms. The prevalence of biomechanical explanation has been reasonably well documented in relation to manual therapy patients (Zusman, 1997; Borkan et al, 1995; Cherkin & McCormack, 1989; Deyo & Diehl, 1986), but is not unique to this group. Similar findings have been obtained in an interview and observational study of 8 primary care medical patients presenting with uncomplicated somatic problems, who were asked to narrate their understanding of their own medical pathology (Mabeck & Olesen, 1997). Results showed patients' understanding of the body and illness was structured using an "ethno-mechanical metaphor" grounded in everyday common sense experiences about the way things are usually connected. Problem descriptions were typically described using mechanical and technical concepts such as pump, pressure, transport and container, often associated with construction of the body as a machine which was autonomous and separate from the self. The patients' "profoundly physical mapping of body processes" was described as a pragmatic, internally coherent and potentially useful metaphor to mediate clinical communication, despite being inconsistent with medical practitioners biomedical and biochemical understanding of the body; biomedically incorrect, and inadequate to secure genuine understanding (Mabeck & Oleson, 1997, p277). Mabeck & Oleson's study in combination with current findings provides some grounds for the proposal that the biomechanical orientation of osteopathy is broadly compatible with patients ethno-mechanical understanding of the body, and provides a basis for congruent problem explanation within a shared frame of reference. This congruence may account for evidence that patients believe their pain is better understood by practitioners of manual medicine than conventional practitioners (Furnham et al, 1995; Borkan, 1995; Levine, 1994; Coulehan, 1985; Cherkin & McCormack, 1985).

The current study did not find evidence of polarisation of problem description into "either physical or psychosocial", so findings are less clearly compatible with Mabeck & Oleson's observation that ethnomechanical understanding was associated with dualism between the body and the self. Though the majority of problem descriptions were framed in terms of pain location or musculoskeletal structures, approximately 15% in both EGOR-1 and EGOR-2 referred to the whole body or the self, at times associated with posture, body awareness, lifestyle, or stress. Specific physical and whole body or psychosocial
explanations were adjacent on the proximities plot (figs 6.4 and 6.5). The finding that physical explanation does not necessarily preclude psychosocial or whole person understanding is consistent with the holistic explanatory framework. However, the proportion of patients who described this integrative "both physical and psychosocial" understanding was small.

**Treatment process**
Explanation and understanding emerged as a central theme in patient accounts of the treatment process, and provides a conceptual link between categories. Primarily, though not exclusively, biomechanical explanation of the problem provides a rationale for perception of osteopathy as treating the cause and "getting to the root of the problem", whether framed in terms of skeletal realignment, muscular tension release, or more occasionally whole body balance or integration; and in some cases for self help strategies.

Patient satisfaction with CLBP treatment is associated with patient perception that an adequate explanation of the problem has been provided (Deyo & Diehl, 1986), and provision of a definite diagnosis congruent with the patients' beliefs has been associated with improved outcome in medicine (Pastor et al, 1993; Shutty, et al, 1990; Bass et al, 1986) and in medical and chiropractic management of LBP (Curtis & Bove, 1992). Patient expectations of improvement have also been positively correlated with outcome in CM (Lewith, 1985) and osteopathy (Pringle & Tyreman, 1993).

*Chronic pain patients desire for an explanation has been attributed to hope that diagnosis will bring treatment and cure the advantage of a disease category in explaining the problem for others, and "the sense of living in an orderly world, that one's condition can be located in medical indices and libraries, that others share the condition, and, especially, that one is sane" (Hilbert, 1984, p368).*

Patients sense of understanding is particularly important in the context of an emerging view of health as the process by which individuals maintain their sense of coherence and ability to function in the face of changes in themselves and their relationships with their environment (Antonovsky, 1987). Sense of coherence is defined as a personal orientation composed of meaningfulness, i.e. that the tasks and challenges of life purposeful and worthy of engagement; manageability i.e. that the individual has the resources to cope with the demands of life; and comprehensibility i.e. that the world is understandable and makes sense. There is corresponding evidence of an association between patient perception of pain
meaning and pain intensity and distress in cancer patients (Barkwell, 1991), pain relief following acupuncture (Kreitler et al, 1987) and improvement following pain treatment (Kreitler & Kreitler, 1989). The authors propose that "the formation of meanings may be an integral part of every successful attempt at pain treatment" (Kreitler et al, 1989, p319). Similarly, scores on the Sense of Coherence Scale (Antonovsky, 1987), particularly the "meaningfulness" subscale, were found to be more powerful predictors of six month outcome in 107 patients attending a pain management program than anxiety and depression (Petrie & Azariah, 1990). It has been suggested that the most salient meanings of pain may not be descriptions of the quality of pain experience, but "little stories like 'no pain, no gain" which represent ways of understanding and responding to pain and suffering (Sullivan, 1998, p193).

Uncertainty about the cause and fear of being disbelieved have been identified as central features of patients experience of pain (Keefe, 1999; Kugelman, 1998; Osborn & Smith, 1998; Hadler, 1996; Peyrot et al 1993) have been associated with the patients quest for a practitioner who shares their understanding of the problem (Levine, 1994), which may be linked to a more general quest for "existential validation" (Delin et al, 1996). Conversely, patient beliefs about the need to identify a cause have been described as presenting a major challenge to attempts at functional restoration (Feuerstein & Beattie, 1995, p269), and implicated in concerns about referral patterns, failure to enter treatment and attrition rates from pain management programs (Turk, 1996).

The central role of explanation in the current study contrasts with Mabeck & Oleson's (1997) "most surprising finding" that many patients claimed not to understand the medical pathology and expressed no desire to receive an explanation. This discrepancy may be related to differences in the presenting problem. In Mabeck & Oleson's study, all presenting problems were biomedically explained. In semiotic terms, the symptoms were translated into signs of pathology which was understood and effectively treated by the medical practitioner within a biomedical frame of reference. Many cases of chronic pain cannot be explained in biomedical terms (Baszanger, 1997; Waddell, 1992; Priel et al, 1991; Hadler, 1987; Lawrence, 1977), and very few patients in the current study referred to biomedical disease categories. Absence of treatable disease is not unique to chronic pain, and has been identified as a common feature of problems presented to CM, which tend to be chronic but not life threatening conditions (Thomas et al, 1991) that have not responded to
conventional medical management (Thomas et al, 1991; Fulder & Munro, 1985; Kotarba, 1983; Yesalis et al 1980; Hewit & Wood 1975). This selectivity seems to result from patient rather than practitioner decision making (Sharma, 1989). In combination, these findings suggest that patients consult CM practitioners in the hope that the practitioner can make sense of symptoms (Leder, 1990, p12), and answer questions typically raised by illness, such as what changes signify (Bakan, 1968, p57-8) following inability of conventional medical practitioners to provide a satisfactory explanation. This is consistent with the proposal that biomedically indeterminate problems, or symptoms which cannot be interpreted as signs of treatable pathology, constitute the most appropriate domain for comparison between conventional medicine and CM.

The therapeutic relationship
The therapeutic relationship, or perception of practitioners positive qualities, support and listening were also identified as helpful. To the extent that interpersonal and communicative aspects of treatment are important in all forms of intervention, this is a non-specific component which is common to all forms of treatment. However, communication and the therapeutic relationship may be particularly important in relation to private osteopathic treatment of pain.

Firstly, idiographic assessment procedures may require osteopaths to carry out a systematic enquiry into the nature of pain and its relationship to other aspects of the patients life. As such, patients perception of support and being listened to may reflect the structure of holistic explanation rather than the individual qualities or communicative skills of osteopaths. This is consistent with the absence of criticisms of conventional medicine for poor communication or therapeutic relationship; and there are no a priori grounds for assuming CM practitioners or osteopaths communicate more effectively than conventional practitioners (Heron, 1990). Feeling understood may be particularly relevant for chronic pain patients, given concerns about their claim to pain not being believed or delegitimated by psychological explanation (Osborn & Smith, 1998; Hadler, 1996; Priel et al, 1991; Diamond & Grauer, 1986).

Secondly, perception of the practitioner as honest and trustworthy may be particularly salient in private CM practice, where the terms of the treatment contract are largely negotiated between patient and practitioner, rather than defined by the organisational
structure of the NHS or third party insurance. This is expressed by one participant who expected osteopaths to "be prepared to admit if they can't help and avoid making me feel they are trying to make money out of me" (66E2). Patients in the current study who expressed dissatisfaction with practitioners' personal qualities or poor communication all emphasized that comments applied to previous osteopaths, and not to current osteopath, implying that this played a role in choice of current practitioner.

Patient choice of practitioners on the basis of compatibility or personal preference has been viewed as a manifestation of postmodernism and relativisation of standards (Charlton, 1993). Conversely, increased availability of choice has been seen as a defining characteristic of modern society (Giddens, 1991; Beck, 1992), and health professionals have been encouraged to actively empower patients to make choices between available alternatives (Lewis, 1992), particularly in relation to chronic conditions such as low back pain (Wennenberg, 1996).

Natural active treatment.
Responses in this category expressed a clear preference for the osteopathic manual mode of intervention, which is congruent with physical problem explanation. This is perceived as constructive, natural and "getting to the root" of the problem. All forms of intervention have some symbolic meaning whether or not it is explicitly recognized (Coulehan, 1987) and symbolic understanding does not necessarily imply verbally mediated meaning (Turner, 1993). On an anecdotal level, most osteopaths claim to be able to identify pain location by touch alone, described as "seeing with the hands" (Nathan, 1993, p 17), and some have explicitly considered the symbolic significance of nonverbal osteopathic dialogue (e.g., Randall, 1988, 1992, 1998a, 1998b; Leiberman, 1990). The touch based modality of osteopathy, and representation of the body as intentional and potentially self-healing may convey a tacit meaning which informs the patient’s understanding of and response to the problem.

There is some common ground between the symbolic aspects of manual treatment, and recognition of practitioners nonverbal behaviour as a major source of affective communication in conventional medicine (Bensing, 1991; Stiles & Putnam, 1989). All face-to-face behaviour has viewed as having some affective significance (Hall et al, 1987), and practitioners' nonverbal behaviour has been seen as a source of "leaked" information
which may not be intentionally transmitted (DiMatteo et al., 1980), but which is highly salient to patients as a source of information to reduce uncertainty about their illness (Friedman, 1979). The consistency between practitioners' verbal and nonverbal communication has been proposed as a basis for evaluating the practitioners' genuineness, a core condition necessary for a good interpersonal relationship (Ong et al., 1995; Bolton, 1987; Rogers, 1957). Patients also express more satisfaction with practitioners who show high levels of immediacy by using touch, eye contact, close body proximity, face-to-face orientation and nonverbal responsiveness to the situation (Larsen & Smith, 1981). More recently, non-verbal expressiveness and sensitivity have been conceptualised in terms of emotional intelligence and empathy (Goleman, 1996). A qualitative study of empathic communication in the medical interview (Suchman et al., 1997) found patients seldom verbalized emotion directly and spontaneously, and were more likely to offer clues. If these cues were recognized and acknowledged by the practitioner, patients were likely to express emotional concerns directly. If, as in the majority of cases, these cues were not acknowledged, some patients attempted to raise the topic again, sometimes repeatedly with escalating intensity. The authors conclude that the basic empathic skill seems to be recognising when emotions may be present but not directly expressed, inviting exploration of these unexpressed feelings, and effectively acknowledging these feelings so the patient feels understood. The frequent lack of acknowledgement by practitioners of both direct and indirect expressions of affect poses a threat to the therapeutic practitioner-patient relationship, and warrants further study. Evidence from research into non-verbal communication in conventional medicine is consistent with patients' preference for the tactile modality of osteopathy. Reduced use of physical examination in conventional medicine, due to concern about the risks of medicalising pain, and low incidence of serious pathology (Little et al., 1996) may enhance the importance of osteopaths' ability to find and "touch where it hurts".

Self help
Some patients in the current study referred to the role of osteopaths in helping them to help themselves. A preference for constructive action has been identified in previous studies of patients suffering from chronic pain (Boston et al., 1990) and other forms of chronic illness (Viney & Westbrook, 1982). There is also evidence that and that conventional medical
patients desire more information from practitioners about health and lifestyle, though quality of advice received has been described as low (Coulter, 1987). A study using discourse analysis to evaluate management of lifestyle related issues in 42 primary care consultations concluded that practitioners did not fully exploit the educational potential of linking presenting problem e.g., knee pain, to lifestyle advice, e.g., recommending weight loss (Johanson et al, 1998). Practitioners caution about making explicit medical inferences about lifestyle may be related to realistic apprehension about patients possible negative reactions to preventative advice (Williams et al, 1991; Stott & Pill, 1990); inaccessibility of specialist knowledge to the patient (Parsons, 1951); and possible concerns that sharing knowledge may compromise status and authority (Ben-Sira, 1985; Friedson, 1970). Conversely, some patients in the current study did explicitly link understanding the problem to self-help e.g. "I understand a bit more about the causes of pain & can change my lifestyle" (169E2). This reflects the CM interpretation of symptoms as meaningful signs of imbalance in the person or person environment relationship (Vincent & Furnham, 1997 p21; Jobst, 1997; Launo, 1994; Gordon, 1996 Fulder, 1984).

Facilitating self-help is of central importance given the relationship between perceived self-control and reduced pain disability (e.g., Harkapaa et al, 1991, 1992; Toomey et al, 1991; Deyo et al, 1992; Brown & Nicassio, 1987; Turner et al, 1987; Dolce et al, 1986), and emphasis on self-regulation in management of chronic illness (e.g. Clark & Gong, 1998). Concerns have been expressed about decreased enablement of LBP patients in conventional medicine (Howie et al, 1994), and increased referral to manual therapy (Barnet et al, 1999) which may lead to patient passivity, expectations of a "quick fix" and consequent disappointment and despair (Zusman, 1997; CSAG, 1994; Latey, 1991). Current findings indicate that for some patients osteopathy is associated with active engagement and self-responsibility, though the numbers referring to self-help were small, so the risk of passivity cannot be excluded.

Outcome
Patients’ accounts of treatment outcome were considerably more straightforward than accounts of treatment process. The most important aspect of treatment outcome was pain relief, followed by well-being, and approximately equal reference to health promotion/prevention; mobility and ability to lead a normal life.
It proved difficult to make any categorical distinction between physical and psychosocial aspects of outcome descriptions, virtually all of which reflect the experience of "feeling better" e.g., relief from pain, release of stress and tension, relaxation and flexibility. Similarly, high correlations between pain, stress and disability identified in the current study reflect the association between chronic pain and depression (e.g. Sullivan et al, 1992), at least in nonprivate clinical populations (Magni et al, 1990; Chapman et al, 1979); and the central role of negative affectivity in self report measures of both stress and health (Watson & Pennebaker, 1989). This interaction may be more readily accommodated within the holistic view of the body as not only expressive of the self, but constitutive of the self, so increased freedom of movement is not just a cause of feeling better but is feeling better (Nathan, 1993, p42), than a dualist frame of reference (Sternbach, 1974, Leavitt et al, 1980).

One unanticipated theme identified was the complexity of temporal relationships in experience or anticipation of treatment effects. At one end of the continuum, many referred to the speed of relief and experienced well-being following treatment. Similar findings have been obtained by Triano et al (1993). At the other extreme many described a longer term process of cumulative relief, health improvements or anticipated prevention resulting from repeated treatment and self help. Patients emphasis on the often rapid experience of relief could be seen as replicating previous findings that chronic pain patients are preoccupied with a tireless quest for relief (Swanson, 1989), associated with concern about perpetuating a pain centred lifestyle and dependence on practitioners (Zusman, 1997). On the other hand, self-reported well-being and positive affect prior to participation in a pain management program were positively correlated with self-reported use of relaxation and other coping techniques taught during the course at 6 months follow up (Petrie & Azariah, 1990). This raises the question of the extent to which patients experience of well-being or feeling better may lead to dependence on manual treatment for relief, or facilitate more autonomous and active pain coping.

These findings make some contribution towards explaining the discrepancy between limited evidence of efficacy in trials, and high reported levels of patient satisfaction. Firstly, the prevalence of "doctor shopping" (Which?, 1995; Furnham & Bhagrath, 1996 medicine (Thomas et al, 1991; Booker & Canter, 1987; Lewith, 1985), and reliance on
personal experience of improvement suggests patients are self selected on the basis of perceived helpfulness. Patients are motivated to consult osteopaths because "it works for me".

Secondly, non-specific factors such as use of a range of methods and self-help strategies are excluded in trials, but were perceived as helpful by some patients, particularly those included in the 'broad spectrum' cluster.

Thirdly, there seems to be a distinction between short term use of osteopathy for relief of pain, associated with patients in the focal cluster; and long term use of osteopathy as a resource for prevention, maintenance and health promotion. Trials and NHS osteopathic treatment tend to focus on time limited discrete treatment episodes. For example, the modal number of consultations in the Stockwell study was 4, compared with 63% who had consulted more than 3 times in EGOR-1, and 69% who had consulted more than 5 times in EGOR-2. In view of the chronic relapsing nature of back pain, Van den Hoogen et al (1998) have recommended that treatment should focus on relapse prevention and management rather than relief from single episodes.

Limitations
The extent to which patients included in these studies are representative of osteopathic patients is undetermined: all practitioners were self-selected on the basis of willingness to make a voluntary commitment of time and energy to the research, and the recruitment procedure provided some scope for practitioner selection of patients. Findings cannot therefore be interpreted as a generalized quantitative indication of treatment efficacy.

The strategy of analysing patient responses into discrete categories resulted in some loss of coherence and may have misrepresented patients meaning. This possibility was not adequately evaluated, as results were not presented to osteopathic patients for feedback and comment.

The analysis into categories also resulted in a large number of sub headings and patient quotes, which seem rather fragmented. This was a consequence of using the mapping sentence as a coding framework for content analysis rather than using a more interpretive method. This strategy was chosen because the nature of the data i.e., very large numbers of short responses, did not easily lend itself to a more exploratory approach.
The assessment procedure was open-ended rather than comprehensive, i.e. not all patients were asked about the relevance of all categories to their expectations and experience of osteopathic treatment. The data therefore represents "what came to mind" when patients were completing questionnaires rather than systematic evaluation of the range of possible responses. In combination with the relatively small numbers of responses in some categories, this may limit the validity of quantitative analyses.

Finally, the comparison between two studies which asked different questions did provide some evidence of the robust structures in the mapping sentence, e.g. the centrality of pain relief; though preclude the possibility of determining whether identified differences are related to the different questions asked, or reflect the instability of relationships identified. Further research into patient experience and expectations, and possibly reanalysis of existing findings within the structure of the mapping sentence, would be required to address this question.
CHAPTER 7
DISCUSSION

The problem which has provided the focus for the current thesis is how to respond to the research crisis in osteopathy if the central concepts of problem, process and outcome may have a different meaning within a holistic and reductionist frame of reference, and the predominant research methodologies employed to date embody reductionist assumptions about problem, process and outcome.

Holism and reductionism were construed as complementary levels of description rather than mutually exclusive alternatives. This formulation directs attention towards the role of philosophical explanatory frameworks in shaping construction of problem, process and outcome. The research focus was therefore defined as the ways in which osteopaths understand and manage pain, and the consequences for patients. Facet theory was used to translate this focus into a series of empirical questions. The semiotic distinction between indexical, iconic and symbolic signs was used to provide a cross disciplinary classification of types of pain interpretation.

The most general finding of the current series of studies was that problem, process and outcome in osteopathic practice were holistic in terms of the original definition: psychosocial factors were taken into account in addition to and not as an alternative to physical factors. This work has provided some theoretical and empirical support for osteopaths claim to holism, and grounds for questioning the osteopathic validity of manipulation trials to date.

Reductionism was defined in the mapping sentence as predominantly physical understanding and management of pain. Predominantly physical orientation was a common feature of the indexical pain interpretation sub-group in the Stockwell study; the focal sub-groups identified in the BSO studies of osteopaths use of treatment methods and perception of treatment effects; and patients' expectations and experience of osteopathy in the EGOR studies. Holism was defined in the mapping sentence as both physical and psychosocial understanding and management of pain. Both physical and psychosocial, or whole person orientation, was a common feature of the symbolic pain interpretation sub-group in the Stockwell study, the broad spectrum sub-groups in the BSO studies of osteopaths use of treatment methods and
perception of treatment effects, and patients' expectations and experience of osteopathy in the EGOR studies.

Though semiotic methodology was not used in this thesis, the distinction between broadly reductionist and broadly holistic practice in osteopathy implies a corresponding difference in interpretive strategy and epistemological assumptions about what is signified by the pain, and how relevant knowledge can be obtained. The implications of this distinction for will be considered in the first half of this discussion. This provides a basis for consideration of more detailed implications of findings for understanding, management and osteopathic treatment outcome.

Empiricism and evidence based practice

Evidence based practice is the central strategy currently encouraged by governments for establishing and disseminating best practice, and improving efficiency by ensuring equitable service delivery (e.g. Glanville et al, 1998; Sackett et al, 1997; Peckham, 1991). This is based on a hierarchical model in which a small minority of clinical scientists within a discipline generate knowledge about the most effective treatment methods for particular conditions. Fastidious RCT's are accepted as the gold standard for defining efficacy. Practitioners either adopt the role of empirical clinician, who consumes and applies research findings by following clinical guidelines; or evaluative clinical scientist, who undertakes pragmatic and implementation research such as audit (Milne, 1999). This "top down" model reflects a modernist construction of practice as "technical rationality" (Schon, 1987), based on application of research based nomothetic laws and principles to recurring well defined instrumental problems. The practitioner is responsible for diagnosis and treatment on the basis of specialist knowledge, and clinical decision-making is a largely non-discursive process, in which decisions are made on the patients behalf, and in the patients best interests. This is the domain of well-defined problems, which can be reliably identified by appropriately qualified practitioners, and treated using standardised methods with predictable results.

The hierarchical model of knowledge is directly applicable to biomedical practice based on indexical interpretation and treatment of pain. The causal relationship between pain and the signified objective physical disorder can be established by observation (Sampson, 1998; Rorty, 1979). The meaning of pain is therefore common to all patients within the diagnostic category, and provides a rationale for standardised
treatment. This is compatible with reductionist definition of the problem as a context-independent property of the patient, and intervention as a practitioner-independent method. Comparison with biomedical practice is embodied in the requirement for CM research to establish a causal relationship between diagnosis, intervention and outcome (Resch & Ernst, 1996) and reflected in definition of quality in trials of manipulation in terms of fastidious RCT's (Koes et al, 1996). Evidence of efficacy obtained in these trials has not convincingly demonstrated efficacy beyond the placebo effect (Koes et al, 1996; Kaptchuk, 1996), but has made a major contribution to defining the role of osteopathy within the NHS (CSAG, 1994).

Concerns have been expressed by osteopaths about the reflexive implications of evidence based practice. The specific conditions which have been evaluated using RCT's are likely to define the range of application for any particular approach, and provide a basis for legal definition of practice standards. Green (1999) has argued this practice has "all but obliterated" the distinctively holistic perspective on health and illness of traditional osteopathy in America (Green, 1999, p110). In the U.K, Kirk (1998b) has queried whether CSAG guidelines may implicitly preclude distinctively osteopathic treatment, and open the door for other groups to "take over where osteopathy left off before the processes of educationalisation and medicalisation" (Kirk, 1998b, p5). The evidence based practice model may be particularly influential in osteopathy during the relatively early stages of professionalisation. This necessitates collaborative research with other disciplines, which may not share a common knowledge base, yet exert an important influence on definition of osteopathy in the wider scientific and clinical community, and consequently on the future development of the discipline. However, similar concerns about the limitations of evidence based practice for clinical management of complex problems, risks of restricting practice and loss of autonomy have been expressed by medical practitioners (e.g., Riska, 1998; Logan & Scott, 1996) and psychologists (e.g., Bannister, 1998; Roth, 1999). Wennberg (1996) has argued that evidence based guidelines and decision criteria are currently and may always be inadequate to rationalise the supply of services for LBP, and recommends a more collaborative decision making process within a restructured therapeutic relationship which empowers the patient.
Cant & Sharma (1996, p3) have argued that knowledge is always "knowledge in practice" and recommended that CM research "must not make the mistake of looking only at their codified and abstract forms". This point is particularly relevant in the context of proposals that the epistemology of practice is implicitly constructivist or postmodern, by contrast with the objectivist or modernist epistemology of academic knowledge, which is embodied in evidence based practice. Polkinghorne (1992) has argued that academic psychology is configured as a modernist discipline concerned with development of nomothetic laws about human behaviour. By contrast, professional practice in psychology has developed an implicitly postmodern epistemology in the process of generating knowledge from pragmatic action and interaction with clients. This tacitly assumes that knowledge is interpretive, embodied, fragmented and evaluated pragmatically. He recommends that the epistemology of practice provides a template for reconfiguring psychology as a postmodern discipline. Similarly, there is an emerging view that the objectivism and empiricism embodied in the formal structure of medical explanation is incongruent with the individualised, contextual "practical wisdom" of conventional medical practice (Shafer, 1999; Hunter, 1996). This has led to recommendations for formal recognition of the inherent uncertainty and interpretive basis of medical knowledge (Shafer, 1999; Logan & Scott, 1996; Hunter, 1996; Burnum, 1993). It has been proposed that this epistemological change could reduce the risk of practitioners attributing uncertainty to their own ignorance (Barger-Lux & Heaney, 1986), and encourage tolerance of ambiguity, which is associated with a more positive orientation towards chronic pain and psychological problems, and reduced reliance on high technology medicine (Merrill et al, 1994).

Postmodern and constructivist approaches draw attention to the perspectival nature of knowledge, and seem more compatible with idiographic interpretation than objectivist epistemologies. A recurring theme in the current studies was the tendency for some practitioners, some patient-practitioner dyads, and some patients to interpret pain in terms of both physical and psychological factors. The task of deciphering complex relationships between different aspects of pain is not unique to osteopaths or CM practitioners. Physical and psychosocial factors are theoretically integrated in the gate control model of pain, and practically integrated in the clinical work of all health professionals engaged in applying specialist knowledge produced by different
disciplines in order to help the individual patient. For example, in clinical psychology, Betoin (1996, p7/8) has argued that the key to effective problem formulation is to explore hypotheses at different levels of analysis, including physiological, behavioural, cognitive, affective, environmental and socio-cultural, rather than assume a priori that a particular approach will be helpful. This type of interpretation is more adequately seen as a product of the interaction between patient and practitioner, rather than a context-independent property of the patient against which the accuracy of diagnosis can be assessed. To acknowledge that problem interpretation involves subjectivity does not imply that all interpretations are equally valid (e.g., Sass, 1992; Leder, 1990; Feyerabend, 1970), though criteria of validity are relativised to particular contexts. For example, medical hermeneutics is presented as a means of arriving at consensual validation which can improve clinical diagnosis (Leder, 1990; Daniel, 1986; Gogel, 1987); and Burnum (1993) has proposed that taking account of the multiple and often conflicting contexts associated with the individual case reduces ambiguity of interpretation. In the clinical context, Polkinghorne's work (1992) suggests that problem interpretation is likely to be evaluated in terms of pragmatic effectiveness in leading to intervention which improves outcome.

The distinction between holism and reductionism seems correspondingly less pronounced in relation to practice than in relation to the formal structure of explanation. The debate in chronic pain management is not about whether, but how physical and psychosocial factors should be taken into account. The explicitly idiographic approach in osteopathy does not seem to be radically discontinuous with the implicitly idiographic practical wisdom of conventional medicine. Recognition of this commonality is reflected in the beginning of a shift away from the terms complementary and conventional medicine towards the generic concept of "integrated medicine" which synthesises both within a whole person orientation (e.g., Gaudet, 1999, p98).

The current studies have demonstrated an incongruence between the nomothetic, reductionist construction of problem, process and outcome in trials of manipulation, and idiographic, holistic nature of osteopathic practice. This provides the basis for the primary recommendation that future research should be grounded in
osteopathic theory and practice, so that findings contribute towards both external demands for evidence and internal demands for a legitimised knowledge base.

PROBLEM

* The Stockwell study (chapter 4) identified indexical, iconic and symbolic subgroups on the basis of osteopaths interpretation of pain in individual cases. The structure of interpretation was holistic in that psychosocial factors were taken into account as an addition to, and not as an alternative to, physical factors. The congruence between sub-groups and patients' self-reported physical and psychosocial health status is consistent with the proposal that osteopaths' at times translate pain into a wider context of biopsychosocial understanding.

* In the EGOR patient sentence completion studies, problems were described in primarily physical terms. In approximately 15% of cases, this was elaborated whole body, self, psychosocial or spiritual description.

* In the BSO Treatment Effects Questionnaire study, helping patients understand illness was one of the three most commonly reported effects of osteopathy.

The biomechanical body

In the current series of studies, virtually all osteopaths, patients, and patient-osteopath dyads were oriented primarily towards the body. The osteopathic biomechanical body provides a wider range of possibilities for physical interpretation than the more technologically defined biomedical body. It is therefore likely that some cases which cannot be interpreted as signs of biomedical pathology can be interpreted as signs of biomechanical pathology. This was clearly described by some patients in the EGOR studies, who referred to the lack of explanation or constructive treatment in conventional medicine, by contrast with osteopathy which "got to the root" of the problem. Though the causal explanation was rarely described, the primarily physical description of problems implies the cause was within the body. Predominantly physical understanding and management was also characteristic of the index subgroup in the Stockwell study (chapter 4), and practitioners perception of osteopathic treatment effects in the focal subgroup (chapter 5b).
Symptoms that can be successfully translated into signs of treatable physical pathology constitute the domain of greatest biomedical achievement, and have also been identified as the "ideal" form of osteopathic practice in a grounded theory study of BSO osteopaths (Barnes, 2000). Findings from the Stockwell study suggest that LBP, which has provided the focus for trials to date, may not be an osteopathically homogenous sub-group. Conditions that can be described and treated osteopathically on the basis of biomechanical dysfunction provide most scope for comparison with biomedical practice, and evaluation using fastidious RCTs. Description of these specific physical lesions and treatment can only be carried out by osteopaths, though these descriptions must also be accessible to other disciplines in order to define appropriate referral criteria. In such cases, there would be a clear osteopathic rationale for assuming a causal relationship between the problem description common to all eligible patients, and standardised intervention.

The symbolic body

Since this thesis was planned, there has been a burgeoning of academic concern with the meaning of the body and embodiment (e.g. Radley, 1998; Stam, 1998; Yardley, 1997; Synnott, 1993). This work has demonstrated the multi-vocality of the body as object known to biomedical science, lived experience, symbolic system, and medium for configuring the self and the social world. The proposal that symbolic meaning does not necessarily imply verbally mediated meaning (Turner, 1992) suggests that physical orientation in osteopathy may not preclude the possibility of therapeutic change in patients' understanding, experience and management of pain and physical symptoms conventionally viewed as somatisation disorder.

A common theme in different formulations of somatisation (e.g. McDougall, 1989), repressive coping (e.g. Myers, 2000) or alexithymia (e.g. Watts, 1982; Sifneos, 1980) is the absence of experienced or reported psychological distress or use of psychological language, and the presence of biomedically unexplained physical symptoms. There are "no words" for emotion, which is expressed in the language of the body (Watts, 1982). The clinical difficulties associated with these concepts have been partly attributed to the incongruence between the patients' physical understanding and the practitioners' psychosocial understanding of the problem (Dreher, 1996; Bass & Murphy 1996; Mayou, 1991; Lipowski, 1987; Quill, 1985).
There are currently no consensual criteria to determine whether symptoms are psychogenic or caused by an undetected physical cause, and the value of this dichotomy has been seriously challenged in relation to chronic pain (e.g., Bendelow & Williams, 1995). The concept of somatisation implies that physical illness should be expressed in the form of bodily symptoms, and emotion in the form of verbal disclosure. From a psychological perspective this view of emotion is only one, and not necessarily the most plausible or widely accepted, of a range of theories which are currently a focus of innovation (e.g., Harre & Gerrod Parrott, 1996; Parkinson, 1995; Ekman & Davidson, 1994). From an empirical perspective, the ubiquity of somatisation (Murphy, 1989; Porter & Gorman, 1989; Goldberg & Bridges 1988; Bridges & Goldberg, 1985) suggests the dualist model is not an accurate description of the way in which emotion is actually expressed, and its use in the clinical context implies a more prescriptive view of how emotion should be expressed.

Osteopathy may offer an alternative approach to understanding and management of these indeterminate symptoms. Some osteopaths have also considered the body from an experiential and symbolic perspective (e.g., Randall, 1998, 1992; Smelskyj, 1997; Nathan, 1993; Latey, 1990, 1991; Lieberman, 1990). For example, Lieberman (1990) describes a case study in which treatment involved reflective awareness of the osteopaths own thoughts, feelings and actions; gentle manipulation, described at one point as "merely holding the arm and waiting for the whole structure to relax"; exercises to improve body awareness, and careful listening to the body using palpation, and to the patients verbal and non verbal communication. The osteopaths symbolic understanding was used to inform physical management, but not explicitly presented as a psychological interpretation. Similarly, in a grounded theory study of osteopaths management of emotional distress, Linnenbank (1999) found the most common responses were physical, e.g., altering the nature and quality of touch, or wrapping the patient in a soft blanket. These accounts explicitly consider touch as a symbolic modality, though osteopathic treatment is more frequently described in terms of the biomechanical properties of the body, and the instrumental rationale for specialist manipulative techniques. Whether or not practice is explicitly conceptualised in symbolic terms, practitioners "non-verbal dialogue" with the body as physical object may also influence the body as source of the patients' subjectivity and symbolic
embodiment of meaning. The tacitly meaningful "psychotherapy without words" (Kallinke, 1995, p59) of touch-based treatment may be more congruent with the somatic, non-verbal expressiveness attributed to patients described as alexithymic or somatising than talk-based treatments.

Frank (1998) has summarised a number of general propositions that are accepted as truisms in the body literature. These include the proposition that illness heightens awareness of the body which loses its "taken for granted" status; that the world is known through the body; that the sense of self is constructed and experienced through the body; that body experience is mediated, and that the body is increasingly experienced as reshappable (Frank, 1998, p209). These propositions also seem implicit in the osteopathic theory and practice, and could offer an alternative approach to understanding the way in which osteopaths decipher the "story" of the body (Dekkers, 1998), and the role of physical or broad spectrum orientation in treatment and outcome.

Focal body orientation can be contextualised within the wider framework of osteopathic explanation and treatment which has been mapped out in the current series of studies. Some osteopaths, some patients, and some patient-practitioner dyads were also oriented towards broad spectrum, biopsychosocial or whole person understanding and management.

Whole person orientation: both physical and psychosocial factors

The expansion of osteopathic practice to include the whole person has been described as symbolic, in that the relationships between physical and psychosocial factors must be deciphered by the practitioner in the individual case, and cannot be described in terms of linear causal relationships between pain and signified pathology. Symbolic interpretation is explicitly represented in the structure of explanation in CM and holistic medicine, and may be mediated by understanding and management of the body in osteopathy. Idiographic interpretation of pain in terms of both physical and psychosocial factors seems to provide the most distinctive contrast with the formal structure of explanation in conventional medicine, and the most promising clinical contribution towards understanding and management of complex biopsychosocial problems.
The literature describing clinical pain interpretation in conventional medicine and osteopathy revealed structural differences compatible with the proposed definitions of reductionism and holism (chapter 2). Results in all empirical studies indicated that osteopathic practice can be described as holistic in relation to this definition. Further, dualism, which is grounded in the reductionist explanatory framework, has been associated with specific conceptual and clinical difficulties in management of complex biomedically indeterminate problems.

To the extent that the medical process begins with physical indexical interpretation of pain and reduced attention to psychosocial factors, a discrete shift is required in order to reframe the problem in psychosocial terms, which is associated with reduced attention to the body (Baszanger, 1997). Avoidance of this often-unwelcome shift has been implicated in perseverance with a counter-productive diagnostic quest (Chew & May, 1997; Priel et al, 1991). A similar process has been recognised in the concept of "facultative somatisation" i.e. somatic presentation of psychiatric disorder to the GP, which the patient attributes to psychological cause when questioned by research psychiatrist (Bridges, 1991; Goldberg & Bridges, 1988; Hadler, 1996). Patients experience of pain and illness is both psychological and physical (e.g. Sullivan, 1992; Watson & Pennebaker, 1989), and presentation of emotional problems or exclusively somatic symptoms depends on their perception of the expectations and orientation of the GP (Bower et al, 1999; Gildenberg & De Vaul, 1985). If the practitioner is perceived as orientated towards physical problems, symptoms are communicated in physical terms, which initiates the diagnostic quest for a physical explanation of a potentially psychosocial or biopsychosocial problem. This formulation represents a shift from reductionist understanding of somatisation as a context-independent property of the patient, to more holistic formulation of somatisation as the result of a transactional exchange between patient and practitioner. This implicitly constructivist perspective focuses attention on the meaning and management of pain by patient and practitioner (Kouyanou et al, 1997; Skevington, 1995).

Osteopathic diagnostic methods and assessment procedures provide a structured approach to idiographic explanation, in which psychosocial factors are accommodated by hierarchical extension of the basic concepts of structure, function,
lesion and health. This holistic approach to understanding requires practitioners to attend to both physical and psychosocial aspects of the patient in order to construct an interpretation. The transactional approach suggests that this is likely to facilitate disclosure of psychosocial problems (Bower et al, 1999; Roter et al, 1997), and decrease the risk of facultative somatisation and iatrogenic influence on chronic pain (Kouyanou et al, 1997). The congruence between practitioner pain interpretation and patient health status suggests that the holistic approach was translated into practice in the Stockwell study. This finding may not be representative of osteopathic practice, and findings from the BSO studies suggest that there are individual differences between primarily body orientated focal osteopaths, and more broad spectrum biopsychosocial or whole person orientated osteopaths. In Barnes study (2000), symbolic or functional interpretation was described as the "swampy lowlands" of osteopathic practice, following exclusion of biomedical pathology and specific biomechanical dysfunction. One group of osteopaths felt that taking account of psychosocial and environmental factors was central to osteopathy, suggesting broad spectrum practice should be normative. A second group felt that holistic practice requires self care, awareness of ones own limitations (e.g., Reason et al, 1988), and respect for the individual practitioner (Remen, 1998), and that preference for predominantly biomechanical practice was acceptable. This may be particularly important in view of the fact that osteopathy is a predominantly male profession, and patient-centred, caring or psychosocial orientation tend to be more associated with females (e.g., Law & Britten, 1995), though focal and broad spectrum orientation was not associated with gender differences in the BSO studies.

Evidence of the benefits of psychological mindedness and biopsychosocial practice in conventional medicine suggests that the broad spectrum practitioners may be more effective in managing complex problems. Concerns about iatrogenic influence, facultative somatisation and deflection of attention away from psychosocial factors (Zusman, 1997) may be more relevant to the focal body orientated osteopaths. However, the significance of this distinction may be minimised by the tacitly symbolic meaning of body-based treatment.

In summary, dualism has been implicated in the development of LBP disability and facultative somatisation. The holistic explanatory framework requires
attention to both physical and psychosocial factors, and may reduce this risk. The Stockwell study has provided some evidence that holism is applied in practice, though this may not be representative of focal or body oriented practitioners.

**TREATMENT PROCESS**

* In the Stockwell study, the most commonly reported treatment intentions were to encourage exercise or activity; provide information or understanding; release tension; confront self-limiting attitudes; and treat the physical effects of pain. In the icon group, practitioners were least likely to treat the physical causes or pain. The symbol group was treated using the broadest range of physical and psychosocial intentions, and the index using primarily physical intentions. In combination, the parallel relationships identified between pain attributions and recovery expectations; and the correspondence between sub-groups and practitioners treatment intentions, indicates an intrinsic relationship between individualised pain interpretation and treatment process.

* The BSO study of methods used found multi-modal practice used by most osteopaths. Over half reported using advice, diet, exercise, orthodox medication, relaxation, counselling, vitamins, homoeopathy and yoga; and over a third and herbal medicine, meditation and psychotherapy. A broadly quantitative pattern of individual differences was identified between non-cranial osteopaths, with those in the broad spectrum cluster using a wider range of both physical and psychosocial methods. There was no evidence of polarised use of either physical or psychosocial methods.

* The BSO study of osteopaths perception of treatment effects (chapter 5b) found the most commonly endorsed effects were helping patients understand illness, promotion of well-being and symptom relief. Individual differences were described in terms of focal and broad spectrum groups. There were no differences in perception of physical effects apart from prevention; moderate differences in perception of effects on patients understanding and behaviour, and most pronounced differences in perception of emotional and spiritual effects. These results can only be interpreted with caution, given feedback from participants.
The EGOR studies found that for patients in the broad spectrum sub-group, explanation of the problem was seen as providing a rationale for treating the cause, self help, prevention, and perception of treatment as natural and constructive.

Two notable aspects of treatment process are the range of methods available in the treatment repertoire of many osteopaths, and the relationship between individualised interpretation and treatment process.

Firstly, holism in osteopathic practice is associated with use of a wide range of methods using different modalities. Similar findings have been obtained from research into holistic medical practitioners (Goldstein, 1987). This is qualitatively distinct from construction of biopsychosocial practice as increased attention to verbal communication about psychosocial issues. Private practice may provide more scope for multi-modal intervention by individual practitioners provided methods used are not subject to statutory regulation, or the practitioner is suitably qualified. Disciplinary boundaries in the NHS are relatively clearly defined, so that different treatments are provided either by different members of multi-disciplinary teams, or accessed via specialist referral. The advantage of specialist knowledge and expertise may be offset by the lack of an ongoing therapeutic relationship with any individual practitioner. This is a potent influence on outcome from psychotherapy (e.g. Hovarth, 1993), and was found to be predictive of outcome in a large-scale trial of pharmacological and psychotherapeutic treatment of depression (Krupnick et al, 1996). GPs have traditionally provided the central therapeutic relationship within the NHS, though their ability to provide comprehensive integrated care has been compromised by developments such as computer based decision-support systems, viewing health care delivery as a managerial rather than professional enterprise, cost containment efforts, pressures for greater productivity and throughput, and increased reliance on sophisticated technology (Tresolini, 1994).

The range of interventions provides a means of flexible response within the context of an ongoing patient-accessed therapeutic relationship. Patients in the EGOR studies were more likely to refer to explanation and the therapeutic relationship as an experienced helpful aspect of treatment, than an expectation of treatment. It is unclear
whether broad spectrum practice can be accommodated within the disciplinary boundaries and limited resources of the NHS, and whether there are any differences between private and NHS osteopaths in range of methods used, and continuity of the therapeutic relationship.

Secondly, choice of intervention is more likely to be based on individualised assessment in idiographic practice, and categorical diagnosis in nomothetic practice. In the Stockwell study, patients perceived as having complex biopsychosocial problems were treated using the widest range of intentions, and the EGOR studies reflected the conceptual link between understanding the problem, treatment and self-help. This provides some evidence that pain interpretation in individual cases was used as a basis for management. By contrast, evidence based decision-making is more strongly guided by research based evidence of the effectiveness of treatment methods for patients in a particular diagnostic category (e.g., Samaranta & Beardsley, 1999). Little et al (1996) attribute inconsistent provision of lifestyle advice by GP's to the inadequate evidential basis for each lifestyle recommendation for LBP (CSAG, 1994). Similarly, Johansen et al (1998) observed that GP's in their study were supportive of lifestyle change and offered advice, but this was not linked to the presenting problem.

The distinction between idiographic and nomothetic practice is an over simplification, as both approaches are required to apply general principles or evidence to the individual case (Shafer, 1999). However, current findings suggest that explicit linking of treatment methods to individualised problem description in addition to research-based evidence may differentiate multi-modal practice in osteopathy and conventional medicine.

The relationship between individualised interpretation and management has implications for professional training and skills development. Communication training has been widely advocated as a means of enhancing biopsychosocial practice and effective patient management (e.g. Merrill et al, 1994; Goldberg, 1992; Carmichael & Carmichael, 1978), though the scope for this expansion of medical practice may be limited by time constraints (Hart, 1995; Porter and Gorman 1989; Morrell et al, 1986; Howie et al, 1991). There is some evidence that brief training programs increased self-rated communication skills (Brown et al, 1999), and
likelihood of eliciting patient concerns (Joos et al, 1996), but did not influence patient compliance or satisfaction (Brown et al, 1999; Joos et al, 1996). Clinical skills training at the BSO includes Heron's 6 category system (1991), and Schon's reflective practitioner model (1987), which are explicitly linked to individualised problem formulation. Heron developed the 6 category system (chapter 4) as a model for teaching communication skills to medical practitioners. Professional competence is defined as the ability to engage in the full spectrum of power relations with patients, and the flexibility to move between these modes of relationship as the situation requires (Heron, 1990, p161). This approach aims to enhance practitioners ability to use authoritative intervention, e.g. when the problem is well defined and an instrumental solution is available, and facilitative intervention, e.g. when the problem is complex and the aim is to engage the patient in problem setting and devising the intended outcome of the consultation.

The relationship between individualised problem formulation and professional practice is central to Schon's model of reflective practice (1983), which is used as the basis for professional training at the BSO. He has proposed many of the problems confronted by professionals are characterised by "complexity, uncertainty, instability, uniqueness and value conflicts" (Schon, 1991, p14). In such cases, effective use of specialist knowledge depends on recognition of the potential uniqueness of situation, and restructuring of this complexity, or "problem setting". Problem setting skills have been seen as increasingly important in the contemporary socio-cultural context, where both the specialist knowledge base to be deployed and the client expectations to be met are multifaceted and changeable, placing an unprecedented requirement for adaptability on the practitioner.

Claxton (1997) has proposed that different and complementary cognitive competencies are required for solving clearly defined instrumental problems and complex or novel problems. Skills required for instrumental modes of practice are characterised by conscious, deliberative, purposeful thinking. Skills required for complex tasks such as problem setting have been described as "slow ways of knowing", which are receptive, imaginative, relaxed, tolerant of uncertainty, and open to intuition. The optimal approach to complex problems is seen as a balance between tolerance of uncertainty and the active search for meaning by transmuting the strange into the familiar (Claxton, 1997,
Slow ways of knowing have been presented as an under exploited resource for expanding educational theory and practice, and could equally be applied to development of skills used by health professionals in managing complex problem situations. Linking communication with the therapeutic work of problem interpretation and management is compatible with the holistic view that the practitioners ability to clarify the meaning of illness and treatment for patients is not a discrete additional competency to be learned and added on to the helping relationship, but a different way of viewing the helping relationship (Tresolini, 1994).

In summary, in addition to the tactile modality, the osteopathic treatment process may be distinguished by individualised decision-making about multi-modal treatment use, within the context of an extended and patient-accessed therapeutic relationship.

OUTCOME

* The Stockwell study showed some improvement in the whole sample on particular SF-36 items evaluating interference of physical health with accomplishments, pain and vitality. Cluster groups made little contribution to explaining SF-36 outcome variance. There was a non significant trend towards poorest SF-36 and subjective evaluation of outcome in the icon group. Compared to patients, practitioners overestimated pain related treatment effectiveness in the icon and index groups; underestimated stress related effectiveness in all groups; and underestimated all effects in the symbol group. Practitioners attributed failures in the symbolic group to the difficulties of shifting chronic pain disability; and in the index group to previously unrecognised problems.

* The BSO TEQ study found understanding, symptom relief and physical well-being were rated as the most frequent effects of treatment by osteopaths.

* The EGOR study found patients in the focal subgroup expected osteopathy to help by relieving pain, and were more likely to say that it had helped by relieving pain. Patients in the broad spectrum group referred primarily to treatment process. There was no difference between broad spectrum and focal subgroups in self reported health status, improvements in well-being, mobility, ability to lead a normal life, or perceived helpfulness of treatment. A number of temporal patterns were identified, from instant relief to gradual improvement to prevention.
Many patients in the EGOR studies reported that osteopathy had been effective, but there was little significant pre-post change in SF-36 measures in the Stockwell study. The pattern of results replicates previous findings of limited effectiveness using questionnaire measures in trials (Koes et al, 1996), and high patient-reported satisfaction (e.g. Carey et al, 1996; Wardwell, 1989 Cherkin & MacCornack, 1989). The appropriateness of different outcome measures for chronic pain is currently a focus of debate (Turk, 1999), and there is evidence that patients infer different and individual meanings from standard pain disability questionnaire items (Williams et al, 2000). There has been a corresponding focus on the patients experience in order to establish a more valid basis for outcome evaluation. Evidence of patients uncertainty, need for validation (Keefe, 1999; Osborn & Smith, 1998; Levine, 1994; Kugelman, 1999), and experience of blame and vulnerability to disbelief (Osborn & Smith, 1998; Bendelow & Williams, 1995) suggests that pain meaning is a central concern. This is consistent with the current finding that uncertainty emerged as the common feature in both the icon group in the Stockwell study, who reported poorest outcome, and patient accounts of the unhelpful aspects of osteopathy in the EGOR studies. Conversely, broad-spectrum patients' emphasis on the value of explanation and understanding suggests that satisfaction with osteopathy is grounded in pain meaning as well as treatment mechanism.

The primary aim of both CM and conventional health care disciplines, particularly those involved with chronic illness (e.g., Clark & Gong, 2000), is enhancement of patient autonomy and self regulation. There is evidence that patients perceived control over pain (e.g., Harkapaa, 1991) and illness (e.g. Wallston & Wallston, 1982) is associated with well-being and reduced disability. The question of how practitioners can effectively enhance patients sense of control and responsibility, and how to establish the realistic possibilities for control and improvement in the individual case has attracted less research attention. Pain management programs have developed a wide range of methods for coping with pain and disability, and the concept of control in osteopathy has been developed in relation to autonomy, understood as the individuals freedom to act in the different domains of their life, and integration or participation in social life (Tyreman, 2000). The interpretive process used to generate an explanation of pain provides a link between the concepts of autonomy and pain meaning.
Nomothetic interpretation of pain is based on practitioners specialist knowledge of standardised criteria or expert knowledge, and symbolic interpretation of pain has been described as structurally similar to indexical physical interpretation (Dekkers, 1998; Priel et al, 1991). However, the claim to authoritative interpretation is difficult to reconcile with competing alternatives, including the patients view (Watts, 1982) and the necessity for practitioners to assume the burden of responsibility for making sense of the situation on behalf of the patient- or the legitimacy of appropriating the right to define reality for the patient has been a focus for debate.

Non-collaborative interpretation of pain may reinforce patients expectation that practitioners role is to provide solution. This is reflected in the tension between description of patients confidence that scientific medicine can help as both a central mechanism of the placebo effect (e.g., Baldwin, 1999, p89) and psychosocial "yellow flag" in LBP which is specifically targeted for change (CSAG, 1994; Vlaeyen et al, 1990). Concerns have been expressed in both conventional medicine and psychotherapy that practitioner generated explanation may deny patients the opportunity to be heard as persons (Puustinen, 1999; Bakhtin, 1997); reduce confidence in their own understanding, which is seen as subjective, misinterpreted or irrational (Cant & Sharma, 1996; Kirmayer, 1992, Gergen & Kaye, 1992), and obstruct the patients search for meaning (Kirmayer, 1992, 1988; Sperber, 1974).

The scope for authoritative reinterpretation is limited by need for informed consent and patient choice. This may be particularly important for patients who believe their problems are entirely physical, given the potential intrusiveness of biopsychosocial treatment which does not define clear limits to the scope for professional intervention in the patients life (Kugelman, 1998, p200). Similarly, psychological reattribution indicates the need for psychological management, which requires considerable voluntary commitment from patients (Cureton & Newnes, 1995). The conversation required to obtain informed consent would require acknowledgement of the availability of alternative possible interpretations (Katz, 1984, p xv).

In the absence of empirically based consensus that one particular approach to chronic pain is theoretically and clinically superior to alternatives, the diversity of pain representation and treatment represents a significant challenge to practitioners claims to expert knowledge, and may limit patients confidence in the authority of any
particular approach. This issue is rarely addressed directly in the literature, which focuses on the properties and effectiveness of particular approaches rather than relationships between approaches (chapter 5).

Idiographic interpretation has been seen as a collaborative process that enhances patient autonomy and ability to make sense of their situation and the opportunities available to them (Rabin et al, 1999; Heron, 1990; Passmore, 1972). For the patient, being enabled to tell their story may help to counteract meaninglessness and isolation associated with pain and illness (Leder, 1990; Scarry, 1985). Listening to patients may contribute towards the patients active construction of the problem, and by implication what can be done about it (Hart, 1996). The beneficial consequences of disclosure for physical and psychological well-being have been attributed to increased mindfulness and self reflection. Pennebaker (1997, 1996, 1993, 1988; 1982) has carried out a series of studies which suggest an association between perception of a stressor as uncontrollable and low level concrete, detailed "mindless" thinking, which effectively relieves distress and distracts attention from the causes and emotional consequences of the stressor, but perpetuates avoidance, decreases creative problem solving and is associated with poorer health. This is consistent with evidence that distraction is an ineffective strategy for coping with long term pain (Tan, 1982). Perception of a stressor as controllable is associated with a high level self reflective thinking style, and more reported anxiety and distress, but facilitates creative problem solving and improved health. High level thinking or "mindfulness" can be facilitated by thinking, talking or writing about problems; and the ability to use both low and high level thinking styles, rather than adherence to a particular style seems to be most adaptive. There is some analogy between low-level thinking and the characteristics of alexythymia (Sifneos, 1980), repressive coping (e.g., Myers, 2000) and somatisation, though Pennebakers account suggests this may be a more dynamic cognitive style related to the perceived meaning of the stressor. This is consistent with evidence of positive outcomes from a mindfulness meditation pain program (Kabat-Zinn, 1991).

Constructivist therapists have viewed rigid adherence to the belief that there is a single correct context-independent account as a common feature of many problems in living. Therapy aims to help patients to generate a less restrictive understanding of themselves and their situation; to accept the indeterminacy, relativity and multiplicity of
meaning, and to recognise their own capacity for making sense of their life (Gergen & Kaye, 1992). The patients' capacity for critical reflection on multiple possibilities is not seen as a barrier to confidence in professional authority, but as the central mechanism of therapeutic change. The emphasis on self reflection (Ruby, 1982) to enable patients to move beyond embeddedness in one particular perspective and consider different viewpoints (Lax, 1992) maps onto the recurring description in the holistic literature of patients as being "stuck", rather than having a problem which treatment aims to neutralise (e.g., Taylor, 1994).

The structure of interpretation in CM has been described as explicitly idiographic (chapter 2), which invites acknowledgement that the relationship between sign and signified is established by an interpreter, and that this relationship may be interpreted in different ways by different practitioners. Acceptance of some level of indeterminacy is inherent in any idiographic process, and osteopathic assessment procedures seem to provide a structured framework for thinking through and integrating information about different aspects of the problem, which provides a rationale for intervention. Latey has described uncertainty as an inherent feature of osteopathy resulting from "awareness of the need for flexible but definite responses in an unpredictable field of interaction with a new patient. By preparing to meet the unexpected in this way we encounter new aspects of the human condition almost daily" (Latey, 1991, p3). Acknowledgement of the provisional and flexible status of ongoing assessment, in combination with interpretation of the pain as potentially meaningful, may facilitate active participation and more self reflective cognitive style. These considerations suggest that the structure of the holistic explanatory framework, and the process of deciphering pain in relation to the whole person, may provide a basis for generation of meaning and enhancing patient autonomy.

In summary, nomothetic approaches to interpretation have been associated with the risk of encouraging patient passivity and dependence on the practitioner, and idiographic approaches with the opportunity for patients to generate their own meaning, Recognition of the constructed and provisional status of interpretation could be helpful in acknowledging the differences between professional explanations of pain (Salkovskis, 1992; Hazard, 1995); enabling patients to make sense of the often conflicting explanations they have received during multiple treatment episodes
(Waddell, 1998, p178); and reconciling the diversity of approaches to pain with the principles of informed consent, and enhancement of patient responsibility. The holistic explanatory framework of CM, and the conceptual and diagnostic tools of osteopathy are based on idiographic understanding, whether or not this is effectively implemented by individual practitioners. This potentially provides scope to engage patients in the interpretive process, and may facilitate greater autonomy.

Current findings indicate the outcome evaluation in osteopathy should be expanded to include evaluation of health as well as pain and disability, and pain meaning as well as treatment mechanism.

Summary
The current thesis has not provided the much needed "proof that it works" which would meet the external demands for evidence. However, it has made some contribution to reframing the terms of the question, and grounds for recommending that future research should be based in osteopathic theory and practice.

This study has explored the thesis that emergence of CM represents a different way of thinking about health and illness, so the need for research to define and legitimise the role of CM in the domain of health care may be met by exploration of meaning as well as evaluation of mechanism. In relation to the osteopathic debate about whether or not to adopt the medical model (Kirk, 1998; White, 1997; Tyreman, 1997; Eaton et al, 1991), results of the current series of suggest osteopathic concerns may not be groundless.

Definitions of problem, process and outcome in trials of manipulation bears little relationship to osteopathic practice, yet findings from these trials are increasingly used to define the nature and scope of osteopathic treatment. There is a risk that over reliance on empiricist methodology in response to external demands for evidence may reconfigure osteopathy on the basis of implicit assumptions that do not correspond with the empirical reality of practice. Conversely, a strategy of epistemological pragmatism which includes both empiricist and constructivist approaches may provide the diversity of tools required to articulate and develop osteopathic understanding of the "self-righting principles of the human organism" (Latey, 1990).
Recommendations for future research

The studies reported in chapters 4 and 5a used very simple high level measures of pain explanation and practice. This proved reasonably effective in producing an interpretable description of osteopathic practice. By contrast, the attempt to develop a more detailed theory-driven account of osteopaths understanding of treatment mechanism proved invalid. The study therefore replicated the problems of limited validity which is ubiquitous in CM research, and has been identified in relation to trials of manipulation in the current thesis. This illustrates the need for caution about importing invalid assumptions into osteopathic research.

Different research strategies similarly embody different assumptions about the objects of enquiry, and the way in which knowledge about them can be obtained. On the integrative strategy of epistemological pragmatism, holism and reductionism were construed as complementary levels of description. Different research methodologies can correspondingly be seen as addressing questions at different levels of analysis.

Trials of manipulation

Randomised controlled trials are the strategy of choice for evaluation of a causal relationship between a specific problem, method and outcome. This strategy is appropriate if the central terms are osteopathically meaningful. Potentially fruitful conditions could be identified from core competencies within professional training, and conditions that all osteopaths would be expected to reliably identify and treat.

Pragmatic trials are more compatible with the diversity of routine osteopathic practice. Evaluation of discipline specific and cross-disciplinary differences in treatment process could contribute towards more interpretable findings, which could inform practice improvements. In relation to both forms of trials, Kaptchuk et al. (1996) recommend that a Bayesian approach which takes account of both prior beliefs and trial data would be more appropriate than the classical null hypothesis. Though making beliefs explicit and quantifiable may increase costs, require constant updating to correct bias, and be more demanding for readers and users of research findings, this approach would foster higher quality scientific communication.
Exploratory audit: long term, every patient research strategies

Audit, medical outcomes research, and "every patient" long term research strategies (e.g., Pincus, 1997; Dienstfrey, 1999; Ellwood, 1988) have been increasingly advocated as a means of meeting the need for information about real world clinical effectiveness, and implementing the NHS commitment to making patient views a central aspect of performance monitoring and policy formulation (Health of the Nation, DoH, 1993; Working for Patients, DoH, 1989; The Griffiths Report, 1983). Practice based research is particularly valuable in the context of low external validity or generalisability of RCT results (e.g., Rothwell, 1995; Peckham, 1991). The paradoxical finding that efficacy in trials does not translate into clinical effectiveness has been demonstrated in relation to rheumatoid arthritis (Pincus, 1997) and LBP (Waddell, 1997). This discrepancy has been attributed to strict exclusion criteria and short observation period which are inadequate to identify long term trends (Pincus, 1997). Conversely, health promotion and prevention initiatives tend to show lower efficacy in randomised trials than observational studies of treatment chosen by patients and practitioners (Black, 1996). Study of single time-limited treatment episodes is less appropriate for chronic relapsing conditions such as LBP (Van den Hoogen et al, 1998).

Use of ongoing exploratory audit is particularly appropriate for evaluation of the nature and consequences of multiple treatment episodes, which have generated some concern about possible cycles of hope and disappointment associated with "doctor shopping" (Zusman, 1997), the risks of medicalising LBP (Waddell, 1998), or producing treatment dependence (Vincent & Furnham, 1996). A longitudinal patient focused methodology may contribute to understanding how patients cope with unexplained illness and the role of repeated treatment episodes in this process. Conversely, many patients in the EGOR studies referred to long term health benefits. In the context of increasing emphasis on health promotion (WHO, 1986), this possibility merits further investigation.

Practice based research also provides the opportunity for practitioners who will be the recipients of evidence based guidelines to contribute towards development of those guidelines (Little et al, 1996). This "bottom up" research strategy would be particularly appropriate for osteopathy, given inevitable risk of limited validity associated with research designed and carried out by non-osteopaths. Audit may also contribute
towards improving care if practitioners have a sense of ownership of the process (Black, 1992). Patient centred measures such as the "Measure Your Own Medical Profile" questionnaire (MYMOP) have been found to be responsive to patterns of clinical change which was not reflected on the SF-36 (Patterson, 1996). The MYMOP asks patients to describe and rate the symptoms which most trouble them, an activity which is difficult, and well-being, as well as practitioners consulted since completing the previous MYMOP. Patterson found this assessment procedure was experienced as helpful by both patients and practitioners, providing a basis for shared understanding and collaboration based on the patients account of the problem. This form of assessment is avoids the problem of defining patient groups in terms of biomedical categories which have no meaning within CM; and provides a clinically useful tool for collaborative evaluation of longitudinal patterns of change with the patient.

Concerns about the limitations of evidence based practice seem to be based on an implicit assumption that practice means method, which implies a standardised procedure "done to" the patient. To the extent that different interpretive strategies can be described, and are embodied in different forms of treatment within the contemporary clinical arena, their efficacy relative to alternative strategies for managing complexity can be empirically evaluated. Similarly, skills involved in problem setting, responsiveness and collaboration can be explicitly described, taught and in principle evaluated, though a practitioner-led research strategy seems essential to minimise the potential inadvertent intrusiveness of holistic research and evaluation.

**Qualitative/ constructivist**

Constructivist epistemologies have been seen as a means of transcending the subjective/objective, mind/body dichotomy, by explicitly recognising the situated and perspectival nature of all knowledge (Yardley, 1999, p37/8). In the context of debate about the usefulness (Turk, 1999) and validity (Williams et al, 2000) of pain disability questionnaires, the risks of importing invalid assumptions into osteopathic research, and emphasis on meaning as well as mechanism, qualitative research methodologies could make a substantive contribution towards "bottom up" research based on routine practice.

The focus of enquiry in the current thesis has been with the structure of interpretation in osteopathy. Phenomenological approaches could be used to explore the content of patients' understanding and experience, and the way in which this is influenced.
by different forms of treatment. There is a close analogy between the holistic emphasis on person, and recent accounts of illness experience emerging from health psychology. Both emphasise that illness is not a specific quantifiable property which can be somehow appended to an individual, and managed using more or less effective specific coping strategies, but an experience which both reshapes the individual, and is reshaped by the individuals efforts to cope or adjust (Radley, 1999). The concept of metaphor has been proposed as an integrative approach, capable of "placing the socially constructed and the bodily given on the same map" (Kirmayer, 1992, p341), and as a potentially fruitful approach for psychological investigation of the ways in which individuals transform fear and uncertainty associated with illness and treatment into coherent understanding (Radley, 1993). In view of the differences in metaphor used to conceptualise CM (e.g., St George, 1994; Power, 1991) and conventional medicine (e.g., Annas, 1995), this may provide a fruitful approach to exploring differences in the meaning of health and illness within conventional and complementary medicine.

Grounded theory has been used to describe different approaches to pain interpretation in two pain management clinics (Baszanger, 1997); and discourse analysis has been used to explore the negotiation of meaning in medical consultations (Johanson et al, 1998). Similar strategies could be adopted to explore the nature and consequences of different ways of understanding pain in conventional and complementary medical practice. Qualitative methodologies may play a central role in generation of a legitimised and internally valid knowledge base, and are beginning to be used for this purpose by osteopaths. For example, grounded theory has been used to explore osteopathic management of emotional expression (Linnebank, 1999), and understanding of the concept of care (Barnes, 2000). There are grounds for caution about the scope for other disciplines, whether psychological or medical, to define osteopathy within the scientific and clinical community, particularly during the early stages of professionalisation. However, grounded theory seems particularly appropriate to the task confronting osteopathy, of articulating the specialised knowledge embodied in practice in the form of explicit theories.

Qualitative methodologies provide a range of tools that could be used to implement Launso's (1994) recommendation that CM research requires rethinking the concepts of world view, research view, modes of knowledge and modes of research,
and an expansion of the laboratory research setting to include a socio cultural research setting. Use of qualitative methodologies to locate osteopathy on the contemporary map of health care provision may contribute towards the process of restructuring that map, which is already reflected in the development of biopsychosocial initiatives in conventional medicine. This process has been eloquently summarised by Cant (1996, p182), who has argued that it is through the CM quest for legitimation and "efforts to situate themselves in a cultural landscape that a new cultural landscape might actually be fashioned".

Critique and limitations

The strategy of attempting to construct a frame of reference within which holistic and reductionist approaches could be compared had a number of limitations.

The main risk was that the attempt to define a level of analysis potentially relevant to all disciplines may fail to establish relevance to any. There was an inevitable trade off between breadth and depth. The author lacks the specialist expertise to adequately understand or do justice to either medical practice or osteopathy, and there is a corresponding risk of misrepresentation. Attempts were made to minimise this risk by drawing on experience in both domains but it has not been excluded.

There is also some concern about the potential intrusiveness of this strategy, which has been identified as a feature of the absence of limits associated with holism and biopsychosocial practice. The concept of "non-specific" factors may have served a useful purpose in drawing a clear boundary between the private transaction between patient and practitioner and the public domain of scientific knowledge which was applied in this domain. The principles of patient-centredness and collaboration are the central to minimising inadvertent intrusion in clinical practice: and a similar principle seems necessary in research, particularly inter-disciplinary research.

The analysis of pain understanding and management in conventional medicine was based exclusively on the literature. Inclusion of parallel research in osteopathic and conventional settings would have provided a stronger basis for comparison. This may provide a fruitful focus for future research.

The empirical studies provided some evidence that the holistic "both physical and psychological" potential of osteopathic diagnostic and conceptual tools does
translate into practice; that some aspects of the multi-modality and diversity of osteopathy can be described in terms of an empirically grounded theoretical model; that the CM emphasis on health, understanding and self healing is reflected in both patient accounts and practitioner questionnaire ratings; and that practitioners perception of the relevance of psychosocial factors is reflected in treatment intentions. These findings make some contribution towards addressing the concern that osteopathy may encourage unrealistic hopes for a technical solution to complex problems. However, findings make little contribution towards "proving that it works" which is inevitably a priority within osteopathy.

The facet approach is a potentially powerful approach to integrated theory construction and data analysis which is compatible with holism. However, it does not guarantee clear answers to well defined questions. Also, introducing an approach which is not widely used, and which may appear from some perspectives as a means for producing a statistical Rorschach may compound problems of legitimation. Robustness is the main criteria for evaluating reliability and validity, and where possible, analyses were replicated at different time points, or using subsets of the data, to compare the stability of relationships between items. However, robustness cannot be established exclusively in terms of the internal properties of a study, and requires comparison to evaluate recurrence of similar patterns of results across different studies. Perhaps more importantly, the current account is presented as one considered perspective among many.

The semiotic distinction between indexical, iconic and symbolic signs was proposed by Priel et al (1991) as a useful approach to understanding the relationship between pain explanation and difficulties arising in the therapeutic relationship between pain patients and practitioners. This does not seem to have been used subsequently, though related work has been carried out in medical semiotics (e.g., Nessa, 1996). The semiotic distinction based on interpretive strategy is in principle cross disciplinary and applicable to different types of clinical problem. By contrast, content-based explanation is more likely to be discipline specific, and correspondingly less useful in mapping the relationship between osteopathy and other disciplines.
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Appendix 4.1 The Stockwell patient and practitioner study

Pre and post treatment patient and practitioner questionnaires
The Group Practice is involved in a study to find out how different people respond to manual treatment. This may help us understand whether and how treatment can be improved in the future. In order to do this, we rely on information about health and wellbeing from you now, and after treatment. We would therefore be very grateful if you would take the time to complete the following questionnaire. If you are willing to help us by completing similar questionnaires in about three months and a year's time, please include your name and address so we can contact you.

All the information will be treated in the strictest confidence. Only researchers directly involved in the study will have access to the questionnaires, and only for the purposes of this study. Your practitioner will not see your replies, and only general trends will be reported. No individual will be identified.

Please put your completed questionnaire in the box marked 'QUESTIONNAIRES' in the waiting room, or return them to the researcher.

Thank you for your help with this study.

INSTRUCTIONS.

On the following pages there are a number of statements about your health and wellbeing. Please show how much you agree with each statement by putting a circle around the number that best represents your view. There are no right or wrong answers.

Do not spend too long thinking about each statement. Please give your opinion of each statement.
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Place of Birth</td>
<td></td>
</tr>
<tr>
<td>Medical Diagnosis (if known)</td>
<td></td>
</tr>
<tr>
<td>Who referred by</td>
<td></td>
</tr>
<tr>
<td>1 Referred to</td>
<td>□ Physiotherapy □ Osteopathy □ Shiatsu/massage</td>
</tr>
<tr>
<td>2 Age</td>
<td>□ under 25 □ 26 to 40 □ 41 to 60 □ over 60</td>
</tr>
<tr>
<td>3 Sex</td>
<td>□ male □ female</td>
</tr>
<tr>
<td>4 Marital Status</td>
<td>□ single □ married or cohabiting □ divorced, separated or widowed</td>
</tr>
<tr>
<td>5 How long lived in Stockwell</td>
<td>□ less than 1 year □ 1 to 5 years □ 5 to 10 years □ over 10 years</td>
</tr>
<tr>
<td>6 Time you have had current pain</td>
<td>□ less than 1 month □ 1 to 3 months □ 4 to 6 months □ 7 to 12 months □ more than 12 months □ more than 5 years</td>
</tr>
<tr>
<td>7 How many people have you consulted about the pain?</td>
<td>□ 1 □ 2 or 3 □ 4 or 5 □ 6 or 7 □ more than 7</td>
</tr>
<tr>
<td>8 How do you expect your pain to be in 3 months time?</td>
<td>□ worse □ same □ slightly better □ much better □ gone</td>
</tr>
</tbody>
</table>
SF-36 HEALTH SURVEY

INSTRUCTIONS: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

Answer every question by marking the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is:
   (circle one)
   Excellent ............................................................ 1
   Very good ............................................................ 2
   Good ................................................................. 3
   Fair ................................................................. 4
   Poor ................................................................. 5

2. Compared to one week ago, how would you rate your health in general now?
   (circle one)
   Much better now than one week ago ................................ 1
   Somewhat better now than one week ago ............................ 2
   About the same as one week ago ..................................... 3
   Somewhat worse now than one week ago ............................ 4
   Much worse now than one week ago .................................. 5

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(U.K. Acute Version of SF-36 Health Survey)
3. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>Yes, Limited A Lot</th>
<th>Yes, Limited A Little</th>
<th>No, Not Limited At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c. Lifting or carrying groceries</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d. Climbing several flights of stairs</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>e. Climbing one flight of stairs</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>f. Bending, kneeling, or stooping</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>g. Walking more than a mile</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>h. Walking half a mile</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>i. Walking one hundred yards</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>j. Bathing or dressing yourself</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

4. During the past week, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

<table>
<thead>
<tr>
<th>(circle one number on each line)</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cut down on the amount of time you spent on work or other activities</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b. Accomplished less than you would like</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c. Were limited in the kind of work or other activities</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d. Had difficulty performing the work or other activities (for example, it took extra effort)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
5. During the **past week**, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

<table>
<thead>
<tr>
<th>Problem</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cut down on the amount of time you spent on work or other activities</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b. Accomplished less than you would like</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c. Didn’t do work or other activities as carefully as usual</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

6. During the **past week**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours, or groups?

<table>
<thead>
<tr>
<th>Extent</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>1</td>
</tr>
<tr>
<td>Slightly</td>
<td>2</td>
</tr>
<tr>
<td>Moderately</td>
<td>3</td>
</tr>
<tr>
<td>Quite a bit</td>
<td>4</td>
</tr>
<tr>
<td>Extremely</td>
<td>5</td>
</tr>
</tbody>
</table>

7. How much bodily pain have you had during the **past week**?

<table>
<thead>
<tr>
<th>Pain Level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td>Very mild</td>
<td>2</td>
</tr>
<tr>
<td>Mild</td>
<td>3</td>
</tr>
<tr>
<td>Moderate</td>
<td>4</td>
</tr>
<tr>
<td>Severe</td>
<td>5</td>
</tr>
<tr>
<td>Very severe</td>
<td>6</td>
</tr>
</tbody>
</table>

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(U.K. Acute Version of SF-36 Health Survey)
8. During the past week, how much did pain interfere with your normal work (including both work outside the home and housework)?

(circle one)

- Not at all ................................................... 1
- A little bit ................................................... 2
- Moderately .................................................. 3
- Quite a bit .................................................. 4
- Extremely ................................................... 5

9. These questions are about how you feel and how things have been with you during the past week. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past week -

(circle one number on each line)

<table>
<thead>
<tr>
<th></th>
<th>All of the Time</th>
<th>Most of the Time</th>
<th>A Good Bit of the Time</th>
<th>Some of the Time</th>
<th>A Little of the Time</th>
<th>None of the Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Did you feel full of life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>b. Have you been a very nervous person?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>c. Have you felt so down in the dumps that nothing could cheer you up?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>d. Have you felt calm and peaceful?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>e. Did you have a lot of energy?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>f. Have you felt downhearted and low?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>g. Did you feel worn out?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>h. Have you been a happy person?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>i. Did you feel tired?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
10. During the **past week**, how much of the time has your **physical health or emotional problems** interfered with your social activities (like visiting with friends, relatives, etc.)?

   (circle one)

   All of the time ............................................... 1
   Most of the time ............................................. 2
   Some of the time ............................................. 3
   A little of the time ............................................ 4
   None of the time .............................................. 5

11. How **TRUE** or **FALSE** is each of the following statements for you?

   (circle one number on each line)

<table>
<thead>
<tr>
<th></th>
<th>Definitely True</th>
<th>Mostly True</th>
<th>Don't Know</th>
<th>Mostly False</th>
<th>Definitely False</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I seem to get ill a little easier than other people</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>b. I am as healthy as anybody I know</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>c. I expect my health to get worse</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>d. My health is excellent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
This questionnaire is a follow up to the one you kindly filled in before. Most of the questions are the same, so we can find out how things have changed. Please tick/circle the answers which most nearly apply to you, and return the completed questionnaire in the FREEPOST envelope provided. The envelope does NOT require a stamp.

If we do not hear from you within two weeks, we will contact you once to find out if there are any problems with the questionnaire.

You are not obliged to help with this research, and whether or not you help will have no effect on the treatment you receive from the Stockwell Group Practice. If you do complete and return the questionnaire, you will be helping us to find out how people respond to manual therapy, which may help us to improve treatment in the future.

Date ..........................................................

Your name .............................................................................

Medical Diagnosis (if known) ..........................................................

Since the first consultation with your manual therapist:

1 Have you seen your GP about the SAME problem? yes no

2 Have you consulted anyone else about the SAME problem? yes no

If so, what type of treatment have you had? ..............................................

3 Has treatment helped relieve the pain? not at all slightly moderate amount quite a bit very much

4 Has treatment helped you cope with the pain? not at all slightly moderate amount quite a bit very much

5 Has treatment helped reduce stress? not at all slightly moderate amount quite a bit very much
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>..............................................................................................................................................</td>
</tr>
<tr>
<td>Patient's name</td>
<td>..............................................................................................................................................</td>
</tr>
<tr>
<td>Medical diagnosis (if known)</td>
<td>..............................................................................................................................................</td>
</tr>
<tr>
<td>Who referred by</td>
<td>..............................................................................................................................................</td>
</tr>
<tr>
<td>1 Referred to</td>
<td>☐ Physiotherapy</td>
</tr>
<tr>
<td></td>
<td>☐ Osteopathy</td>
</tr>
<tr>
<td></td>
<td>☐ Shiatsu/massage</td>
</tr>
<tr>
<td>2 Patient's age</td>
<td>☐ under 25</td>
</tr>
<tr>
<td></td>
<td>☐ 26 to 40</td>
</tr>
<tr>
<td></td>
<td>☐ 41 to 60</td>
</tr>
<tr>
<td></td>
<td>☐ over 60</td>
</tr>
<tr>
<td>3 Patient's sex</td>
<td>☐ male</td>
</tr>
<tr>
<td></td>
<td>☐ female</td>
</tr>
<tr>
<td>4 How do you expect the pain to be in 3 months time?</td>
<td>☐ worse</td>
</tr>
<tr>
<td></td>
<td>☐ same</td>
</tr>
<tr>
<td></td>
<td>☐ slightly better</td>
</tr>
<tr>
<td></td>
<td>☐ much better</td>
</tr>
<tr>
<td></td>
<td>☐ gone</td>
</tr>
</tbody>
</table>
**PATIENT ASSESSMENT**

On the basis of your assessment during the first consultation, how much do you agree with the following statements about this patient:

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life has been stressful apart from the pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The pain has caused a lot of stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The pain has caused stress for others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This patient has found it easy to cope with pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This patient has found it easy to cope with stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In managing this patient, to what extent do you intend to

<table>
<thead>
<tr>
<th>Action/Intervention</th>
<th>Not at all</th>
<th>A little</th>
<th>A moderate amount</th>
<th>Quite a lot</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat the physical causes of pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treat the physical effects of pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treat the pain itself</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treat physical tension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treat emotional stress or distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage specific exercises or activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change this patient's response to pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change this patient's response to stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide explanation, information, or knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raise awareness of self limiting actions or attitudes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitate emotional release</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage self control and responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide emotional support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any other comments about this consultation? ......................................................
# PAIN OUTCOME STUDY: FOLLOW-UP PRACTITIONER QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Date</th>
<th>Your initials</th>
<th>Patient's name</th>
<th>Medical diagnosis (if known)</th>
</tr>
</thead>
</table>

1. Patient's age  
- $\square$ under 25  
- $\square$ 26 to 40  
- $\square$ 41 to 60  
- $\square$ over 60

2. Patient's sex  
- $\square$ male  
- $\square$ female

3. How many times have you seen this patient during the current course of treatment?  
- $\square$ 1  
- $\square$ 2  
- $\square$ 3  
- $\square$ 4  
- $\square$ 5 or more

4. Have you made a further appointment?  
- $\square$ yes  
- $\square$ no

5. Have you referred for further treatment?  
- $\square$ yes  
- $\square$ no

If so, what kind  
- $\square$ not at all  
- $\square$ slightly  
- $\square$ moderate amount  
- $\square$ quite a bit  
- $\square$ very much

6. Has treatment helped relieve the pain?  
- $\square$ not at all  
- $\square$ slightly  
- $\square$ moderate amount  
- $\square$ quite a bit  
- $\square$ very much

7. Has treatment helped the patient cope with the pain?  
- $\square$ not at all  
- $\square$ slightly  
- $\square$ moderate amount  
- $\square$ quite a bit  
- $\square$ very much

8. Has treatment helped reduce stress?  
- $\square$ not at all  
- $\square$ slightly  
- $\square$ moderate amount  
- $\square$ quite a bit  
- $\square$ very much
### Appendix 4.2 Patient and practitioner study

#### Item co-ordinates for fig 4.1:

**SF-36 profiles of current sample and normative groups**

2 dimensional proximities plot: Stress .020; RSQ .997

<table>
<thead>
<tr>
<th>SF-36 NORM GROUP</th>
<th>Dimension 1</th>
<th>Dimension 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic illness</td>
<td>0.5</td>
<td>-0.1</td>
</tr>
<tr>
<td>Healthy volunteers</td>
<td>1.4</td>
<td>-0.1</td>
</tr>
<tr>
<td>Minor medical illness</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Psychiatric illness</td>
<td>-0.5</td>
<td>-0.9</td>
</tr>
<tr>
<td>Psychiatric &amp; serious medical illness</td>
<td>-1.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Serious medical illness</td>
<td>-0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>CURRENT SAMPLE</td>
<td>-1.7</td>
<td>-0.5</td>
</tr>
</tbody>
</table>

#### Item co-ordinates for fig 4.2:

**Practitioner pain explanations at initial consultation**

2 dimensional proximities plot Stress:106, RSQ = .956

<table>
<thead>
<tr>
<th>EXPLANATION</th>
<th>Dimension 1</th>
<th>Dimension 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Cause disease</td>
<td>2.2</td>
<td>0.6</td>
</tr>
<tr>
<td>2 Cause injury</td>
<td>-0.0</td>
<td>0.7</td>
</tr>
<tr>
<td>3 Cause work</td>
<td>-0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>4 Cause stress</td>
<td>-0.0</td>
<td>-1.2</td>
</tr>
<tr>
<td>5 Sign of something wrong in life</td>
<td>-0.0</td>
<td>-1.1</td>
</tr>
<tr>
<td>6 Cause situation</td>
<td>-0.7</td>
<td>-0.4</td>
</tr>
<tr>
<td>7 Cause luck</td>
<td>2.6</td>
<td>0.3</td>
</tr>
<tr>
<td>8 Personal meaning</td>
<td>-0.7</td>
<td>-0.4</td>
</tr>
<tr>
<td>9 Understand pain cause</td>
<td>-0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>1 Recovery body</td>
<td>-0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>2 Recovery treatment</td>
<td>-0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>3 Recovery pain coping</td>
<td>-1.2</td>
<td>0.1</td>
</tr>
<tr>
<td>4 Recovery stress coping</td>
<td>-0.0</td>
<td>-1.2</td>
</tr>
<tr>
<td>5 Recovery situation</td>
<td>0.4</td>
<td>-0.1</td>
</tr>
<tr>
<td>6 Recovery luck</td>
<td>2.4</td>
<td>0.0</td>
</tr>
<tr>
<td>7 Recovery understanding cause</td>
<td>-0.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>8 Recovery patient management</td>
<td>-1.7</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Appendix 4.2 Patient and practitioner study

Item co-ordinates for fig 4.3: Practitioner pain explanations at follow up

2 dimensional proximities plot  Stress .098, RSQ = .949

<table>
<thead>
<tr>
<th>EXPLANATION</th>
<th>Dimension 1</th>
<th>Dimension 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Cause disease</td>
<td>1.7</td>
<td>0.7</td>
</tr>
<tr>
<td>2 Cause injury</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>3 Cause work</td>
<td>-0.3</td>
<td>1.1</td>
</tr>
<tr>
<td>4 Cause stress</td>
<td>-0.3</td>
<td>-1.0</td>
</tr>
<tr>
<td>5 Sign of something wrong in life</td>
<td>0.1</td>
<td>-1.4</td>
</tr>
<tr>
<td>6 Cause situation</td>
<td>-0.7</td>
<td>-0.6</td>
</tr>
<tr>
<td>7 Cause luck</td>
<td>2.2</td>
<td>-0.0</td>
</tr>
<tr>
<td>8 Personal meaning</td>
<td>-0.4</td>
<td>-0.2</td>
</tr>
<tr>
<td>9 Understand pain cause</td>
<td>-1.1</td>
<td>0.5</td>
</tr>
<tr>
<td>1 Recovery body</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2 Recovery treatment</td>
<td>-0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>3 Recovery pain coping</td>
<td>-1.6</td>
<td>-0.1</td>
</tr>
<tr>
<td>4 Recovery stress coping</td>
<td>-0.6</td>
<td>-1.1</td>
</tr>
<tr>
<td>5 Recovery situation</td>
<td>0.2</td>
<td>-1.1</td>
</tr>
<tr>
<td>6 Recovery luck</td>
<td>2.4</td>
<td>-0.3</td>
</tr>
<tr>
<td>7 Recovery understanding cause</td>
<td>-0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>8 Recovery patient management</td>
<td>-1.4</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Item co-ordinates for fig 4.4: cluster groups and normative data

2 dimensional proximities analysis  S stress .058 RSQ .982 (n=13 samples)

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>Dimension 1</th>
<th>Dimension 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor medical</td>
<td>1.3</td>
<td>0.2</td>
</tr>
<tr>
<td>Healthy volunteers</td>
<td>1.7</td>
<td>-0.3</td>
</tr>
<tr>
<td>No chronic illness</td>
<td>2.1</td>
<td>-0.1</td>
</tr>
<tr>
<td>Serious medical</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Chronic illness</td>
<td>0.9</td>
<td>-0.3</td>
</tr>
<tr>
<td>Psychiatric &amp; serious medical</td>
<td>-1.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>-0.4</td>
<td>-0.8</td>
</tr>
<tr>
<td>Primary care/ CM</td>
<td>-0.6</td>
<td>-0.1</td>
</tr>
<tr>
<td>Uncertain stress</td>
<td>-1.1</td>
<td>-0.0</td>
</tr>
<tr>
<td>High stress</td>
<td>-1.9</td>
<td>-0.4</td>
</tr>
<tr>
<td>Low stress</td>
<td>-0.0</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Appendix 4.3 Patient and practitioner study

Practitioner pain explanations: initial consultation and follow up

Pearson's correlations: 2 tailed significance levels

<table>
<thead>
<tr>
<th>PAIN EXPLANATION</th>
<th>Initial</th>
<th>Follow up</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease (n=115)</td>
<td>2.3 sd 0.9</td>
<td>2.6 sd 0.9</td>
<td>.57</td>
<td>.000*</td>
</tr>
<tr>
<td>Injury (n=115)</td>
<td>3.2 sd 0.8</td>
<td>3.0 sd 0.9</td>
<td>.55</td>
<td>.000*</td>
</tr>
<tr>
<td>Work (n=112)</td>
<td>3.5 sd 1.0</td>
<td>3.3 sd 1.0</td>
<td>.60</td>
<td>.000*</td>
</tr>
<tr>
<td>Stress (n=114)</td>
<td>3.2 sd 1.0</td>
<td>3.3 sd 1.0</td>
<td>.51</td>
<td>.000*</td>
</tr>
<tr>
<td>Sign something wrong (n=113)</td>
<td>3.1 sd 0.9</td>
<td>3.0 sd 1.0</td>
<td>.54</td>
<td>.000*</td>
</tr>
<tr>
<td>Situation (n=114)</td>
<td>3.5 sd 0.9</td>
<td>3.5 sd 0.8</td>
<td>.53</td>
<td>.000*</td>
</tr>
<tr>
<td>Luck (n=106)</td>
<td>2.2 sd 0.8</td>
<td>2.2 sd 0.7</td>
<td>.40</td>
<td>.000*</td>
</tr>
<tr>
<td>Personal meaning (n=113)</td>
<td>3.6 sd 0.8</td>
<td>3.5 sd 0.7</td>
<td>.19</td>
<td>.044</td>
</tr>
<tr>
<td>Understand cause (n=111)</td>
<td>3.7 sd 0.6</td>
<td>3.6 sd 0.8</td>
<td>.13</td>
<td>.155</td>
</tr>
<tr>
<td>Recovery/ body (n=114)</td>
<td>3.5 sd 0.5</td>
<td>3.2 sd 0.8</td>
<td>.23</td>
<td>.011</td>
</tr>
<tr>
<td>Recovery/ treatment (n=115)</td>
<td>3.5 sd 0.5</td>
<td>3.8 sd 0.7</td>
<td>.24</td>
<td>.010</td>
</tr>
<tr>
<td>Recovery/ pain coping (n=114)</td>
<td>4.0 sd 0.7</td>
<td>3.2 sd 0.6</td>
<td>.25</td>
<td>.007</td>
</tr>
<tr>
<td>Recovery/ stress coping (n=114)</td>
<td>3.2 sd 0.9</td>
<td>3.4 sd 1.0</td>
<td>.65</td>
<td>.000*</td>
</tr>
<tr>
<td>Recovery/ situation (n=114)</td>
<td>3.1 sd 0.7</td>
<td>3.0 sd 0.9</td>
<td>.24</td>
<td>.008</td>
</tr>
<tr>
<td>Recovery/ luck (n=108)</td>
<td>2.2 sd 0.7</td>
<td>2.2 sd 0.7</td>
<td>.07</td>
<td>.421</td>
</tr>
<tr>
<td>Recovery/ understand (n=114)</td>
<td>3.5 sd 0.6</td>
<td>3.3 sd 0.7</td>
<td>.18</td>
<td>.050</td>
</tr>
<tr>
<td>Recovery/ pt management (n=114)</td>
<td>4.1 sd 0.5</td>
<td>3.9 sd 0.7</td>
<td>.19</td>
<td>.039</td>
</tr>
</tbody>
</table>

* Bonferroni correction p=>.003

Patient pain and recovery explanation in cluster groups

One way analysis of variance

<table>
<thead>
<tr>
<th>EXPLANATION</th>
<th>Icon n=36</th>
<th>Symbol n=42</th>
<th>Index n=47</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease</td>
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<td>2.3 sd 1.3</td>
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<td>3.5 sd 1.4</td>
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<td>2.7 sd 1.1</td>
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<td>.003</td>
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<td>1.7 sd 1.0</td>
<td>5.2</td>
<td>.007</td>
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<td>.962</td>
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* Bonferroni correction p=>.003
## Appendix 4.3 Patient and practitioner study

### Patient pain explanations: initial consultation and follow up

Pearson's correlations: 2 tailed significance levels

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<th>PAIN EXPLANATION</th>
<th>Initial</th>
<th>Follow up</th>
<th>Corr</th>
<th>p=</th>
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<td>2.5 sd 1.4</td>
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<td>2.2 sd 1.3</td>
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<td>.000*</td>
</tr>
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<td>.762</td>
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<tr>
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<td>3.5 sd 1.0</td>
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<tr>
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<td>2.5 sd 1.3</td>
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* Bonferroni correction p=>.003
Appendix 5.1 BSO study

Osteopaths questionnaires
This questionnaire is designed to look at the methods you use or have used, in treating patients.

<table>
<thead>
<tr>
<th>Method</th>
<th>How often have you used this treatment?</th>
<th>Have you ever received this treatment?</th>
</tr>
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<td>never</td>
<td>seldom</td>
</tr>
<tr>
<td>Hypnotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acupuncture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spiritual healing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflexology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chiropractic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yoga</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meditation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biofeedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxation</td>
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<td></td>
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<tr>
<td>Physical examination</td>
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<tr>
<td>Homoeopathy</td>
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<td></td>
</tr>
<tr>
<td>Herbal remedies</td>
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<td></td>
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<td>Orthodox medication</td>
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<td>Minor surgery</td>
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<td>Vitamins</td>
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<tr>
<td>Iridology</td>
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<td></td>
</tr>
<tr>
<td>Diet</td>
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<td></td>
</tr>
<tr>
<td>Advice</td>
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<tr>
<td>Counselling</td>
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<td>Psychotherapy</td>
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<td></td>
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<td>Manipulation</td>
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<tr>
<td>Articulation</td>
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<td></td>
</tr>
<tr>
<td>Soft tissue techniques</td>
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<td></td>
</tr>
<tr>
<td>Stretching</td>
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<td></td>
</tr>
<tr>
<td>Traction</td>
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</tr>
<tr>
<td>Distraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhibition</td>
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<td></td>
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<tr>
<td>Muscle energy</td>
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<td></td>
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<tr>
<td>Myo-fascial release</td>
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<tr>
<td>Functional</td>
<td></td>
<td></td>
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<tr>
<td>Cranial</td>
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<td></td>
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<td>Other (please specify)</td>
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<tr>
<td>Other (please specify)</td>
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<tr>
<td>Other (please specify)</td>
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Appendix 5.3  BSO Study: methods used

Item co-ordinates for fig 5.2: Proximities analysis of all treatments used

2 dimensional solution, Euclidean Distance Model (n=74)

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<thead>
<tr>
<th>TREATMENT</th>
<th>Dimension 1</th>
<th>Dimension 2</th>
</tr>
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<tbody>
<tr>
<td>CT1 Hypnotherapy</td>
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<tr>
<td>CT10 Meditation</td>
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<td>CT 13 Relaxation</td>
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<tr>
<td>CT 14 Physical examination</td>
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<td>CT15 Homeopathy</td>
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<td>-0.0</td>
</tr>
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<td>CT17 Orthodox medication</td>
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<td>-0.1</td>
</tr>
<tr>
<td>CT18 Minor surgery</td>
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<td>-0.1</td>
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<tr>
<td>CT19 Vitamins</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td>CT20 Iridology</td>
<td>1.9</td>
<td>0.1</td>
</tr>
<tr>
<td>CT21 Diet</td>
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<td>0.0</td>
</tr>
<tr>
<td>CT22 Advice</td>
<td>-1.8</td>
<td>0.1</td>
</tr>
<tr>
<td>CT23 Counselling</td>
<td>-0.1</td>
<td>0.6</td>
</tr>
<tr>
<td>CT24 Psychotherapy</td>
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<td>0.2</td>
</tr>
<tr>
<td>CT25 Manipulation</td>
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<td>-0.2</td>
</tr>
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<td>CT26 Articulation</td>
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<td>-0.1</td>
</tr>
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<td>CT27 Soft tissue techniques</td>
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<td>-0.0</td>
</tr>
<tr>
<td>CT28 Stretching</td>
<td>-1.6</td>
<td>-0.0</td>
</tr>
<tr>
<td>CT29 Traction</td>
<td>-1.3</td>
<td>-0.2</td>
</tr>
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<td>CT30 Distraction</td>
<td>-0.9</td>
<td>-0.2</td>
</tr>
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<td>CT31 Inhibition</td>
<td>-1.2</td>
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</tr>
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<td>CT32 Muscle energy</td>
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<td>-0.4</td>
</tr>
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<td>CT33 Myo-fascial release</td>
<td>-0.1</td>
<td>-0.7</td>
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<td>CT34 Functional</td>
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### Appendix 5.4 BSO Study: methods used

#### Item co-ordinates for fig 5.3: Proximities analysis of non manual treatments used

Two dimensional solution: Stress = .050; RSQ = .990

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<td>Exercise</td>
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<td>0.0</td>
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<td>0.3</td>
</tr>
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<td>Hypnotherapy</td>
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<td>0.0</td>
</tr>
<tr>
<td>Iridology</td>
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<td>-0.0</td>
</tr>
<tr>
<td>Massage</td>
<td>-1.6</td>
<td>-0.9</td>
</tr>
<tr>
<td>Meditation</td>
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<td>-0.1</td>
</tr>
<tr>
<td>Orthodox medication</td>
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<td>-0.2</td>
</tr>
<tr>
<td>Psychotherapy</td>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Spiritual healing</td>
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<td>Yoga</td>
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<td>Vitamins</td>
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<td>0.0</td>
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<tr>
<td>Advice</td>
<td>-2.8</td>
<td>0.2</td>
</tr>
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<td>Herbal medicine</td>
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<td>-0.1</td>
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#### Item co-ordinates for fig 5.4: Proximities analysis of manual treatments used

2 dimensional solution: S.Stress = .068; RSQ = .983

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<td>Heat</td>
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<td>-0.6</td>
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<tr>
<td>Physical examination</td>
<td>-1.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Manipulation</td>
<td>-0.9</td>
<td>-0.3</td>
</tr>
<tr>
<td>Articulation</td>
<td>-1.2</td>
<td>-0.0</td>
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<tr>
<td>Soft tissue techniques</td>
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</tr>
<tr>
<td>Stretching</td>
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<td>0.1</td>
</tr>
<tr>
<td>Traction</td>
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<td>-0.3</td>
</tr>
<tr>
<td>Distraction</td>
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<td>-0.3</td>
</tr>
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<td>-0.1</td>
</tr>
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<td>Muscle energy</td>
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<td>0.4</td>
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## Appendix 5.5 BSO Study: methods used

### K-means cluster analysis of manual treatments used by osteopaths

Four cluster solution (n=74).

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<td>Broad</td>
<td>Moderate</td>
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<td>1.2</td>
<td>1.6</td>
</tr>
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<td>Heat</td>
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<td>3.1</td>
<td>2.0</td>
<td>2.4</td>
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<td>Soft tissue</td>
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<td>4.8</td>
<td>3.4</td>
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<td>4.6</td>
<td>4.5</td>
<td>3.0</td>
</tr>
<tr>
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<td>4.5</td>
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</tr>
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<tr>
<td>Inhibition</td>
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<td>4.6</td>
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</tr>
<tr>
<td>Muscle energy</td>
<td>1.0</td>
<td>4.2</td>
<td>3.3</td>
<td>2.0</td>
</tr>
<tr>
<td>Myo-fascial release</td>
<td>1.0</td>
<td>4.0</td>
<td>2.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Functional</td>
<td>1.0</td>
<td>4.0</td>
<td>2.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Cranial</td>
<td>1.0</td>
<td>3.2</td>
<td>1.8</td>
<td>4.7</td>
</tr>
</tbody>
</table>

### Analysis of variance: 4 cluster solution to manual treatments used

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>Clu ms</th>
<th>DF</th>
<th>Error MS</th>
<th>DF</th>
<th>F</th>
<th>Prob</th>
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<tbody>
<tr>
<td>Chiropractic</td>
<td>.73</td>
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<td>0.7</td>
<td>70</td>
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<td>Heat</td>
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<td>1.2</td>
<td>70</td>
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<td>1.1</td>
<td>70</td>
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<td>70</td>
<td>37.4</td>
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<td>70</td>
<td>60.3</td>
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<td>000*</td>
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<td>15.94</td>
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<td>0.2</td>
<td>70</td>
<td>58.0</td>
<td>000*</td>
</tr>
<tr>
<td>Traction</td>
<td>14.11</td>
<td>3</td>
<td>0.9</td>
<td>70</td>
<td>15.3</td>
<td>000*</td>
</tr>
<tr>
<td>Distraction</td>
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<td>70</td>
<td>17.7</td>
<td>000*</td>
</tr>
<tr>
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<td>0.4</td>
<td>70</td>
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<td>000*</td>
</tr>
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<td>70</td>
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<td>000*</td>
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<tr>
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<td>14.82</td>
<td>3</td>
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<td>000*</td>
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<td>70</td>
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<td>000*</td>
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<tr>
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<td>28.15</td>
<td>3</td>
<td>1.1</td>
<td>70</td>
<td>25.3</td>
<td>000*</td>
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</tbody>
</table>

* Bonferroni correction p=.003
Appendix 5.6 BSO Study: Treatment effects

Item co-ordinates for fig 5.5:

Proximities analysis of the Treatment Effects Questionnaire

2 dimensional solution Stress .130; RSQ .942

<table>
<thead>
<tr>
<th>TREATMENT EFFECT</th>
<th>Dimension 1</th>
<th>Dimension 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physically fight illness</td>
<td>1.2</td>
<td>-0.2</td>
</tr>
<tr>
<td>10. Feel hopeful about self</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>11. Change unhealthy lifestyle</td>
<td>0.3</td>
<td>-0.0</td>
</tr>
<tr>
<td>12. Protect against illness</td>
<td>0.2</td>
<td>-0.1</td>
</tr>
<tr>
<td>13. Adjust to illness</td>
<td>0.0</td>
<td>-0.3</td>
</tr>
<tr>
<td>14. Stick to healthy lifestyle</td>
<td>-0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>15. Lead well balanced life</td>
<td>-0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>16. Feel in control of health</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>17. Restore emotional well-being</td>
<td>0.1</td>
<td>-0.0</td>
</tr>
<tr>
<td>18. Overcome physical symptoms</td>
<td>2.0</td>
<td>-0.2</td>
</tr>
<tr>
<td>19. Understand their illness</td>
<td>0.18</td>
<td>0.1</td>
</tr>
<tr>
<td>20. Accept illness</td>
<td>-1.1</td>
<td>-0.7</td>
</tr>
<tr>
<td>21. Face real feelings</td>
<td>-0.7</td>
<td>-2.2</td>
</tr>
<tr>
<td>22. Express real feelings</td>
<td>-0.8</td>
<td>0.3</td>
</tr>
<tr>
<td>23. Recognise emotional problems</td>
<td>-0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>24. Resolve emotional problems</td>
<td>-0.7</td>
<td>0.2</td>
</tr>
<tr>
<td>25. Spiritually accept self</td>
<td>-2.6</td>
<td>0.3</td>
</tr>
<tr>
<td>26. Feel hopeful about recovery</td>
<td>1.6</td>
<td>0.0</td>
</tr>
<tr>
<td>27. Change attitudes to health</td>
<td>0.5</td>
<td>0.0</td>
</tr>
<tr>
<td>28. Change attitudes to self</td>
<td>-0.0</td>
<td>-0.0</td>
</tr>
<tr>
<td>29. Restore physical well-being</td>
<td>2.0</td>
<td>-0.0</td>
</tr>
<tr>
<td>30. Correct energy imbalances</td>
<td>1.5</td>
<td>-1.5</td>
</tr>
<tr>
<td>4. Spiritually heal self</td>
<td>2.6</td>
<td>-0.3</td>
</tr>
<tr>
<td>5. Accept self more</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>6. Cope with practical problems</td>
<td>1.4</td>
<td>0.5</td>
</tr>
<tr>
<td>7. Trust own judgement</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>8. Resolve practical problems</td>
<td>0.7</td>
<td>0.4</td>
</tr>
<tr>
<td>9. Spiritually accept illness</td>
<td>-2.8</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Appendix 5.7 BSO Study: treatment effects

Comments from 9 osteopaths on the Treatment Effects Questionnaire

* Treat effect. There are a lot of philosophical overtones to this section and a certain ambiguity with the content of some words such as restore, overcome, recognise (70)

* Effects. What is cure illness? If you include mechanical dysfunction the frequently. If you exclude mechanical dysfunction then occasionally. 12 & 13 same applies. 30 I'm not sure what this means- I probably do this but define it differently. (69)

* The problem with page 4 is you say the Questionnaire is designed to look at my views about my osteo practice- and then ask 30 very specific questions many of which I may feel have nothing to do with the question but I am obliged to answer therefore you are collecting false information. I may have no view on these topics at all, & if spoken to would never mention them, yet you can use this information simply because I've been asked to tick each question. E.g. for Q 1 where do I tick when I think the question is facile- if I tick never my Treatment helps patients never to fight physical illness- not what I mean. I just think its a poorly phrased question so don't know where to tick. What would your conclusion be if 100 osteopaths said treatment never helped patients to spiritually heal themselves. (60)

* I'm sorry to say I found this questionnaire very difficult to complete and had to give up on 2 parts of it. I understand that this is only a first stage, but even so I think the value of trying to collect this type of data by questionnaire is questionable. It is poorly worded and what is being asked is unclear, the type of answers searched for are highly unsuitable to this mode of research (questionnaire) and would be much more suited to open ended interview for instance. I cannot see any useful research being done in this style. Osteopathy is a social science with very unclear boundaries, not a physical science with yes/ no boundaries (63)

* I felt that some of the questions were not totally relevant and feel that in practice that the patient is more concerned with symptom relief- whether that has an effect on spiritual/ psychological bearing I feel that a lot of patients are unaware of as well. The Treatment I give helps patients to.. I found this difficult because only having been in practice one year I don't know what the treatment does. I feel I am just a catalyst who jogs the patient the way they are intending to go anyway so for example I don't think I could persuade a person to spiritually accept their illness if that's not what they're into and nor do I think 1 should do- and that would apply to quite a few things on the list In general I think that the questionnaire e.g. section 2 could benefit from a non applicable column- but I dare say this would bugger up the statistics. Unable to answer spiritual section (52)
* I find this very difficult to express in terms of ticking boxes of 5 possible alternatives. I do not see things as black and white. I do not consider myself an authority on spirituality so I have not answered these questions. I do however consider spirituality to be an essential component of the human psyche. I have seen it change under treatment but offer no comment on this. We are treating people and there are as many symptom and treatment patterns as the world population.

Effects Q3 Define cure, define spirituality. Don't like woolly terms- what do you mean? what energy? Surely only a quack quantifies what he can't define.

Effects Q11- unhealthy lifestyle- like to think I do. Very difficult to decide definitions of most of these statements. Accept- be realistic or passivity? Yes to former, no to latter (22)

* Effects Q3: cure- the difference between this & Q1 is too subtle for me. 4spir- this is part of the holistic approach but I don't talk about God. Q9: isn't this Q2?

Q14- lifestyle- you see my aims are higher than my achievements

Q23- how do I know if they've recognised them?

I found the back page (effects) very hard to answer as I feel my aims & my understanding when treating a pt are not usually clearly stated in these terms. (18)

* It is open ended. The advice for everyday life, to avoid the problem, is easily demonstrated in the treatment, and the treatment therefore merges with everyday life. You will be amused to see that I slightly agree with myself here (14)

* I would like to thank you for asking me to take part I this research and hope that your hard work will bring some light to what we call osteopathy.

I have had difficulties in answering the last page i.e. views about my own osteopathy practice. I find it confusing because the treatment I give to a given patient at a given time may have more than one objective and these may change from one session to the next.
Appendix 6.1 EGOR

Letter to patients requesting participation in questionnaire study

THE EGOR SURVEY: PART 2

A REQUEST FOR HELP FROM OSTEOPATHIC PATIENTS

The Enabling Group for Osteopathic Research (EGOR) is committed to developing the scientific exploration and evaluation of osteopathy. As part of this work, EGOR is carrying out a study of patients' experience of osteopathic treatment. If you would like to help, please complete this anonymous Questionnaire and return it in the FREEPOST envelope provided.

Whether or not you complete this Questionnaire, your osteopathic treatment will not be affected in any way. It will not be possible to identify you or your osteopath individually, and the information you provide will be reported as part of the anonymous results of the group as a whole.

Analysis of the results should be complete by January 1998. If you would like a summary of the findings, please contact:

Helen Allison, EGOR Research Co-ordinator

Thank you for your time
THE 1997 EGOR SURVEY:

PATIENTS EXPERIENCE OF OSTEOPATHY

Please tick the category which most nearly applies to you.

1. Age.

<table>
<thead>
<tr>
<th>Under 20</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>61-70</th>
<th>71-80</th>
<th>Over 80</th>
</tr>
</thead>
</table>

2. Sex.

Male | Female

3. How much bodily pain have you had during the past week?

<table>
<thead>
<tr>
<th>None</th>
<th>Very mild</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very severe</th>
</tr>
</thead>
</table>

4. How much has pain interfered with your normal activities over the past week?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a lot</th>
<th>Very much</th>
</tr>
</thead>
</table>

5. How long have you had your current pain?

<table>
<thead>
<tr>
<th>Less than 3 months</th>
<th>3-12 months</th>
<th>Over 12 months</th>
</tr>
</thead>
</table>

6. How stressed have you felt during the past week?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Quite a lot</th>
<th>Very much</th>
</tr>
</thead>
</table>

7. In general, would you say your health is:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Very good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
</table>

8. In your own case, would you say osteopathic treatment has been

<table>
<thead>
<tr>
<th>Definitely helpful</th>
<th>Probably helpful</th>
<th>Possibly helpful</th>
<th>Probably unhelpful</th>
<th>Definitely unhelpful</th>
</tr>
</thead>
</table>

9. How many times have you consulted your present osteopath for your current condition?

<table>
<thead>
<tr>
<th>Less than 5</th>
<th>5-10 times</th>
<th>More than 11</th>
</tr>
</thead>
</table>

* LN draft
Please complete the following sentences on the basis of your own experience of osteopathy:

10. What I found least helpful about osteopathy is

11. What I have found most helpful about osteopathy is

Is there is anything else which you feel it may be useful for us to know about your experience of osteopathic treatment?

Please return as soon as possible in the Freepost envelope provided to Helen Allison, EGOR research Co-ordinator.

THANK YOU FOR YOUR HELP

* LN Draft
Sample quotes from sentence completion: I think my osteopath can help me by...

PROBLEM DESCRIPTION
Bones, including all skeletal/biomechanical
* bones are out of place (81E1) * rebalancing my bones (62E1)
* correcting mechanical damage i.e. bones out of place (66)
* replacing slipped disc (80) * straightening out my back (201E1)
* a slipped disc in my jaw (16E1) "keeping my spinal cord in alignment (202)
* putting back muscles and bones that have moved (118) * correcting curvature of the spine (263)
* correcting 'fixed' problems through manipulation etc. (135).
* adjusting joints, particularly in the spine when they become misaligned (117)
* relieving the pain in the bottom of my back and by realigning my spine (34)
* keeping my spinal cord in alignment (202) * tension in my joints (17)
* tension in my joints (17) *spinal tightening" (258)
* keeping my spinal cord in alignment (202) * a slight scoliosis of the upper spine (215)

Muscles
* a chronic muscle condition that has not responded to general massage and exercise (68)
* pressure on nerves and muscles (134) * repairing my torn muscles (162)
* muscular tension and stiffness caused by a riding injury (235)
* very tense muscles (170E1) * muscle weaknesses (218E1) * muscular spasms (108E1)

Nerves
* the awful nerve pain I have been having (11)* tension caused by a trapped nerve in the neck (153E1)
* reducing muscle spasms, untrap nerve, reducing pain (108)
* a trapped nerve in my spine (163) * untrapping the nerves in my back (149)
* relieving the nerves in my lower back (194)
*relieving the severe nerve pains in my buttocks thighs and calves" (27)
*manipulation of the joints thus releasing the awful nerve pain I have been having (11)

Body
* making sure my body is in its correct alignment (45)* correcting imbalances in my body (93)
* keeping my body fairly supple and operative (96)* returning my body to a healthy state (235)

Psychosocial
* getting rid of tension and anxiety (257E1)*she is also very helpful in dealing with a... depression (160E1)
* I have really found osteopathy a great help over the years, helping on a very deep level from stiffness and pain to a deep change of moods- & energy flow (42) * relieving pain and stress (125)* calming me (218)
* encouraging some very deep seated tensions to release in a practical way in my body, alongside continuing Alexander work and counselling (229)
* making me understand my problem and regain confidence in myself (266)
* tension, pressure and stress which could be the cause of pain (63E1)

TREATMENT PROCESS
Cognitive aspects of treatment process: explanation and understanding
*finding the reason why I need so many painkillers. I don't know what the problem is (10E1)
* following a physical examination & details about my condition, a full and adequate explanation was given before treatment, which promoted confidence in the treatment received (66E2).
* giving an immediate diagnosis enabling treatment to commence as soon as possible (251)
* dealing with the root causes of my problems (256E1) * finding the cause of the pain (147)
* resolving the underlying causes or proximate causes of recurrent problems- migraine, feelings of unreality, muscular tensions, which otherwise I can only tackle symptomatically ..Also by treating the causes in the posture, and bone and muscle structure of individual bone/ muscle problems, in my case damaged knees and back trouble (70). * finding out exactly what is causing my pain (28)
* The greatest help is knowing why I get headaches and knowing that they are able to be rectified (167)
* Surely its better to treat the cause and not the symptoms (185).
* advising me all about the back by passing on their knowledge (206)
* explaining the reason for the pain. Reassuring me- the course of the pain and long term prospects of a permanent recovery (244)
* a detailed examination and understanding of the problem and the causes (252).
Affective aspects of the treatment process: relationship

- I have seen an osteopath for many years and am very satisfied (13E1)
- He is very good (57) * I am very pleased with their .. dedication (181)
- Saved me operations, visits to the doctor, couldn't have lived without one (228)
- continuing the excellent treatment he has been doing (222)
- its also nice to be able to talk to someone outside the immediate family circle (124)
- I am extremely pleased with the result of this osteopath but the first one I consulted wasn't a lot of use. I now have introduced all of my friends to this osteopath and he has helped them all to date (246)
- hearing problem sympathetically (89E 1) * providing somebody who will listen to me (29E 1)

Behavioural aspects of the treatment process: self help

- advising ongoing activities and lifestyle to best suit my condition- and remind me so that I do not forget (106E1) *advising me all about the back by passing on their knowledge (206E1)
- advising me on suitable treatment (28E1) * giving me advice on how to look after myself (21E1)
- giving excellent advice. Your osteopath can only advise, it is then up to the patient (264E1)
- helping to correct poor posture which can cause serious injuries and ill health (226E1)
- telling me what is wrong with me and putting it right & advice about keeping it right (36)
- discussing causes of back problems, recommending any self treatment if possible (102)
- good advice about the precautions to take to avoid future problems (129)
- giving excellent advice also removal of symptoms (264)
- treating the causes in the posture (70) * self treatment if possible (102).
- suggesting exercises to be done at home to maintain the relief gained from osteopathic treatment (63E1)
- improving my posture which will improve the condition of my back, making life more comfortable (150)
- making me stand up a lot straighter through treatment and exercises (239)
- Guidance as to posture, seating, and exercises to help my back (245) * advising me about exercises (115)
- the whole process takes time, but by taking time it helps strengthen all problem areas and makes you more aware of your body (258E1)
- finding some way to identify the cause of my back problem and advising me the best way to avoid activating it so that I don't have to have treatment on such a regular basis (188E1)
- helping me to help myself and understand myself better all round and to treat me and to help me to treat myself in a manner natural to the universe (208E1)

Descriptions of treatment process: natural, drug free, active

- pain killers and anti inflammatory drugs do not solve the problem (156E1)
- manipulation and natural therapy rather than drugs etc. (18E1)
- usually by giving drug free treatment (20)* The taking of drugs relieve pain but lead to side effects (183)
- The painkillers that my doctor gives me don't help very much (265)* .. I am anti drug (143)
- giving me treatment for a bad arm when the doctor would prescribe tablets (164E1)
- My own GP has only prescribed me with painkillers (28) * I don't want to be dependent on painkillers. (29)
- manipulation rather than drugs I hope- although today I feel dreadful and may need to take painkillers (88) * .no drugs to dull pain (65) * being able to have treatment as and when required (137E1)
- continuing treatment for a back injury sustained 2 years ago for which hospital treatment has ceased (121)
- advice on my particular problem without the necessity of surgery (186)
- having had osteopathic treatments in the past I have had relief from symptoms that I feel would just have been treated by painkillers if I had medical treatment (38E1)
- they seem to know more than a doctor as they are specialists in their field (136E1)
- dealing with the cause of the pain in my leg. My doctor has been unable to help (156E1)
- in the past when my neck went "out" I went to my GP who referred me to the hospital. X ray was taken and they found nothing. After 3 months of agony and the purchase of a surgical collar in desperation I visited a registered osteopath who immediately found the cause (81E1).
- if you go to your GP, he will only give you painkillers, which take away the pain but do not sort the problem out (189E1)

TREATMENT OUTCOME

Pain relief

- releasing the pressure on my spine which is causing great pain. I need to be able to live a normal pain free life (243) * easing discomfort quickly and effectively (31)
- easing the back pain which I have had on and off for several years (33)
- relieving the pain in the bottom of my back and by realigning my spine (34)
- eliminating the back pain I have been suffering from for the past 18 months (40)
- stopping headaches, neck pain and backaches (46) * reducing the pain and swelling of RSI (110)
* My osteopath has seen me through two pregnancies which have been back pain free despite previously chronic lower back problem (227) * easing the pain and discomfort caused by a slipped vertebrae (213) * manipulation of spine after accident. Gives me 2 weeks of being pain free (145E1)

* after 2 treatments with my osteopath the pain in my back was practically gone (183E1)

* I know osteopathy has stopped me being crippled with back pain, sciatica, neck and headaches (242E1)

Mobility
* after 2 treatments with my osteopath the pain in my back was practically gone, and I could walk upright (183E1) * keeping me mobile and more supple that I am (12)

* The treatment seems to improve stiffness and tension in the lower back (19)

* more mobility to a stiff neck (46) * getting my joints moving (61)

* manipulating my spine to relieve stiffness in the joints. Plus keeping the right side SI joint within correct functionality (106) * manipulation of knee and hip joint to give increasing movement (115)

* improving ease of walking by improving circulation (120)

* (has helped me by) manipulation which has relieved pressure on nerves and muscles, and therefore increased mobility (134) * relieving pain and restoring free movement of joints (160)

Normal life
* keeps me active and able to carry on working (71E1) * giving me a much better quality of life (128E1)

* has kept me 'alive' for 30 years!!! (228E1) * Hopefully making me able to resume work (184)

* enabling me to get back to a normal way of life and being able to walk etc. (11E1)

* Treatment has made an enormous difference in my life which conventional medicine has failed to do (12)

* (will be) keeping me going (72) * making life more comfortable (150)

* after a course of cortisone injections & manipulation I was back to normal (81)

* enabling me to move and work without constant pain (149)

* enabling me to return to work much quicker than would my GP (267)

Well-being, relaxation, tension relief
* encouraging some very deep seated tensions to release in a practical way in my body, alongside continuing Alexander work and counselling (229E1) * also to relax muscles in my body, to relieve tension (219)

* untensing neck & back muscles to relieve pain (46)

* releasing the tension built up in my muscles causing headaches and joint pains (232E1)

* making me relax I feel a lot better after visits (61E1) * improving my general well-being (256E1)

* manipulation of joints and massage of the muscles in the relevant areas, if not overall, thereby relieving tension, pressure and stress which could be the cause of pain (63E1)

* gentle manipulation to release tension, which has helped considerably in the past (126E1)

* relieving tension by releasing muscles in my neck and shoulders (127)

* manipulating my body back to the correct way in which it originally worked. I will then not have as much if any backache and feel less tense overall (48)

* helping to relax very tense muscles, by massaging and manipulating an arm broken some weeks ago (170)

* by releasing contracted muscles and tension (45) * making me feel more relaxed (257)

* relieving tension and stiffness in my neck through manipulation, massage etc. (59)

* relaxing my muscles in my back as they seem to be very tensed (22)

* gentle manipulation to release tension, which has helped considerably in the past (126)

Prevention/ maintenance
* explaining how to look after myself as to keeping any further injury or damage to a minimum (197E1)

* explaining in simple terms how it came about and how to avoid it in the future (147E1)

* giving me advice on how to look after myself and point out any danger areas that might be avoided (21E1)

* improving my health generally and improving my symptoms and therefore making me understand my problem and regain confidence in myself (266E1)

* good advice about the precautions to take to avoid future problems (129E1)

* relieving the present pain and telling me how to prevent it returning (175)

* explaining in simple terms how it came about and how to avoid it in the future (147)

* manipulation with immediate results and benefits (81)

* massaging and manipulating my back bone has help me a lot (183)

* I have really found osteopathy a great help over the years (42E1)

* in practice I have found osteopathic treatment effective (64E1) * advising how to keep my back right (9)

* I have really found osteopathy a great help over the years, helping on a very deep level from stiffness and pain to a deep change of mood- and energy flow. If more people were to become aware of the positive effects of awareness and right treatment- depending on injury- we would all be a lot happier. A chronic pain would in general be less, as well as the development of disease" (42E1).
Sample quotes from sentence completion: what I have found most helpful about osteopathy is..

PROBLEM DESCRIPTION

Bones
* TMJ dysfunction & cranial distortion. puts the pelvis joint out of balance (197)
* I have had treatment for disc lesions for 20 years off & on (105)
* my back has been straightened (153)
* one of my legs is a little longer than the other (166)
* a structural back problem, which has not improved with the passing years (170)
* I have been in pain every day for 40 years after a nasty fall damaged my spine (73)
* it has enabled me to live with long term spinal condition (130E2)
* it gets to the root of the problem e.g. one of my legs is a little longer than the other (166E2)
"TMJ (temporo mandibular joint) dysfunction & cranial distortion" (197E2)

Muscles
a chronic muscular problem (191E2)
* helps to relieve muscle-spasm etc. (73)
* Relief from joint and muscle pain, which I have suffered for many years (170)
* I was encouraged to be told I had no serious condition, just very stiff muscles (177)

Location
* It has relieved my back from all its problems (11)
* stiffness and soreness as a result of coccyx injury and tightness of mid back (18)
* I suffered a lot of neck pain (whiplash injury) (31)
* 2 serious accidents during the last 12 months- one a broken left hand & the other broken ribs on my left side & crushed left foot & awful bruises (104)
* I have been an active farmer all these years, at times back trouble, knee problems, rib lesions etc. (20)

Body
* realigning of my body in general (203)
* It makes one more aware of how one's body works (19)
* the way my whole body is being treated (44)
* More understanding of the body muscle structure (159)
* the relaxed feeling of the whole body (97)
* helping my body heal itself naturally (207)
* My problems today are really wear and tear on an ancient body (29)
* she treats me as a whole & not just for the one/ two specific problems (204)
* it is the attitude of mind of all osteopaths, which I have always found positive towards their patients, and their great sense of healing the whole person (29)

Psychosocial/ stress
* Adequate time to talk. I am fortunate in that my osteopath completed part of a medical course and is excellent at explaining what is (& is not) happening over quite a wide range including pharmacology and neurology and even some psychiatry (105)
* It has helped me carry on with day to day normal living, relieving the stress, through the pain I was in all the time (173)
* I first consulted an osteopath re lower back pain in the past 2 years I have undertaken rebalancing/deep cranial osteopathy to 'deal' with the more deep rooted health problems i.e. depression, very bad pre-menstrual syndrome, sinus difficulties with associated headaches etc. As a result my life has been transformed (106)
* its my body's way of a 'stresschecker' moment (207)
* it was helpful to discuss my problems both mental as well as physical (177 E2)

TREATMENT PROCESS

Physical: Manipulation
* manipulation and deep massage (110) * Very competent manipulation (111)
* Skilled at treatment (146) * hands on treatment (161)
* the approach is totally different to that of an NHS physiotherapist (128)
* manipulation eased the excruciating pain of the sciatica (66)
* It is a slow process of healing ....... What I call Bone Cracking (172)
* the manipulation is physically reassuring/ helpful (186)
* also total confidence in the expertise of the osteopath concerned means relaxed attitude, leading to maximum benefit from the treatment (142)
* mainly deep soft tissue pressure- which is painful at the time.. Also, muscle energy techniques, quick gentle thrusts; stretching the muscles, ligaments and tendons ... uses his hands to go deep in the trouble spots- not sparing himself. ... He uses many different techniques. He is always extremely careful and precise in using his hands (45E2)

Cognitive: Explanation/ understanding
* intellectual reassurance which goes with getting professional attention and a good level of information (186)
* if I mention for example that I have some discomfort in my neck, she will then work on it & explain what she's doing (131)
* treatment has been explained fully (92).
* more explanation of what the treatment tries to achieve and how (164)
* My present osteopath makes notes during each visit, and the next session is immediately able to continue with the necessary treatment (200)
* it deals with the causes as opposed to the symptoms (179)
* I have found that the osteopath really understood the root of the problem (180)
* holistic attitude-rather than treating symptoms (88)
* getting to the bottom of an ongoing situation without antibiotics (216)
* gets to the root of the problem (175)  * Got to the root of the pain (27)
* that it has explained what the problem is(95)
* concise diagnosis and explanation of the problem to me (99)
* I know where the pain is coming from (210)
* I was encouraged to be told I had no serious condition, just very stiff muscles (177)
* that everything is explained to me in great detail (120)  * Immediate diagnosis (57)
* the causes of the complaint are explained and lifestyle changes suggested (188).
* More understanding of the body muscle structure (159)
* the recognition of the problem and professional understanding (196)
* the understanding of your problem (93)

Conventional medicine does not find/ treat cause (n=12)
* previously the physiotherapist always "sorted out" my back problems in the short term, but the practitioner has dealt with the underlying causes and vastly improved the status quo (202)
* GP's like to dish out pills when osteopathy is a far better substitute (73)
* The hospital could not find anything wrong with me (151)
* The lack of contact between the osteopath I visited & my GP. I felt he was unable to get down to the basic cause of my problem (51)
* Allopathic treatment was drugs, and radioactive iodine which I found out completely destroys thyroid function leaving one dependent on Thyroxine for life- rather like taking a sledge hammer to crack a nut' and I refused treatment (136)

Affective aspects of treatment process: therapeutic relationship
* I feel very confident about my osteopath being able to help me because of his reputation & methods of treating me (42)
* psychologically supportive, comforting, hope giving... Practitioner- clean, honest, gentle (61)
* I can never be grateful enough to the few osteopaths who have looked after me all these years, they have been wonderful friends to me.... Has looked after me for 20 years at least- I think she is great-most caring and efficient (29)
* the compassion of my osteopath (72)
* The friendly and relaxed manner they have enables me to look forward to the treatment (83)
* Once you have a compatible practitioner, he/ she does their best to alleviate pain (23)
* care & concern not to take any action outside the province (100)
* sympathetic and thorough care (102)  * he is wonderful (130)
* the patience of the practitioner (202)
* the osteopath I see always fits people in as emergencies when they are in pain, however busy he is he gives them as much time as they need (113)
*I see the same doctor, and have built up a good relationship with him. He has treated my whole family (5)
* a sympathetic ear (206) * reasurannce and discussion (125)
* understanding and willing to listen (187) * I feel confident in her care (11)
*I have full confidence in my osteopathist (165) * I have every confidence in him (51)
* my osteopath is not only an osteopath but a listener- for me both go together (172E2)
* mentally I feel the problem is shared with my osteopath which is a great help (83E2)
* he knows what my needs are (5E2)
* his understanding of the pain associated with my condition (72E2)
* understanding of practitioner to related problems (124E2)
* He is... honest and realistic about one's problems. One can totally trust him.. he is also .. extremely encouraging.. For him, it is not a job just to earn a living, but it is intensely important to his to get his patients better. I wish many more osteopaths were like him, as they would also experience, not just temporary benefit in their patients, but long term alleviation of pain and lack of mobility (45E2)

**Behavioural aspects of the treatment process: Self help**
* gentle reminders about correct posture have helped keep me in good shape (198).
* dietary advice based on individual need (136).
* it makes one more aware of how one's body works (19)
* I feel it is important to take the advice given by one's practitioner regarding regular exercise (208).
* my treatment has also increased my balance and suppleness improving my riding and my back posture" (235).
* I am now much better from the discitis thanks to .. the exercises ... prescribed.
* gave me a lot of help with exercise that I can do without injuring my back (168)
* I realise that I now carry my body 'straight'. I suspect that for years I have been living 'lop sided (12)
* a correct diet. recommended by my practitioner (208)
* brought to light practices which may keep the problem away or help it (183)
* Being able to talk about the pain and the positive way in which the osteopath deals with the pain, especially in relation to lifestyle (22)
* diet and .lifestyle all part of the whole situation (88)
* gentle reminders about correct posture have helped keep me in good shape (198)

**Body awareness & understanding (n=6)**
* She gives me feedback on my condition and I feel confident in her care (11)
* everyone should have a yearly check up to make sure everything is where it should be (59)
* Gives sound advice on things to do & not to do (175)
* advice that I have received has helped to considerably ease and improve a chronic muscular problem. (191)

**Quality of treatment process: Drug free, natural, active, constructive**
* treatment minimal to effect a cure (200)
* the gentle holistic approach from my cranial osteopath (201)
* it helps relieve pain without the use of drugs (122)
* not having to take pain killers (80)
* I get relief without taking loads of pills(118)
* It works in a naturalistic manner (16) * the general natural approach (208)
* It's non invasive (19) * a non intrusive and gentle treatment (106)
* Natural means of healing (7) * it has no detrimental side effects, it is not painful (4)
* he does not only treat one specific pain, he treats all health problems (130)
* given the perseverance there are no side effects from treatment as with drugs (49)
* being able to give up anti inflammatory and pain relief drugs (85)
* excellent solution to my aches and pains with no medicine (139)
* applying informed knowledgeable treatment to a chronic muscle condition that has not responded to general massage and exercise (68E1)

**Positive evaluation of osteopathy**
"I have full confidence in osteopathy.. I wouldn't be without it for the world!" (165E2).
* I love it! (65E2)
* I have been very impressed (43E2)
* Very professional service (28) * thorough care (102)
* I am .. grateful for the treatment (120). * excellent (145)
* just to keep up the good work you do now (151).
I think osteopathy is brilliant... I can never be grateful enough to the v few osteopaths who have looked after me all these years... I always encourage friends to 'go to the osteopath'. I have enjoyed being able to write this brief note of gratitude to all osteopathy (29)

Active/ constructive (n=23)
* the reassurance that the osteopath could help (39)
* It is very important for an osteopath to convey a positive attitude and this I have found (107)
* the hope that someone can help to relieve the pain which the NHS seems to say is something I will have to put up with (75)
* treatment of a back complaint by a practitioner who specialises in this type of problem (117)
* the only option that seemed available to me (195E2)
* immediate diagnosis and commencement of a drug free programme of progressive therapy (57E2)

Dissatisfaction with conventional medicine
* conventional medicine could offer no treatment for a neck injury that was causing almost complete physical breakdown (195E2)
* I have a trapped nerve in my spine and in spite of 7 weeks of physiotherapy have had no relief. Several friends have had great success by visiting an osteopath so I thought I would give it a try (163E2)
* breaking the vicious circle of stiffness and pain which I have been unable to resolve myself and which physiotherapy unfortunately only made worse (166E2)
* I would consult my osteopath about injuries. Rather than a doctor who would only prescribe pain killers. Amazing the number of people who choose the latter (159)
* Allopathic treatment was drugs, and radioactive iodine which I found out completely destroys thyroid function leaving one dependent on Thyroxine for life- rather like taking a sledge hammer to crack a nut, and I refused treatment (136).
* the doctors attitude was, it will get better, if not this week then next (198)
* my doctor informed me with a laugh 'you've got sciatica. You'll probably always have it now'. with no suggestion of how to obtain relief (146).
* an improvement on physiotherapy (170)
* able to deal with back problems which normal doctors can do nothing to treat (185)
* On the whole I would rather see an osteopath than GP for back problems (113).
* As opposed to GP's standard referral to a general physiotherapist (117)
* I have found osteopathy an improvement on physiotherapy (170)
* not just bed rest ...as most doctors say (196)
* rather than dispensing a drug, X ray etc. (209)
* I have visited a physiotherapist. The treatment was well executed, but it was the osteopath who corrected my severe pain over several weeks (11)

TREATMENT OUTCOME

Pain relief
* sorting out my neck to get rid of the piercing headaches (167)
* removing the pain I have suffered for the past 2 years (214)
* I have MS so find treatment useful for spasms and pain relief. (21)
* gets me out of pain & suffering (103)
* that it helps to relieve the pain when my back is out of alignment (113)
* there is fairly rapid initial relief after an acute attack of back pain (167)
* Obviously the relief from pain (6) * The relief from aches and pains (30)
* I suffered a lot of neck pain (whiplash injury) for a long time whilst having NHS physiotherapy treatment. After 3 trips to the osteopath I was relieved of it (31)
* that I always get relief from pain (65) * Stops the pain eventually (71)
* with regular weekly treatment my pain is now much less (126)

Mobility
* the only relief I experience is when I receive treatment from my Osteo, who I'm convinced has kept me mobile, for which I am extremely grateful (124)
* but for his help I would be in a wheel chair as I became almost unable to walk 7½ years ago (45)
* freedom of movement. It has kept me mobile as I teach .. dancing (155)
* each treatment is renewing movement in my left foot (104)
* after 5 sessions I am pretty much fully mobile, whereas before treatment I could barely walk. (145)
* feeling supple after treatment (116) * it loosens my muscles (178)
* I suffer with lower back problem and treatment has made a big difference to my mobility and relieved the pain (38)
* I was able to stand for longer periods and walk further without pain (51)
* the general improvement of movement, and ease around the lower back (181)

**Life**
* it has helped me carry on with day to day normal living, relieving the stress, through the pain I was in all the time. My one regret is that I did not seek help with an osteopath sooner, being in pain for eighteen months before I did (173E2)
* relief from pain and increasing my general mobility from many falls and constant contact with livestock, working in the dangerous environment of agriculture (28)
* having my life back (43)
* the big improvement in mobility and reduction in pain most of the time. This of course has transformed my life and the things I am able to do (9)
* able to continue with daily activities of normal living (121)
* it enables me to function again after a back problem (115)
* its adding years to my life, & life to my years (136)
* It has helped me carry on with day to day normal living (173)
* The benefits after 3 sessions was significant from almost incapacity to a point approaching normality (69)
* Relieved my back pain in order that I can carry out basic tasks with relatively no pain (76)
* all this leads to an early result of normality and relief (120)
* I am now able to lead a near normal life than before treatment (126)
* it has enabled me to live with long term spinal condition to lead as much as possible a normal life (130).
* the hope of getting on & doing everyday things & at last managing to do so (90)
* gets me out of pain & suffering & get back to work (103)
* I have been able to continue with my outside or leisure activities, cycling, swimming, squash and keep reasonably fit (6)
* that regular treatment enables me to lead an active life (skiing, sailing, walking)- without it I think I'd have come to a halt...I'm convinced that it is a major factor in my life: most people don't think I am 74! (67)

**Well-being, tension release and relaxation**
* my joints feeling better and well all over (154E2)
* you begin to feel a new person (97)
* osteopathy has not only treated my neck injury but put me more in harmony with my body & well being (195)
*I feel better than I have for years (136)
* the scope that osteopathy covers and the overall effect on your well-being (17)
* It's soothing and relaxing (19) *I found it most relaxing (51)
* my joints feeling better and well all over (154)
* that it is very peaceful, you have a chat which I think helps you relax which must help the pain, being more relaxed (193) * well-being after treatment (123)
* It makes me feel better (15) * feel better too (158)
* unblocks energies. Helps me to feel better (163)
* With my first treatment I slept that night like a baby. I notice the difference straight away, so I had another 2 treatments which I am well pleased with. I am feeling a lot better with my back now (211)

**Prevention/ maintenance**
I have been going to the osteopath for some years- every time I had a problem I used to book in for treatment- this never took more than 2 or 3 sessions. I now try to go along on a regular 2 or 3 month basis even if I am feeling OK. I went along this morning even though I have had no pain for 2 months. I am therefore trying to keep my back and neck in trim as a preventative for the future rather than wait for the problem to arrive. I have found this course of action helpful (176).
* one or two sessions relieve problem for 12 months & on each occasion (138)
* I have now reached the age where problem areas do not mend completely and need to be checked and sorted out from time to time (200)
* My back & neck problems are sorted out in 2 or 3 visits and are fine again for some months (33)
* The long term effects re preventative of future episodes (50)
* 3 monthly treatment normally keeps me free from pain (94)
* I have had treatment for disc lesions for 20 years off & on, and rely largely on bi monthly treatments to keep me mobile (105)
* I have learned that maintenance/ preventative treatment important to health (15)
General helpfulness/ problem/ unspecified
* on the assumption that it is designed to help specific conditions when professionally applied, I have always found it helpful (4E2)
* my osteopath ... has taken me some considerable distance towards recovery. I have been very impressed and I really do owe him my life (43)
* the benefit has been enormous (174)
* it is the best treatment for certain conditions (143)
* From the age of 16 excellent when required (100)
* That it puts right long standing problems (42)
* My complaints have been relatively mild ones, which have been rectified after 1-3
* Quick help to relieve acute symptoms (85) * the relief of many symptoms(156)
* Steady improvement in my condition (53) * treatment minimal to effect a cure (200)
* the improvement seems to be more permanent provided the exercises can be continued (49E2)
*After many enquiries I found there was an alternative way back to health with osteopathy... With osteopathy & natural medicines my thyroid balanced within 16 weeks, my spine is straight & my muscles no longer in spasm and I am progressing nicely..... Although its been a long slog. I feel it has been money well spent to have my health restored naturally & I feel better than I have for years & regained ½ stone in weight. My sister is in nursing, and my father a doctor and at first they were both sceptical. However, both are amazed at my recovery & are very much more aware of alternative therapies. I am not saying it would work for everybody, but it did for me- for which I am thankful (136E2).
Specific activities
*it allows me to carry on working with the relief of discomfort and pain. Some essential jobs that I have to do can cause problems but a visit to the osteopath helps sort it out (91).
* it has alleviated to a degree the pain enough for me to continue in necessary employment. It has certainly interfered with certain leisure activities (74).
* I am confident that with a visit every few weeks I will be able to keep mobile and will enjoy a better quality of life (47)
Alternatives less effective
* I had physiotherapy on my back for 4 weeks before visiting my Osteo, and now after 5 sessions I am pretty much fully mobile, whereas before treatment I could barely walk (145)
* I suffered a lot of neck pain (whiplash injury) for a long time whilst having NHS physiotherapy treatment (31)
* physiotherapy hasn't helped enough, or at all (42)
* I have had more success than with conventional medical treatment for a range of complaints (16E2)
* other problems like menopause/ periods have also been treated better than any medical doctor (5E2)
Fast/ immediate/ instantaneous/ quick effects
* Immediate relief from back pain (5) * the immediate relief I felt (39)
* immediate relief of symptoms following treatment (127)
* that the relief it procures is almost instantaneous (157)
* Recovery is much quicker after treatment (58)
* There was a definite improvement after even the first visit, and more on subsequent visits (51)
* it has almost always had an immediately beneficial effect in reducing pain and speeding recovery and always has a beneficial effect within 24 or 48 hours after treatment (162)
* after 6 months of putting up with a lot of discomfort, the first osteopathy sessions helped enormously to relieve the condition.(128)
"my osteopath is very helpful and friendly. He offers advice on exercises to be done between sessions, although I don't always do them, he is happy to repeat then & change tactics where necessary. The treatment is to going to counter act the tensions of everyday life. Also usually able to get an appointment at short notice" (198E2)
Appendix 6.3 EGOR 2

Sample quotes from sentence completion:
what I found most unhelpful about osteopathy is …

LACK OF ACCESS
Cost of treatment
* Having to pay for it privately (15)
* High cost of each session (88)
* I'm in receipt of income support & disability allowance & this is how I use my money (73)
* There should be a private patients scheme specific for alternative treatments (82)
* Treatment should be covered by BUPA: it is expensive (144)

Not on NHS
* "it's good, it should be available to all on the NHS" (41)
* that it is not available on the NHS (16)
* That it is unavailable as a mainstream NHS treatment (53)
* Whatever increase in such treatment could be made available to people in pain would be wonderful. Thank you (61)
* It would be good for people like myself who have to put up with back troubles for years to try the osteopathy treatment. They may have a surprise (211)
* It would be nice if osteopathic treatment were available (on payment privately or otherwise) as part of a hospital or Drs medical centre (75)
* Limited time available on the NHS. Unsure of length or no of treatments available on the NHS-each case obviously will merit different treatment (61)
*sometimes I am not due to be seen by my osteopath but symptoms have started again & I am unable to get an appointment (127)
* To find a fully qualified practitioner among a variety of semi qualified practices (69)

Lack of contact/ referral from conventional medicine
* I was referred to an osteopath by my local doctor. If doctors were more aware of alternative treatments which are available, it can only help the profession (23)
*I was extremely cross to think that others are suffering pain needlessly because they either can't afford treatment or have not been advised that it is a good/ preferable option (31)
* The lack of contact between the osteopath I visited & my GP (51)
* lack of referral from GP's (124)* GP's lack of understanding of osteopathy (139)
* The physiotherapy told me I had a bad back & osteopathy would not be appropriate for me at that time. Looking back, I do not think this is true. Why the difference between attitudes, between assessments? (11)
* The lack of 'advertising' either directly or by GP's (10)
* generally people with back pain don't think to visit an osteopath (210)
* I don't think there is enough time allotted to each patient - treatment therefore making treatment & cure more painful" (71)
* talking to friends there is still an underlying distrust of 'alternative therapies' anything osteopaths can do to improve this feeling would be useful (44)
* osteopathy needs higher profile. Do more marketing (139)

Ease of access to osteopathy
* The benefit of being seen quickly (5)
* able to see me very quickly when needed (13)
* The speed of getting a full initial assessment (70)
* I can get an appointment fairly quickly when necessary (122)
* treatments are easy to obtain without having to wait weeks for appointments (19)
* the speed of getting a full initial assessment (70)
that it is available privately- quick appointments (75)
* I am into a series of many visits since starting and reaching out for some time yet, needing both a patient confidence and a deep pocket financially to continue towards the hoped for outcome (137)
* receiving treatment in hospitals is not so affective (NHS hospitals) as you are part of many & can't get sufficient time with one expert (37).
"its unavailability when it is most needed (i.e. the appointment system conspires to force the patient to see a -usually less experienced- alternative practitioner or wait several days to see his normal practitioner" (162).

**UNHELPFUL TREATMENT PROCESS**

*Manipulation*
* being given treatment for my back i.e. manipulation, when I felt it was not needed" (113)
* "useful to have more than one in a practice- sometimes need two to carry out a treatment" (13).

*Cognitive aspects of treatment process: Lack of explanation/ uncertainty*
* failure to get to & explain the cause of the problem- present osteopath excepted (48)
* no definite explanation of the cause of the problem (81)
* for those who are not familiar with the function of joints/ muscles etc. an explanation as well as treatment is both reassuring and educative... and to be encouraged (50)
* not being sure that the treatment will bring permanent relief- (81)
* wondering just how long I should go on having treatment after 2 years at intervals of 2/3 weeks (85)
* not understanding the treatment I was receiving. However it is fair to state that whenever I asked I received a full explanation (46)
* not having a time limit to continue treatment for (180)
* uncertainty of the outcome of treatment. Unsure of length or no of treatments available on the NHS- each case obviously will merit different treatment (61)
* the lack of information from some practitioners (110)
* lack of exact diagnosis. Obviously the osteopath can identify the location of the problem in relation to vertebrae, but not necessarily the exact problem, e.g. no X ray facility (117)
* Uncertain diagnostics (190) * little attempt to give a prognosis (128)
* Uncertain outcome (61) * could give more insight during consultation (121)
* Actually understanding what is going on- complicated! (134)
* the lack of information from some practitioners (110)
* one should be informed of any possible reaction e.g. extreme stiffness etc.. Also if say massage is recommended after treatment OR WHATEVER (144)
* one should be informed of any possible reaction e.g. extreme stiffness etc. (144)
* could give more insight during consultation (121)
* I have sometimes felt that I would have liked an X ray or? (can't remember the name- where a picture is shown by sound waves) as in chiropractic or physiotherapy- perhaps this is not appropriate in osteopathy (31).
* that I have no idea what is happening inside me - even though it was carefully explained (no X rays were done a this was a private visit so I couldn't see what had happened or was happening) (198)
* lack of definitive diagnosis (206)
* for a short time the pain may be increased by treatment which can be inconvenient and uncomfortable- warning, advice & reassurance is useful (30)

*Affective aspects of treatment process: Relationship*
* when I first visited an osteopath I was not given a full consultation & was only treated for the neck & resulting headaches. In actual fact these were as a result of an operation on my feet many years ago. My present osteopath luckily sorted all this out & is now treating my whole body (44)
* when I first went to an osteopath I was told a corset would help & it did but wearing it meant I lost the muscles in my back causing more problems. 5 years later I went to another osteopath & she at long last has helped me. Not all osteopaths are competent (90)
* different practitioners have different approaches, even within the same practice. I have consulted one particular practice locally and I have found that 1 (of 3) does a very good job in relieving symptoms, 1 is far less helpful, and 1 is distinctly unhelpful (he has left to pursue other alternative treatment)(23)
* when, in the past, my clinic has not been able to fit me in and the pain was severe, I tried to find another osteopath. I was confused by the difference in the qualifications. Then, when I did find another osteopath, booked an appointment, his way of treating me was not the same as my osteopath. The treatment was more tentative, I was not given manipulation (11)
* I have had a couple of bad experiences (sexual) with 2 osteopaths (in different areas of the UK) but that was a very long time ago (30-35 years ago) & I know from experience that osteopathy has improved 100% (73)
Lack of self help
* I wish that more information were given about exercises to help my condition which is lower back pain. By reading articles in various publications I have found exercises to do, but I think the information should be more readily available (6)
* no advice offered but after asking questions information was forthcoming (153)

Slow/ uncertain treatment process
* Stops the pain eventually (71)
* Also little attempt to give a prognosis to give an idea of how long treatment is expected (128)

Quality of osteopathic treatment process
* you are always a bit sore after treatment (119)
* usually need a few days to get over some tenderness as the result of treatment but not a real problem (47)
* Mainly deep soft tissue pressure- which is painful at the time (45).
* I don't think there is enough time allotted to each patient - treatment therefore making treatment & cure more painful (71)
* it takes a long time and reaction pains can be very heavy (192)
* once the courage is plucked up to stand the treatment (97)
* the aches next day (155)
* I am rather put off by all the cracking of bones, and it takes a lot of pain to get me to the osteopath (120)

Osteopathic treatment outcome: Limited improvement
* regrettably, with my condition (FMS) only continued treatment is beneficial. I wish there could be a cure following intensive treatments (72)
* Osteopathy has not helped the TMJ dysfunction. TMJ puts the pelvis joint out of balance and osteopathy has not helped, though chiropractic treatment has....I have not found one osteopath who can resolve all my symptoms. But by using two or more for various things, it has helped a little, in conjunction with chiropractic treatment. PS my case is exceptional, osteopathy is probably very good for most people (197)
* thought I might only need to attend for a few visits and I would then be fine. However I am having to attend every 2/3 weeks otherwise I stiffen up too much (76)

Not complete pain relief
* My shoulder is still receiving treatment but not much improvement yet (62)
* a numbness and sometimes painful stiffness in my left foot. I now experience this less frequently, but when it returns there is little difference to then, it is said to be so embedded in spinal connections that it has not yet been possible to get release and clear the condition (137)
* the relief from pain is not immediate (135)

Short term effectiveness (n=9)
* if immediate lasting relief of pain does not follow initial treatment (as I imagine it often does) one is left with a worry about just how holistic this discipline is (70)
* short term increased mobility (129)
* that the benefit of the treatment is fairly short lived (157)
* relief of pain for a while. the pain eventually returns (144)
* with some problems only short term relief is obtained (204)
* relief of pain for a while. the pain eventually returns (144)
* short term improvement/ no long term improvement (164)
* that the benefit of the treatment is fairly short lived (157)
* With some problems only short term relief is obtained (204)
* one/ two sessions is insufficient: if the pain is of long standing continued treatment is necessary (135)